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The spot price of wheat at Karachi on the 30th December was Rs. 34-12-0 per candy of 656 lbs. This is for white wheat on a basis of 30 per cent red wheat, 5 per cent barley and 3 per cent dirt; the price of bags included. The price of Indian grey yarn (20's) at Bombay on the 4th January was Re. 0-7-0 to Re. 0-7-9 per lb. and of Muttila Bhawnagar cotton, January delivery, Re. 260 per candy of 784 lbs.

The wholesale spot prices of the undermen- tioned articles in Calcutta on the 5th instant were as under:—

Jute—C. D. M. and Co. (Red) Group	Rs. 36 8 0
per 400 lbs.	
M. per 400 lbs.	32 0 0
Rice—Ballam No. 1 per B. md.	3 12 0
Moong by "	34.
Linseed—Bold 4 $\frac{1}{2}$ per B. md.	34.
Espresso—Yellow, mixed, bold	34.
Cawnpore, 4 $\frac{1}{2}$ per B. md.	34.

The total approximate gross earnings of State and Guaranteed Railways from 1st April to the 18th December, 1909, show a gain of Rs. 1,66,72,740 compared with the corresponding figures for 1908 and are less than those of 1907 by Rs. 39,21,942.

The United States Department of Agriculture issued on the 10th ultimo its annual estimate of the yield of the cotton crop, according to which it will amount to 16,088,000 bales, as compared with 12,920,000 in last year's estimate, 11,678,000 in 1907, 12,546,000 in 1906, and 10,168,000 in 1905. In comparison with last year the Texas crop shows a falling off of 1,340,000 bales, Mississippi a decrease of 540,000, Louisiana a decrease of 190,000, and Alabama a decrease of 250,000 bales. There is not a single State which has a yield in excess of last year's.

In their weekly report on the Shanghai piece-goods market, dated the 9th ultimo, Messrs. Noel, Murray and Co., Ltd., say:—The buying demand for Indian yarn has been nipped in the bud by the continued rise in sterling rates. In consequence of this buyers are lowering their offers, which does not suit the look of foreign importers, although native holders seem more anxious to turn over their stocks and replace for forward arrival. The business reported during the interval from first hands has, therefore, only amounted to some 500 bales at full rates, which are at least a tad over the equivalent of what resales are being made at. The transactions that have come to our knowledge are 50 bales Jamshed (Ring) Compass No. 10's for Tientsin at \$102.50—103.00, 400 bales E. D. Sassoon's Mills Dragon No. 16's at \$110.00 for the River and 50 bales Alliance (Chicken and Deer) (Ring) No. 20's at \$112.00 also for the River. Some further buying has taken place in Bombay for this market at rather higher rupee rates.

The following information is from the Report by Mr. Consul Holland on the Trade of Muscat in 1908-09, which will shortly be issued:—The increase in the imports of piece-goods from £41,634 in 1907-08 to £62,695 in 1908-09 was due principally to the larger import of American sheeting, which reaches Muscat from Aden. The cloth is extensively purchased by the poorer classes, as it is strong and can be dyed to any colour. Each bale is stated to contain 25 pieces of 30 yards each; the price per bale in Aden ranges from £7 10s. 8d. to £9 2s. 8d., and in Muscat from £8 13s. 4d. to £10 2s. 8d. Imports of piece-goods from India and Persia increased by £6,750 and £1,520 respectively. Imports from India consist of articles of European manufacture, such as coatings, trouserings-shirtings, Chintz, etc. Imports from Persia chiefly consist of a dark-coloured cotton stuff with a mixture of

crude silk used for women's costumes; each piece is about 8 yards in length, and the price is 8 dols. (14s.) per piece. The imports of yarn and twist were in excess of the demand, and a large quantity remained on hand at the close of the year.

The following return shows the number of bales of cotton imported and exported at the various ports of the United Kingdom during the week and 49 weeks ended 9th December, 1909:—

	IMPORTS.		EXPORTS.	
	Week ended 9th Dec., 1909.	49 Weeks ended 9th Dec., 1909.	Week ended 9th Dec., 1909.	49 Weeks ended 9th Dec., 1909.
American	Bales. 96,089	Bales. 3,147,846	Bales. 1,893	Bales. 182,581
Brazilian	4,757	51,853	1,063	8,631
East Indian	—	105,228	151	37,006
Egyptian	9,316	494,936	2,156	101,101
Miscellaneous	2,077	132,405†	103	8,843
Total	112,199	3,930,568	5,366	338,162

* Including 47 bales British West Indian and 77 bales British East African.

† Including 6,284 bales British West Indian, 12,447 bales British West African, 10,159 bales British East African and 326 bales foreign East African.

NOTE.—Cotton "in transit" or "for transshipment under bond," if described as such in the ships' reports, is not included in this return.

With reference to experiments in cotton-growing in Angola, the following information is from the Report by H. M. Consul at Loanda (Mr. H. G. Mackie) on the trade of the country in 1908, which will shortly be issued:—In view of the dearth of labour in Angola the local planters have been endeavouring to grow perennial varieties of cotton. With this object in view the Governor-General recently invited the originator of a cotton tree, known under the name of Caravonica, to visit Angola after inspecting the cotton fields of German South-West Africa. It is claimed that the species of cotton, while being superior to the American and Egyptian varieties, does not require re-sowing for 20 years. The originator of the species has pronounced Angola to be well adapted for cotton-growing, and several local firms have entered into contracts with him. It has been agreed that, in return for the gratuitous supply of seeds of the Caravonica cotton to the extent of a little over a pound for every acre planted, all the cotton produced in Angola for a period of 10 years shall be shipped to Bremen, where it will be sold at the market price of the day, and the amount credited to the shipper after deduction of a commission of 10 per cent. Should the trials that are now being made prove as satisfactory as is expected, Caravonica cotton will quickly supersede all the other varieties grown in Angola.

The following information is from the Report by H. M. Consul at Loanda (Mr. H. G. Mackie) on the Trade of Angola in 1908, which will shortly be issued:—Kapok grows in abundance at Icolo e Bengo, Golongo Alto, Cazengo, along the banks of the River Lucalla and in many other places in the district of Loanda. The natives, who are ignorant of its market value, do not collect it, but endeavours have been made from time to time to obtain small quantities for shipment to Europe. A trial consignment was accordingly made to a firm in the United Kingdom last year, but it did not turn out to be satisfactory because the product could not be cleaned and prepared in a suitable form for the market owing to there being no machines in Angola for removing the kapok cotton seeds from the fibre. Cleaning by hand entails too much labour to compensate the native for his trouble, but if labour-saving machines were used the industry might admit of development. It appears to be the intention of the Government to erect a station at Lunuango, on the Congo River, for fibre-extracting by machinery, for which the home Government has voted £400. It is proposed to extract the fibres of the *Sansevieria cylindrica* (bowstring hemp) which grows in a wild state and covers extensive areas close to the coast. The average length of the leaf of the *Sansevieria cylindrica* is stated to be about 6½ feet. Samples of the fibre have been sent to Hamburg and the prices offered were equal to those of sisal hemp.

The Manchester Guardian has received from Mr. H. G. Hester, secretary of the New Orleans Cotton Exchange, the following statement of the average weights of cotton bales handled at the American ports and overland from September 1st to November 30th inclusive:—

	1909.		1908.
	Number of bales.	Average weights. lb.	Average weights. lb.
Texas	1,506,757	519.42	537.67
Louisiana	572,101	512.50	523.26
Alabama, etc.	230,387	515.82	525.17
Georgia	1,153,565	510.26	509.43
South Carolina	162,428	495	470
North Carolina	238,095	499	507
Virginia	303,387	500	490
Tennessee, etc.	339,621	514.16	524.80
Total three months	4,506,341	512.35	522.16
Total Sept. and Oct.	2,993,577	513.17	524.92

It will be seen that the average continues very much below that of last season, and, as is usual, continues to decrease as the season goes on. Georgia and one or two other States keep up very well, and it is notable that the last ginning report showed Georgia to be less than 100,000 bales behind last year's crop, whereas Texas was nearly 1,000,000 bales behind. The smaller the crop the smaller the bale is the rule.

Writing on December 16th the Manchester Guardian says:—Mr. H. G. Hester's detailed figures for the first three months of the cotton season suggest that we have been using up the small crop at a rate that cannot be maintained, and indeed the later cabled records indicate that both Great Britain and the Continent have slackened in their demand. The total distribution for the three months is 6,054,657 bales of a crop generally estimated as about 11,000,000 bales; last year it was 6,628,056 bales out of 13,828,846 bales, and the year before 4,967,833 bales out of 11,581,829 bales. It is remarkable that France in the first three months of the season took 615,438 bales, as compared with 437,230 bales of last season's great crop, and this seems to indicate that French spinners are well provided with cotton at rates well below the highest. North American spinners' takings are 820,221 bales, against 1,003,121 last year, which suggests that if Fall River manufacturers can waive their right to a reduction in wages because they have cheap stocks of cottons their position must be exceptional. The comparative details of the monthly movement into sight are interesting:—

	1909-10.	1908-09.	1907-08.	1906-07.
September	1,347,950	1,221,441	841,329	994,528
October	2,513,252	2,530,171	1,848,305	2,340,943
November	1,941,139	2,595,097	1,930,193	2,382,190
Total in sight				
December 1st.	5,802,341	6,346,709	4,619,827	5,717,661

It will be seen that at the end of November this season's movement was still ahead of the 1906-07 one, though the crop that season reached 13,550,760 bales, and we were still well over 1,000,000 ahead of 1907-08, a season which gave a crop of 11,581,829 bales. This makes it rather difficult to believe in the recent very low crop estimates, though it is significant that this season culminates in October, and, unlike the others, was rapidly on the down grade in November.

The serious difficulties by which American manufacturers and spinners are confronted through the widespread neglect in the United States of contract obligation on the part of the buyer, says the Manchester Guardian of December 13th, have induced them to take united action with a view to minimising the evil. The custom has proved particularly embarrassing to Englishmen—a considerable number—who have taken positions or founded businesses in the States. Until taught by experience it is not realised by everybody that, to quote a prominent New York merchant, "A buyer's orders must be regarded merely as his outside estimate of the goods he may require." American manufacturers have attained such skill in dealing with the abuse that they can usually estimate approximately what percentage of the nominal order may be considered real. Such calculations are, however, by no means infallible, and the increased complexity of the transactions means a considerable loss of business efficiency. The immediate proposal of the

committee which has been considering the question is the adoption throughout the country of a uniform sales note, in which the conditions of the contract shall be much more definitely specified than has previously been the case. Hitherto every firm has had its own form of sales note, generally a very simple one, and the protection afforded thereby has proved almost negligible. It cannot be expected that the most comprehensive contract will put a stop to all abuse, for it is often bad policy to quarrel with a good customer; but the only means by which any improvement can be effected is by the combined action of all sellers. The proposal is therefore a step in the right direction. The new sales note will, of course, deal only with the conditions of sales—not with the prices.

The prices of British corn per quarter of 8 bushels, as received from the inspectors and officers of Excise in the week ended 11th December, 1909, were as follows:—Wheat, 33s. 3d.; barley, 25s. 7d.; and oats, 17s. 3d.

In its issue of December 11th the *Economist* publishes the following paragraph regarding English and German wheat prices:—Last week we published figures supplied by our Berlin correspondent showing the prices of flour and bread in Berlin. Our correspondent informed us that one retail dealer quoted 41 marks per metrical cwt. for the best grade of wheaten flour, and 50 pfennigs per kilogramme for small quantities such as 5 kilogrammes. Converted into English equivalents this would equal 20s. 5d. per cwt. for the former, and 2½d. per lb. for the latter. The same dealer quoted the best grade of rye flour at 35 pfennigs per kilogramme, which is equal to about 2d. per lb. in England. Inquiries from another source obtained quotations of 46 marks per 100 kilos, or 22s. 11d. per cwt. for best wheaten flour, and 28 marks per 100 kilos, or 13s. 11d. per cwt. for rye flour. With regard to bread, a loaf of wheaten bread of average quality bought on Wednesday, December 1st, which weighed 380 grammes, or about 13½ ounces, cost 15 pfennigs, or 1½d. A loaf of rye bread, which weighed a trifle less than 15 kilogrammes, or about 3¼ lbs, cost 50 pfennigs, or about 6d. This works out at about 7½d. a quarter. A very fine quality of wheaten bread, which might be classed as fancy, cost 25 pfennigs, or about 3d. and weighed 240 grammes, or 8½ ounces. We have also before us the regular wholesale price statistics issued by the German Government for the month of October last, which contains the official average prices of various kinds of cereals during the month. The return gives the prices per 1,000 kilos in marks, but we convert them into English money, and give the corresponding price per quarter. We find that the average price of wheat in Berlin during October was 46s. 11d. per quarter (480 lbs.), which com-

pared with 31s. 9d. per quarter (480 lbs.) for London. The duty on the importation of wheat into Germany is 11s. 10d. per quarter. The above figures show that the Berlin price exceeded the London price by 15s. 2d. or by 3s. 4d. more than the duty. The Berlin price for a quarter of oats (320 lbs.) was 21s. 7½d. as compared with 17s. for a corresponding quantity in London. Rye, which is the principal working-class food in Germany, cost 36s. 4d. per quarter (480 lbs.) in Berlin, or was 4s. 7d. per quarter higher than wheat in London, which is the English working-class food. It should be remembered that all the above prices are only averages and do not necessarily apply to the same grade of grain. It is impossible to obtain figures showing the comparative prices of the same sort of wheat imported into Germany and England; but in a published letter sent on February 13th last to a correspondent, Mr. G. J. S. Broomhall, editor of the *Corn Trade News*, said: "In the first place, I would say that all the trade lists publish the price of wheat in Berlin daily. The standard of wheat to which those prices refer is not a very high one. I have a sample before me, and it exactly corresponds with a sample of fair average English wheat almost exactly 60 lbs. to the bushel."

The *Corn Trade News* gives the following summary of the world's crop as on the 14th ultimo:—*United States of America*—Winter wheat had snow protection with lower temperatures but weather turned milder. Area of new crop officially estimated 3½ million acres over wheat seeded 1908, condition high. Receipts light but strike interferes. *Canada*—Receipts and exports very fair, stocks about unchanged. *Argentina*—Our agent says wheat crop reduced 400,000 tons (1,800,000) by frost, weather now favours harvest; others say damage light. Linseed slightly damaged, but maize damage severe. *Australia*—Weather harvest but agent cannot increase estimates, receipts at sea-board light. *India*—Crops have beneficial rains and promise well. *Russia*—Weather unusually mild except northern region, crops generally favourable but sudden frost without snow might do much damage. Azoff ice-free but loading finished. Black Sea and Baltic ports mention stocks maintained, and interior reserves again reported large. *Roumania*—Weather seasonable but snow cover gone; crop conditions favourable. *Hungary*—Weather mild and rainy, crop reports very satisfactory. *France*—Crops generally satisfactory although heavy rains caused floods in north and vermin complained of. Supplies larger. *Germany*—Weather mild, crops favourable. Offerings native wheat liberal but mostly low-quality. Prussian 1909 wheat crop officially estimated rather below 1908 but other crops large. *Italy and Spain*—Crop conditions good, weather favourable. Native supplies fair. *United Kingdom*—Weather too wet for sowing. *North Africa*—Mostly favourable, but sowings delayed interior of Algeria.

The official estimates of the German crops for 1909 are as follows (in tons):—Winter wheat 3,197,888 compared with 3,349,707 in 1908, spring wheat 557,859 against 418,060. Winter and spring rye 11,348,415 against 10,736,874. Oats 9,125,816 against 7,694,833, potatoes 46,706,252 against 46,342,726. The official figures on the Prussian crops are as follows (in tons) compared with 1908:—Winter wheat 1,876,254 against 2,064,241, spring wheat 358,538 against 234,844. Winter rye 8,471,007 against 8,110,115.

The final official statement of the American linseed crop shows that although the area covered 2,742,000 acres, against 2,679,000 acres last year, the production did not exceed 25,856,000 bushels (646,400 tons), or but 51,000 bushels more than in 1908. A better return, however, is shown in the present figures than in 1907, when from 2,864,000 acres the yield was but 25,851,000 bushels. It is remarkable that for the past three seasons the outturn should be almost identical to the unit, but farmers have the satisfaction this season of getting much higher prices for their seed, the value per bushel on 1st December each year being respectively 152½, 118½, and 95½. The above official figures confirm previous advices that America is scarcely in a position to export at all, while the demand therefrom for Argentine seed looks as if the domestic requirements, now computed at 625,000 tons, or 50,000 tons more than two years ago, will not only be taken up, but that crushers are guarding against being so bare of supplies as they were last season. So pushed are the Eastern crushers for supplies that it is reported they will either have to resort to Argentine seed or shut down their mills months before the usual time.

It appears from the final memorandum on the Groundnut crop of the Bombay Presidency (including Native States) for the season of 1909-10 that on an average of the five years ending 1907-08, the area under groundnut in the British territory included in the forecast has represented some 13½ per cent of the total area under this crop in British India. The latest reports (up to December 10th) show the total area under groundnut in British districts is 91,200 acres, and in Native States 33,300 acres. This is 7 per cent below last year's area and 35 per cent over the average of the preceding 10 years. Khandesh and Nasik in the North Deccan and Poona and Satara in the South show some decrease in area which is attributed partly to the deficiency of the water supply in wells and parts at the time of sowing owing to the early cessation of the monsoon and partly to preference given to cotton and other crops. In Satara it is also due in part to non-receipt of complete information from some Talukas. The increase in other districts and states is attributed to favourable sowing rains and to the popularity of the foreign seed distributed by the Agricultural Department. The

season on the whole has been fairly satisfactory. The crop, however, suffered to some extent from deficiency of rain in July and August particularly in the eastern tracts. The subsequent rains have improved it to some extent. The harvesting of the crop began timely in the first fortnight of November and still continues. The estimates of yield reported show that the crop is expected to yield 80 to 90 per cent of the normal in Khandesh, Satara, Belgaum and Kolhapur; about 75 per cent in Poona and Sholapur, and 65 per cent elsewhere. The total outturn stands as under: British districts 96,200 tons and Native States 34,600 tons. This is 1 per cent over last year and 1·20 per cent over the average of the preceding 10 years. Besides the above, about 600 acres with an outturn of 600 tons are estimated to have been under the oil seed in tracts for which statistics are not usually received.

The daily prices of opium per chest for the periods mentioned below were as follows:—

For the week ending 25th December, 1909—

In the Calcutta market—

Behar opium—Rs. 1,837; 1,835; 1,862; 1,877; 1,872; 1,866; 1,870.

Benares opium—Rs. 1,860; 1,860; 1,890; 1,900; 1,895; 1,890; 1,895.

The prices in the time bargains for the Bihar opium of the 1st sale of 1910 were exactly same as mentioned above in case of Behar opium.

In the China market—

At Hongkong—(Exchange Rs. 131½ to 133½ per \$100.)

Behar opium—\$1,415; 1,415 and 1,405; 1,420 and 1,405; 1,420 and 1,415; 1,420; 1,420; 1,420.

Benares opium—On the 20th, 22nd and 23rd instant \$1,440; and on the 21st instant \$1,431.

At Shanghai—(Exchange Rs. 177 to 177½ per 100 taels.)

Behar opium—On the 21st, 22nd and 23rd instant 1,070; 1,080; and 1,085 taels respectively.

Benares opium—On the 21st, 22nd and 23rd instant 1,085; 1,095; and 1,100 taels respectively.

In the Bombay market—

During the entire period of the week (new, 1908-09) Rs. 1,210; (new, 1907-08) Rs. 1,250 to 1,720; and (old, 1906-07) Rs. 1,325 to 1,780. The latest prices at Hongkong and Shanghai were (new) Rs. 1,700 and 1,888; (old) Rs. 1,798 and 1,923, respectively.

A New York correspondent writing on December 16th says:—The financial world was surprised to-day by the announcement of another huge "deal" by Mr. Pierpont Morgan, whose purchase of the Equitable Life Assurance Society only a few days ago made the Morgan house more than a "billion dollar" concern and put the Morgan interests in control of some fifteen or twenty great companies, with an aggregate capital of two and a half billion dollars, or

£500,000,000. To-day's "deal" was the purchase of several independent telephone companies in the Middle Western States and the making of a practical working arrangement between the long-distance system and the American Telephone and Telegraph Company, which recently purchased the Western Union Telegraph Company, and formed a billion-dollar combination. Some time since the Morgans bought the United States Long-distance Telephone Company, and now the purchase of the few outstanding independent corporations and the arrangement with the telephone trust throws nearly the whole telephone system of the United States into the hands of Mr. Morgan and his associates. It is believed by to-day's move in securing the important Middle-West companies, who own the best developed and most valuable systems in the country, that Mr. Morgan forced the combination with the new Trust, and that between them they will crush out all competition in the telephone and telegraph service of the country. The Trust controls something like 8,000,000 instruments with nearly 4,000,000 stations, while the new Morgan purchase owns about 3,500,000 instruments and represents a capital of £70,000,000. These figures show how gigantic the new combination will be and what little chance there will be in the future for independent companies to exist.

One great disadvantage of the blast-furnace system of manufacturing iron is the immense heaps of slag which collect round the ironworks, which are utterly useless. It is claimed for a new invention that it will enable all fresh slag to be most economically utilised and become a really valuable article, and even bring the old heaps of waste slag within its scope at a little extra expense. The invention consists in adding the requisite proportions of sand and sulphate of soda, and in some instances a little lime, to the blast furnace, so as to make the slag into glass. This glass would be cast into blocks or rolled out with or without enclosed wire so as to make artificial slates, paving blocks, building blocks, bricks, slabs, tiles, and the like. In cases in which it is impracticable to charge the sulphate of soda and sand direct into the blast furnace the slag can be run into a reverberatory furnace and the mixed sand and sulphate of soda melted down into the slag. The effect is as good, but it requires considerable standing or agitation thoroughly to mix the slag with the sand and soda, and of course this process costs a little extra in fuel. It is asserted that this invention bids fair entirely to revolutionise the iron trade and the slate trade, as the slates can be made at less than half the expense of Welsh slate, can be polished, made of any size or shape, and green, blue, purple, brown, or any intermediate shade at pleasure. Roofing slates so manufactured are said to be absolutely impervious to rain and are translucent, so that a roof formed of large slabs of this material will not require skylights or windows. The material can also be made into

all kinds of ornamental building blocks, which will be waterproof and indestructible, and, being polished, will always remain bright and the same colour.

Two interesting patents have just been granted in connection with the manufacture of artificial silk. Both are intended to overcome a certain difficulty in this industry, i.e., of producing stable solutions of the ammoniacal copper oxide used in the treatment of cellulose for the production of silk threads, which, on exposure to the ordinary temperature of the atmosphere, rapidly decompose, causing their solvent power towards cellulose to be considerably impaired. The first of the two patents has been granted to a Manchester firm, and the proposal is to add to the ammoniacal copper oxide solution about 1 per cent of either in organic hydroxyl compound such as glycerol or salts of tartaric acid (potassium sodium tartrate) to maintain an equilibrium of dissociation in the solution, together with the provision of oxygen in excess, by the addition of ammonium persulphate, to keep the copper in solution. It is claimed that solutions so treated will keep for months at ordinary room temperature without being impaired. The second of the patents, granted to a German firm, advocates the addition of from 1 per cent to 2 per cent of carbo-hydrates such as glycerine, grape sugar, cane sugar, starch, dextrine, etc., preferably during and not after the preparation of the solution of ammoniacal copper oxide.

Applications in respect of the following new inventions were filed in the Patent Office, Calcutta, during the week ending 27th December, 1909:—H. Wauthoz, manufacturer, 27, Place du Nonveau-Marche-Aux Grains, Brussels, Belgium—Improvements in incandescent oil lamps. S. Bendle, D. I. Smith and T. B. H. Thorne, wine merchants, all of 148, Sloane Street, London, S.W.—A new or improved preparation of a nourishing wine or other alcoholic fluid. Boiler Scalpers, Ltd., 34, Waterloo Street, Birmingham, and F. Gilman and G. F. Clements, engineers, both of Smethwick, Staffordshire, England—Improvements in percussive tools for scaling tubes and for rock boring and the like. J. C. Trainor, 91a, Princess Street, Dunedin, New Zealand—Improvement in discharging elevators for ships. S. C. Davidson, merchant, Sirocco Engineering Works, Belfast, Ireland—Improvements in or relating to tea leaf rolling machines. F. C. Osborn, mechanical engineer, 65 and 67 West Larned Street, Detroit, America—Improvements in or relating to machines for making tubes from continuous strips or bands of paper or other material. C. Watson, A.M.I.C.E., Roslin, Grove Park, London, S.E.—Improvements in draw and buffing gear for railways and the like. T. Gare, engineer, Bramble Beach, Warren Drive, New Brighton, England—Improvements in apparatus for the manufacture of rubber articles from old or waste rubber.

A weaving school is shortly to be established at Dacca under official auspices.

According to the official forecast of January and February rains, it appears probable that the total precipitation of North-West India will reach or exceed the average.

With effect from the 1st instant the rates of postage chargeable on parcels for the German offices in Morocco have been revised and are now as follows:—For a parcel not exceeding 3 lbs. in weight, Rs. 1-14; not exceeding 7 lbs., Rs. 2-5-6; and not exceeding 11 lbs., Rs. 2-13.

The weather conditions in India during the week ended Tuesday last were marked by the passage of a disturbance in Upper India. Unsettled conditions in the central parts of the country caused light to moderate rain in the south-east of the United Provinces and Chota Nagpur. Dry weather prevailed generally.

The Directors of the Bank of Bengal, at their meeting held on Monday afternoon, declared a dividend for the half year ended the 31st ultimo at the rate of ten per cent per annum, and a bonus to shareholders of Rs. 10 per share. The profits available, including Rs. 72,538-6-8 brought forward from the previous half year, amounted approximately to Rs. 1,81,058-9-4, which sum was disposed of as follows:—(1) In payment of a dividend at the rate of 10 per cent per annum, Rs. 10,00,000; (2) bonus at 2 per cent, Rs. 4,00,000; (3) transferred to Reserve Fund, Rs. 2,00,000; (4) transferred to Gratuity and Pension Fund, Rs. 50,000; carried to next half year, Rs. 2,31,058-9-4. Total, Rs. 18,81,058-9-4. The average rate for Demand Loans during the half year was 3-907 per cent.

A paper on the artificial silk industry was read by Mr. W. P. Dreaper at a recent meeting of the Society of Chemical Industry. Mr. Dreaper stated that since 1896 the annual output of artificial silk had increased by 500 per cent and now amounted to 6,500,000 lbs. At present the artificial product had not come into competition with the natural silk to any appreciable extent, although owing to the production of finer counts of superior strength and fastness it was likely to do so in the future. It had been stated that the true elasticity of a cellulose filament was equal to that of real silk, and if this was the fact then there was no reason why a product might not be ultimately obtained which would replace the filament spun by the silkworm. The strength of the yarns of the artificial product was improving rapidly, and was now from 50 to 70 per cent of that of real silk. In the discussion that

followed the reading of the paper the opinion was freely expressed that the future of the artificial material lies in the direction of novel applications rather than in its employment as a rival fabric to natural silk.

The Industrial Conference at Lahore was opened on the 30th December. The Lieutenant-Governor was present. The Maharajah of Dharbhanga was installed as President and delivered an interesting address. One of the matters touched upon by him was the unification of weights and measures in India, and in respect of it he urged that steps should now be taken by Government. The Lieutenant-Governor in his speech alluded to the fact that the kilogramme is almost identical with the *ser* most commonly in use and that for this reason there was passed in 1871 an Act which declared the kilogramme to be the standard weight of the country. This Act still stands on the Statute Book, but it has never been enforced as it was believed that the country was not ready for it. It may be mentioned that the Director-General of Commercial Intelligence during his recent tour has received spontaneous representation from Indian merchants of the desirability of reform in this matter; and it is to be hoped that if such a feeling is general definite expression may be given to it.

We take the following particulars of Australian wool sales from the circular of Messrs. Goldsbrough, Mort and Co., Ltd., dated Melbourne, December 9th:—We report holding our usual weekly wool sale yesterday, submitting 5,429 bales, of which, including private sales since our last report, we disposed of 4,954 bales. The offerings were largely representative of the very choicest Western District, Tasmanian, and Eastern Riverina clips, forming perhaps the finest collection of wools seen in this centre this season. It was not surprising, therefore, that record prices were forthcoming, they being established by the well-known Koolomurt clip from Nareen, which sold up to 21d. for fleece, an easy first in this market. It was well supported by the J. R. Melrose from Horsham, the lambs of which sold at 19½d., also a record for Melbourne, the first lot of fleece realising 18½d., and the second of 60 bales 16½d. In Tasmanian wools, the sup com of the E. S. T/H. G/Rhodes made 18½d., again a record; while Riverina clips sold to 15d. for the A. com E. of the T K/Doodlecooma from Henty. Competition was exceptionally keen, last week's rates being well maintained, except in the case of average to good merinoes, which exhibited, at times, a fair amount of irregularity, while any fine-haired wools showing special qualities realised extreme rates. The smaller parcels and interlotted lots, which, as usual, constituted the bulk of the catalogue, were largely composed of comeback and crossbreds, met with most spirited competition, the prices realised for these lines being highly satisfactory.

The particulars below appear in the Government Resolution on the Report of the Agricultural Department of Eastern Bengal and Assam for 1908-09:—An advance was made during the year in the spread of **potato cultivation**, in the improvement of the class of potato generally sown, and in the methods of cultivation in areas where the crop has already become established. The superiority of the Naini Tal and Darjeeling varieties over the plains product was established and the wide distribution of the 400 maunds of seed of these two varieties imported by the Department will, it is hoped, assist the general improvement of the quality of this crop, which has practically assured for itself the position of an important staple. The experiments conducted in Chittagong with a view to introducing the cultivation of jute in that district have progressed sufficiently to demonstrate that the crop will thrive as well there, in suitable soil, as in other recognised jute-producing districts. With the help of Major Cole's personal interest and care, the **poultry-breeding** operations in the Lushai Hills have met with a considerable measure of success, but it has not been possible to effect much in this direction in any other part of the Province. Government has recently decided to abandon the experiment at the Shillong Farm, and it is hoped that the transfer of the stock to Dacca, and the development of the scheme at the Dacca Central Farm, where it will secure Mr. Meggitt's personal supervision, will result in more practical results than those hitherto attained. It is satisfactory to note that there is a general demand for information on the subject. It is intended to meet this by the publication of a bulletin to be based upon the report compiled by Bahu Ambika Charan Dutt with the addition of notes by Mr. Meggitt. Operations for the spread and improvement of **sericulture** have only recently been directly undertaken by the Department under a trained supervisor. The report shows that the work to be done to place the operations on a sound footing will tax the energy of our officers for some time to come. In particular, the use made of the sums of money granted to passed students of the Sericultural School requires closer supervision, as the Director has pointed out. The system of lump grants is clearly unsatisfactory, and is liable to abuse, and it should probably be replaced by a more cautious system of advances, to be adjusted after inspection and verification of the work done. The infant industry in the Khasi Hills continues to show signs of healthy growth. With the many other direct calls upon its attention, it is not to be expected that the Department can do much for the **encouragement of industries** only distantly allied to agriculture. Signs are not wanting that an organised attempt to improve methods of weaving might meet with very general support. Government has under contemplation the establishment of a separate Department of Industry and Commerce, but, until this is accomplished, its officers cannot give much assistance in the sphere of industrial education or the practical encouragement of indigenous industries.

The **Synthetic Rubber Company**, London, has issued a circular to the effect that the prospects of ultimate success in the production of artificial rubber are not sufficient to justify further expenditure on investigation, and the directors therefore propose the voluntary liquidation of the company.

The following figures represent the quantity and the value of **gold and silver**, imported from, and exported to, foreign countries into and from **British India** during the month of November, 1909:—The total imports of gold were 228,617 ozs. valued at Rs. 1,42,22,475; of these 141,066 ozs. worth Rs. 90,54,466 represented bullion, 83,184 ozs. priced at Rs. 49,13,201 represented sovereigns and other British gold coin, and 4,367 ozs. valued at Rs. 2,54,808 represented other coined gold. The aggregate exports of gold were 50,024 ozs.* priced at Rs. 28,51,786 and of these 49,459 ozs. valued at Rs. 28,14,969 represented bullion, 1 oz.* worth Rs. 1,950 represented sovereigns and other British gold coin, and 564 ozs. valued at Rs. 34,867 represented other coined gold. The imports of silver totalled 6,794,647 ozs. in quantity and Rs. 1,07,08,782 in value; of these 6,641,273 ozs. valued at Rs. 1,03,24,446 represented bar, 134,067 ozs. priced at Rs. 3,57,453 represented Government of India rupees, and 19,307 ozs. worth Rs. 26,883 represented other coin. The total exports of silver were 848,676 ozs.* priced at Rs. 16,23,517, and of these 4,891 ozs.† valued at Rs. 20,385† represented bullion, 281,301 ozs. worth Rs. 7,50,137 represented Government of India rupees, 505,593 ozs.* valued at Rs. 7,54,735 represented British dollars, and 56,891 ozs. priced at Rs. 98,260 represented other coin. During the month the net imports of gold amounted to 113.7 lakhs of rupees while those of silver amounted to Rs. 90.85 lakhs. The figures marked with an asterisk* are defective, the weight of certain postal parcels not being declared by the Post Office and also the figures marked with a dagger† are erroneous, the entry of either quantity or value of bullion not being correctly stated in the Madras export return.

Mr. W. S. Hadaway of the School of Arts, Madras, has written an interesting "**Monograph on Tinsel and Wire in the Madras Presidency**," in which he describes the processes of production and uses of these two articles according to the prevailing native practices. We learn from it that only a small quantity of gold and silver thread is produced by the indigenous methods, these, moreover, not being of very fine quality and finish. As for tinsel, nearly all the quantity used in the Presidency is imported chiefly from France. The author mentions the existence of a factory in Perambur, where machine-made gold and silver threads are made. This factory, which is still in an experimental stage, was started in 1908 by two native merchants who pro-

duced the necessary plant from France. Mr. Hadaway is distinctly of opinion that the manufacture of gold and silver threads on a large scale by machinery would be a highly profitable business in the Madras Presidency, the cost of carriage and cheap labour available being greatly in favour of the native worker.

NOTICES.

INDIAN CROP FORECASTS.

SEASON 1909-10.

Dates of Publication.

The following are the dates on which the general memoranda on crops of the season 1909-10 are expected to be published in the *Indian Trade Journal*:—

RICE—			
Final memorandum	.	February	24, 1910
WHEAT—			
Second	"	March	10, 1910
Final	"	May	26, "
COTTON—			
Final	"	February	17, 1910
LINSEED, RAPE AND MUSTARD (spring oilseeds) —			
Second	"	March	10, 1910
Final	"	May	26, "
SESAMUM—			
Final	"	January	20, 1910
Supplementary memorandum		April	21, "
GROUND-NUT—			
Final	"	February	17, 1910
SUGARCANE—			
Final	"	February	24, 1910

ENQUIRIES.

(For particulars address the Director-General of Commercial Intelligence, 5, Olive Street, Calcutta.)

An asterisk (*) preceding an enquiry indicates that bank references are offered.)

Oil-cake and Seeds.

(566)—A Hamburg firm desires to be placed in communication with exporters of oil-cake and oil-seeds in Calcutta, Bombay and Karachi who would be prepared to make offers by cable and ship c.i.f. Hamburg.

Hoofs and Blood.

(567)—A Government Officer desires to be placed in communication with firms in a position to purchase the hoofs and blood of slaughtered animals in the Punjab.

BOOKS OF REFERENCE.

The following publications have been received and may be consulted by any desirous of studying

them at the office of the Director-General of Commercial Intelligence, 5, Clive Street, where they will be displayed in the ante-room till Wednesday, 12th January, 1910:—

Parliamentary Publications.

Board of Agriculture and Fisheries—Annual Report of the Intelligence Division, 1908, Part II. Colonial Reports—Annual Series—No. 626—Jamaica, 1908-09; No. 627—Swaziland, 1908-09. Municipal Trading (United Kingdom) Part III—Particulars furnished by the Corporations of Birmingham, Nottingham, Leicester, Derby, Wolverhampton, Norwich, West Ham, East Ham, Croydon, and Brighton. United Kingdom—Trade, Commerce, and Condition of the People.

Foreign and Colonial Publications.

Austria-Hungary—Monthly Trade Accounts, October, 1909. Belgium—Monthly Trade Accounts, November, 1909. British South Africa Quarterly Trade Accounts, September, 1909. Bulgaria—Monthly Bulletin of the Director-General of Statistics, October, 1909. Canada—Weekly Trade Report, 22nd and 29th November and 6th December, 1909;—Annual Trade Report, 1908-09, Parts I, III & IV. Greece—Quarterly Trade Accounts, 2nd quarter of 1909. Mexico—Monthly Trade Accounts, September, 1909. Netherlands—Annual Trade Accounts, 1908, Vol. II. Netherlands-India—Annual Trade Accounts, 1908, Part I. Spain—Monthly Trade Accounts, October, 1909;—Estadística del Impuesto de Transportes por mar y a la entrada y Salida por las Fronteras Tercer Trimestre de 1909.

Diplomatic and Consular Reports.

France—Foreign Trade of France for the year 1908 and first six months of 1909. Guatemala—Trade and Commerce of Guatemala for 1908. Japan—Trade of the Consular District of Yokohama for 1908. United States—Trade and Commerce of the Philippine Islands for 1908. Chile—Trade of Iquique for 1908. China—Foreign Trade of China for 1908. Netherlands—Finances of the Netherlands for 1909-10.

Indian Publications.

Memoirs of the Geological Survey of India, Vol. XXXVII—The Manganese-Ore Deposits of India—Part IV—Description of Deposits. Annual Reports of the Agricultural Stations, for 1908-09:—Burdwan; Dumraon; Cuttack; Bankipore; Chabassa Tassar Silk Rearing Station. Forest Administration in the Madras Presidency—Progress Report for the year 1908-09. Report on the Forest Administration in Coorg during the year 1908-09. Report on the Progress of Agriculture in India for 1907-09. Wards and Attached Estates, Bengal—Report for 1908-09.

BUSINESS NOTICE.

All correspondence and remittances relating to the supply of the "INDIAN TRADE JOURNAL" should be forwarded to the Superintendent, Government Printing, India, Calcutta, to whom all bills are payable.

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Retail trade advertisements cannot be accepted.

A full index is published as a quarterly supplement and should be filed for reference.

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The Indian Trade Journal.

THURSDAY, JANUARY 6, 1910.

CENTRAL SUGAR FACTORY SYSTEM.

In our issue of the 11th November, 1909 (page 144), we quoted the opinion of a great sugar authority on the necessity for a radical reform of the methods employed in the manufacture of sugar in India. The authority in question was Mr. Prinsen Geerligs, whose great book on *Cane Sugar and its Manufacture* we had reviewed in our issue of September 2nd last (page 278). We have now been permitted to mention his name as it will obviously add greatly to the weight of the advice given.

Mr. Geerligs also refers us to a paper on certain aspects of the central factory by Francis Watts, C.M.G., D.Sc., F.I.C., F.C.S., which appeared in a recent issue of the *West Indian Bulletin*. From that paper we quote the following passages:—

"Apart from the consideration whether it is desirable to substitute modern factory methods for

muscovado methods in order to increase the profits of the industry, there remains the much more important question whether we may not be driven to make the change in order to preserve the sugar industry."

Later on Mr. Watts goes into the matter in detail. He says:—"Let us now consider the increased stability and improvement of position induced by the production of crystal sugar in large factories. The sugar produced by a factory is of uniform quality, and is in regular demand by refiners. There is therefore a ready market for it in many countries. The sugar is of a quality that will keep and is not subject to loss by draining. It can thus be readily stored and shipped upon advantageous terms. These qualities enable the vendors to secure the best market and take advantage of favourable prices offered in any particular market in a manner which is difficult with muscovado sugar. This is calculated to give stability to the industry which is lacking under a muscovado system, the want of stability constituting a grave danger to the industry.

"The increased value of the output from a given quantity of canes may be taken at something like 35 to 40 per cent. There is thus some 35 per cent more money in circulation under a factory system and trade is proportionately increased. It is true that some of this increase is in the form of interest on capital, but paying investments are good means of establishing a country's credit and increasing its trade.

"It is a mistake to imagine that a factory system owes its success to a reduction in employment and a cutting down of wages; it owes its success to the utilization of what would otherwise be waste, and it gives employment to an increased number of skilled workers engaged in effecting this recovery. The salaries and wages' bills of a factory are larger than the corresponding bills of small muscovado works, but the increased payments are derived from the recovery of sugar wasted in the latter and so benefiting no one. All these points tend to an increase in general trade, with the concomitant advantages of greater general prosperity and an improved revenue. Other contingent advantages of a system of factories should not be overlooked. Such a system affords an opportunity for remunerative employment as engineers, as sugar-makers, and as skilled workers in other directions for some of our young men who now tend to migrate to large

places, while good factories will in themselves constitute educational centres where young men may be trained and so aid in no small degree in elevating the general level of industrial skill.

"The ability to deal promptly and regularly with the canes as they are reaped, coupled with the relief from the anxieties of sugar manufacture should react upon the agricultural aspect of the industry. Cultural operations should be facilitated, because the crops should be reaped in good time and operations which are now imperfectly performed would receive adequate attention. The fact that all the canes would be weighed would enable planters to learn with precision the advantages to be gained by the various systems of cultivating and manuring which are practised, while the introduction of the best varieties of canes would be hastened by the precise knowledge which would be arrived at as to the economic value of each kind. Generally, then, both agricultural and mechanical arts would be appreciably stimulated to the considerable advantage of the sugar industry and those connected with it.

"One of the most important objections in opposition to a change from a muscovado to a factory system is that such a change will profoundly disturb the economic basis on which agriculture in Barbados is founded, in that it will destroy the somewhat small sugar estates and substitute large ones. Now it appears to me that there need be no fear on this head, for the factory system preserves the independence of the small proprietor and strengthens his position. The fact that the small proprietor sells canes instead of sugar and molasses does not weaken his independence, it rather strengthens it, for it relieves him of much work, much expense, and much anxiety. A man with 20 acres of canes may make as good a bargain for their sale to a factory as a man with 200. Opportunity to sell to a factory strengthens his position. So far from a factory system undermining the independence of the small estate owner, it appears calculated to strengthen it and to permit of the economic working of small holdings in a manner which is quite out of the question if every proprietor is to be saddled with the manufacture of his own sugar.

"The question of making sugar in modern factories, under conditions quite similar to those obtaining here, has in recent years been placed on a definite and satisfactory footing by the successful working of such a factory in Antigua. The information necessary for the formation of a sound

opinion as to the applicability of this system to the circumstances of Barbados may now be readily obtained, and the moment seems opportune for a careful consideration of the whole question. You may rest assured that competition in connexion with sugar will grow keener and keener, and the severity of the struggle will be felt season after season in Barbados. The position may be improved while the credit of the country is good, but should adverse circumstances or aggressive competition weaken that credit, the opportunity may be lost. The time has now arrived when the United States produce within their own territories practically all the sugar they need; they therefore cease to come into the world's markets. We may soon even have to contemplate the possibility of the United States having to export any surplus of sugar. Recent events point to the increased attention likely to be given to the production of beet sugar in Canada, and doubtless, in the near future, this will have a marked bearing on Canadian imports. With all this, West Indian sugar will be forced into more and more direct competition with European beet sugar, and with cane-sugar from the East, including Java and Mauritius. If improvements are to be instituted, their inception should be carefully considered now, while the muscovado industry is in a fairly stable condition and possesses good credit. Waiting until the industry promises to be less profitable, or unprofitable, implies waiting until a time when capital will be more difficult to obtain, and waiting perhaps until a time when the industry is moribund and efforts at improvement may come too late."

These passages show that we have correctly diagnosed the present position in the sugar industry of the world, that we have not exaggerated the urgency of reform in India, and that other backward cane countries are fully realising the nature of the problem to be confronted.

—The figures compiled, as usual, by Mr. George Seton, of the Indian Tea Share Exchange, London, show that values of the shares of the forty-five representative tea-planting companies selected by him for particular observation on December 1st remained much as they were, notwithstanding the deduction from the total of about £40,000, paid away during that period in dividends, the greater part of which was deducted from the price of the shares. The market value of 170 companies, with face value of £19,000,000, is given on December 1st, 1909, at £22,900,000. The market for nearly every class of tea, says Mr. Seton, has again been strong.

TARIFF CHANGES AND CUSTOMS NOTIFICATIONS.

THE Board of Trade Journal, published on the 15th ultimo, in the section relating to Customs Regulations, gives particulars about:—

STRAITS SETTLEMENTS.—Proposed Consolidation and Amendment of Liquor Laws.

DOMINION OF CANADA.—Customs Decisions.

COMMONWEALTH OF AUSTRALIA.—Importation of Cotton Goods (British Woven and Foreign Printed). Free Importation of Muriate of Ammonia. Customs Decisions.

HONG KONG.—Imposition of Duties on Intoxicating Liquors. Rebate to Naval and Military Authorities. BRITISH HONDURAS.—Removal of certain Electric Fittings from Free List, etc.

EGYPT.—Revised Valuation Tariff for certain Oils. Valuation Tariff for Cement.

RUSSIA.—Customs Duty on Toothed Wheels for Probable Engines.

SWEDEN.—Provisions respecting the Importation of Margarine, Artificial Fats, and Margarine Cheese.

ROUMANIA.—Special Privileges under Mining and Industrial Laws.

SERBIA.—Establishment of Minimum Rates of Import Duty for certain Articles.

TURKEY.—Prohibition of Export of Wheat and Flour from Syria and Tripoli.

UNITED STATES OF AMERICA.—Importation of Neat Cattle and their Hides. Countervailing Duty on Wood Pulp and Printing Paper from Finland. Customs Decisions.

UNITED STATES OF AMERICA (PHILIPPINE ISLANDS).—Assessment of Duty on Goods "including weight of immediate Containers."

EASTERN BENGAL AND ASSAM.

Crop Reports.

(By Telegram.)

Shillong, Jan. 4th.

THE following is a summary of the weather and crop reports of Eastern Bengal and Assam for the week ending 3rd instant:—

The weather is seasonable. There has been no rain, except light showers on and near the hills.

The harvesting of winter rice is nearing completion and a good outturn is expected. The preparation of fields for the transplantation of spring rice is going on.

The harvesting of sugarcane is progressing with a fair outturn.

The transplantation of tobacco is in progress and prospects are good.

The prospects of tea and wheat are good; mustard and pulses fair.

The average price of common rice has fallen by 1 per cent. Cattle disease is reported in Mymensingh, Malda, Sylhet, Kamrup and the Garo Hills.

CROP PROSPECTS IN RUSSIA.

Grain.

H. M. CONSUL-GENERAL at Odessa (Mr. C. S. Smith) has forwarded the following translation of an article, appearing in the official *Commercial and Industrial Gazette*, on the condition of the winter grain crops on 7th November:—

Nearly everywhere in the Black Earth Zone the young shoots of the winter grain looked bad. The winter crops were unsatisfactory or even bad in the provinces of New Russia (except in the districts of Ismail and Akkerman in Bessarabia and in parts of the Odessa district and in the Crimea, where they were considered satisfactory); also in the provinces of Little Russia on the lower and middle Volga (excepting parts of Samara, Ufa, Kazan, and of Nijni-Novogorod), in the central agricultural provinces (except in the western part of Orel), in parts of Kuban and Stavropol. Everywhere in this vast area the early sown crops had germinated well, but then through long-continued drought had begun to wither, and only where rains fell in early October was there a partial revival of the early sown crops.

The crops looked medium in the provinces of Podolia, Kieff, parts of Chernigov and Orel, Kazan, Samara, Ufa, Perm and Viatka. Here the early sown crops gave good growth, those sown later, however, being less good.

The crops were unsatisfactory in the province of Nijni-Novogorod and in parts of Vladimir, Chernigov, Kieff, and also in Volhynia, Archangelsk, Olonetz, and the Terterritory.

In all other parts the condition of the winter crops was considered fully satisfactory or good. In Siberia and the adjoining Steppe region the winter crops which had been sown early showed good growth; those sown later suffered from the drought and grew slowly even when the rains fell, the night frosts checking their growth. However, the general condition may be considered satisfactory.

On account of the long-continued drought the area sown with winter crops is much below the average—in some cases there is a reduction of 30 to 40 per cent. This was particularly the case in the provinces of Samara, Saratoff, Astrakhan, Don Cossack Territory, Ekaterinoslav, Kherson, Kieff, Podolia, Kharkov, and Poltava, especially in the peasant small holdings. In other parts where the climatic conditions were less unfavourable, the reduction is not so great.

Cotton.

The *Nachrichten für Handel und Industrie* (Berlin), quoting from the official *Commercial and Industrial Gazette* (St. Petersburg) of 10th November, gives the following particulars regarding the Russian cotton crop, which has now in most parts been gathered:—

In Fergana province the yield this year is from 30 to 35 per cent greater than last year, and in parts of the Andijan and Namangan districts 60-70 per cent greater. The fibre is white, elastic, and firm, and better than that of last year.

JAN. 6, 1910.]

THE INDIAN TRADE JOURNAL.

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THE RISE IN SUGAR.

A CORRESPONDENT contributes the following article to the *Times Financial and Commercial Supplements*:—An advance of over two shillings per cwt. in sugar within six months is a fact that comes, or will come, home to the perception of every member of a community which consumes sugar at the rate of 25 pounds per head per annum—not necessarily, of course, all in the form obtained from the grocer. That, however, is the average domestic, not industrial, consumption. But what must strike the observing man who inquires into the facts of the situation is the probability that but for the Brussels Convention the rise in sugar in this country, instead of being two shillings, might have been 20 shillings per cwt. For if the Convention had not put an end to the bounty system on the Continent, the cane sugar industry by this time would have been practically dead, and we should have been entirely dependent on the supplies of the Continental beet growers. And it is the comparative failure of the beet harvest this year that is the real and only cause of the rise in sugar. That advance began in July, when the French speculators began to scent small crops, but when the speculation lapsed the prices again receded a little, until the several beet crops began to come into view. Then the price rose steadily, until 88 per cent beet is now two shillings higher than it was six months ago, and cane sugars are, of course, higher in proportion.

Estimates of Beet Crops.

Month by month, the estimates of the experts of the new crop were reduced not only on the weight of the roots harvested but also on the quality of them. In October, Mr. F. O. Licht thought that he had learnt the worst and that he could depend on a yield of 2,150,000 tons in Germany, 1,273,000 tons in Austria, 810,000 tons in France, 260,000 tons in Belgium, 220,000 tons in Holland, 1,150,000 tons in Russia and 475,000 tons in other countries. This gave a total prospective beet crop of 6,340,000 tons in Europe, but further examination of the sugar-yielding quality of the roots compelled Mr. Licht recently to reduce his estimate to 6,230,000 tons, and his estimate was again reduced yesterday to 6,190,000 tons; even that figure is beyond the manufacturers' expectations, for their estimate in the aggregate is only 5,980,000 tons. Each estimate must be placed against an actual crop last season of 6,517,000 tons. It is obvious that the shortage in the beet crop is serious, and the decrease must be regarded together with a normal increase in the world's consumption, for the consumption goes on increasing year by year in spite of the price, and it will take a much larger advance than has yet occurred to check the consumption.

The Brussels Convention.

To all intents and purposes, then, we should be faced with a prospective shortage of about half a million tons in European needs for sugar were it

In Samarkand the crop is about 10 per cent greater this year than last, and in some places in Kattikurgan even 50 per cent greater. The fibre is better in quality than last year; it is white, pure, firm, and long.

In the Transcaspian region the yield was not so good as last year, either in Merv or in Askabad. In the former, however, the quality of the fibre was better. In the latter it was less satisfactory than in 1908, but was, nevertheless, of the usual colour and fairly strong and soft.

The crop in Bokhara was little different this year from last. The fibre was white, firm, and pure, although in some places somewhat coarse.

The yield in the Borchala district, Tiflis Government, of the *Caucasus* is expected to be greater this year than in 1908. Owing to bad weather and an insufficient supply of labour, the picking cannot at best be finished before the end of December. The quality of the fibre is better than last year, being white, firm, soft, and unusually long.

In the Government of Erivan, the crop was expected to be completely gathered before the end of November. In the districts of Erivan, Surmalinsk, and Echmiadzin it is anticipated that the yield will be 10 to 15 per cent greater than last year; the fibre is white, soft, and silk-like, and firmer and longer than in 1908. In the Nakhichevan district a crop 10 per cent greater than in 1908 is expected; the quality of the fibre is good.

—Writing from Port Louis on December 10th regarding the Mauritius sugar market, Messrs. Myth Brothers and Co. state:—We last addressed you on 8th ultimo and we have now to advise that our market has continued to advance and prices rapidly rose to Rs. 10-8 at which we think at least 100,000 bags were sold and we are inclined to believe was more, for brokers do not appear to have any stocks of whites in town which tends to show they have disposed of more than they tell us. The weak financial position of many buyers may, we think, cause our market to weaken during the next fortnight, but planters will be applying for payment of their stores and we doubt if the bulk of the native speculators can afford to pay without reselling their purchases. We may prove wrong but we can see signs of weakness already and unless Europeans can step in and buy at present high rates, which seems doubtful, we fear a temporary decline is inevitable. There has been more enquiry by South Africa for Yellow Crystals, and Finest Whites do not appear to tempt them, though the prices of same appear to us to be cheap as compared to that for Yellow Crystals. White Syrups are not being bought. Crystals. White Syrups and Yellow Counters sell this year by natives, and the weather has been very favourable for the present crops, and as the extractions are improving we must revise our previous advices and estimate the crop at fully 90 tons and possibly more. The want of rain affecting the young plantations, but no real harm has been done.

not for a most welcome increase in the production of cane sugar, and that increase could not and would not have occurred under the bounty system. Had the bounty system continued a year or two longer the cane plantations of the sugar-growing colonies would have been now neglected wildernesses, and we should have been forced to take our whole supplies of raw sugar from the Continental beet growers. These growers would always have commanded the market, and with such a shortage (due to weather) as that now before us would have made the price a famine one. And as a matter of fact but for the Brussels Convention we should really have been in a state of sugar famine, for the beet industry has not increased under the new conditions in the same proportion as the cane sugar industry. In 1899-1900 the beet sugar crop was 5,523,000 tons, and in 1901-02 it rose to 6,235,000 tons, which was more than the yield of the present season. Under the bounty system the production of cane sugar was reduced to about $3\frac{1}{2}$ million tons (excluding India and China, which consume their own production), and since the Convention the production of cane sugar has increased to double what it was under the bounty system.

Production of Cane Sugar.

It is cane sugar that is now going to save us from famine prices—cane sugar that would not have now been a commercial entity but for the Convention. In the season 1907-08 the world's production of cane sugar (including, however, India though not China) was 6,912,520 tons; in 1908-09 it was 7,607,394 tons; and in the present season it is computed that crops will yield at least 7,900,000 tons, and perhaps as much as 8,000,000 tons. Ten years ago the production of beet sugar was practically double that of cane; to-day the production of cane sugar is practically $1\frac{1}{2}$ million tons more than that of beet. Therein lies our salvation. The estimate of the American cane sugar crops this season (that is to say of both North, South, and Central America and the West Indian Islands) is 3,969,000 tons, as against 3,680,000 tons last year. That estimate includes Cuba, and Cuba is the real saviour of the situation, although practically all the Cuban sugar now goes to the United States under the Reciprocity Treaty. But in the United States it takes the place of sugar that would otherwise have to be imported from the British West Indies or from the Far East of from Europe. Taking into consideration Cuba, the United States is now able to supply all its own sugar needs from within its borders and from its own dependencies. The development of the sugar industry in Cuba under American supervision and with the assistance of American capital has been considerable. At one time under Spanish occupation the sugar crop of the island reached a million tons, but that was in its palmy days. Then came its time of adversity, and during the war between Spain and America the crop dropped to 200,000 tons. In 1907-08, however, it was raised to 960,000 tons;

in 1908-09 it reached 1,455,000 tons; and this season it is expected to be at least 1,700,000 tons, and some even predict more. Now all this Cuban sugar may go to the United States, but the increase of the Cuban crop almost makes up for the shortage in the European beet crop, while the increase in the cane crop elsewhere is also good. The world's consumption, which increases at the rate of about 4 per cent per annum in normal times, may be taken at about $14\frac{1}{2}$ million tons, and the world's total crop of both beet and cane sugar in the season 1909-10 will practically equal that. There will be little margin either way, but probably a small margin on the right side, though not realizable until later in the season.

Visible Supplies.

The total stock of raw sugar in Europe and America in November was 517,338 tons, as against 682,029 tons at the corresponding date last year—a decrease of 164,682 tons. The total visible supply in stock and afloat was 610,333 tons, as against 799,629 tons, a decrease of 189,296 tons. That decrease will doubtless be found to be greater when the statistics for the current month are compiled, for the drain on the stocks has been considerable on the rising market. The beet crop will command the situation until the new cane crop begins to come forward, so that we may see a further rise in price. But only for a time, for the cane crop will be quickly placed on the market and the stocks, visible and invisible, in all the producing countries will be attracted forward by the present prices. There will not be a plethora, but there will be no dearth of sugar this season, and planting will receive a further impetus.

—There is reason to believe that a good market for Indian timber exists in Baghdad. Like all new markets, this particular one requires developing, and this might best be done by means of sufficient samples and an active agent to push business. In all events, we are informed on good authority that the following Indian timbers are likely to find a ready sale there: *Tectona Grandis*, *Delbergia latifolia*, *Adina Cordifolia*, *Mesua Ferrea*, *Dysoxylum*, *Tomentasium Aglaia Roxburghiana*, *Calophyllum*, *Fisticia Magnifica*, or *Elalum*, *Diospyros Ebenum*, *Swietenia*, and two other sorts of timber grown in Mysore as “Masi” and “Kara.” But the timber from the north of Mesopotamia is available, a kind of scarce and dear. The timber and varying from 5 poplar, is about 25 feet in length, or midway between the inches to 12 inches in diameter. The prices, according to the local market, are from Rs. 5 to Rs. 30 per pole according to the quality. If a better sort of timber could be obtained at a reasonable price to take the place of the local product, it would probably be welcomed by the local dealers hesitate to risk importing foreign timber, the characteristics of which are unknown to

LOSS OF WEIGHT OF RAW SUGAR.

Method for its Prevention.

A CORRESPONDENT contributes an article on this subject to the *Zeitsch. Zuckerind. Böhm.*, of which the following is an abridged extract:—Recently we repeated the analysis of a raw sugar which had been kept for about two months in a well-closed tin box. An increased polarization of 0.7 per cent was found, which was naturally attributed to the drying of the sample. This has induced us to consider the question of the changes which may occur in the composition of raw sugar samples, when preserved for reference, or when packed for despatch through the post.

Preservation in Tin Boxes.

A number of tin boxes, such as are generally used for sending away samples, were filled with first-product sugar from different provinces, then closed and weighed within 0.01 gm. on a strong balance. They were then placed in a normally heated room, and the weighing repeated every 7 days. From the results obtained it was apparent that:—

(1) In all cases loss in weight through drying had taken place.

(2) The decrease in weight for each period of 7 days was irregular. This is to be accounted for by the fact that the position of the boxes was changed from time to time; and that, whilst transferring the boxes to the weighing room, their contents were mixed to some extent through shaking, so that the particles of sugar near the openings were replaced by those less dried.

(3) There were considerable differences in the losses in weight, these varying from 130 to 2,950 mgrms. in about 35 days. These are due to the irregular fitting of the lids, and in some cases to openings in the boxes themselves.

(4) The total decrease in weight, calculated upon 100 parts of sugar, amounted to from 0.106 to 1.144 per cent in 35 days, or from 0.003 to 0.036 per cent in one day.

From these conclusions it is obvious that the drying of raw sugar samples in tin boxes, especially in those with badly-fitting lids, leads to very appreciable errors, and can cause discrepancies in the results of different chemists if for any reason the samples are put aside for some time before analysis.

But it may be pointed out that the paper wrapper with which the boxes are enveloped for transmission through the post is capable of preventing to some extent the drying of the sugars. To ascertain this, boxes were filled with raw sugar and weighed, then wrapped in a double envelope of stout paper, and allowed to remain for 10 days in the heated room as before. From the results obtained it was apparent that drying is not thus prevented.

Preservation in Glass Bottles.

A number of stoppered glass bottles were filled with raw sugar, the stoppers of some of these were

inserted without taking the precaution of removing any particles of sugar remaining in the neck of the bottle; whilst with the remainder the neck of each bottle was carefully cleaned before being closed. The weights were then taken, and the bottle placed in the normally heated room.

From the figures found on weighing it follows that:—(1) The bottles with clean necks decreased less in weight than those in which the tight fitting of the stopper was prevented by ground sugar particles. In the first case the decrease was on an average 53 mgrms. in 68 days, whilst in the second it was 102 mgrms. during the same period of time. (2) The average loss in weight, viz., 82 mgrms. in 68 days, amounts to only some hundredths per cent, and can therefore be regarded as quite negligible. The preservation of raw sugar samples in stoppered bottles seems in this respect to be without objection.

Their transmission through the post is, however, apart from the increased cost, very inconvenient. The bottles themselves often weigh more than their contents, and they must be provided with stout wrappers, or else packed in a small case. It is for these reasons that tin boxes with more or less well-fitting lids are generally employed, at any rate by us.

Preservation in Hermetically Sealed Tin Boxes.

We have endeavoured to find a convenient material for hermetically sealing the boxes, and have found it in ordinary caoutchouc plaster, the so-called “Leukoplast.” It is sold in 10-metre spools of different widths. The cotton cloth serving as basis is covered over with a sticky, anhydrous surface, consisting of zinc oxide, caoutchouc, and a non-drying solvent. By slightly pressing the “Leukoplast,” it adheres firmly to the tin, and it can be removed again without difficulty when the box is to be opened.

For plastering the boxes we prefer strips 14 cm. in width. The air-space between the lid and the bottom is covered over with a piece of the plaster about 5 cm. longer than the circumference of the box, and smoothed down with the blade of a knife or with a piece of glass. Care must be taken that the strip has neither folds nor crases, and also that the surface of the box is quite dry. If the “Leukoplast” does not stick, it is warmed by passing it through a flame. To open a box thus sealed the end is simply loosened and the strip drawn off.

On repeating the drying experiment with boxes rendered air-tight with “Leukoplast,” the results were very satisfactory. After 32 days the minimum and maximum figures were 0 and 60 mgrms. respectively. Since the latter figure corresponds only to 1.8 mgrms. on 280 grms. of sugar per day, the loss which can take place under such circumstances is trifling. The bottoms of boxes should be examined and those which are imperfectly soldered should, of course, be rejected, or else the openings covered with a strip of “Leukoplast” in the manner described.

THE PRESENT POSITION OF THE GAS ENGINE.

We take the following particulars from an article in the *Times Engineering Supplement* of December 15th:—The present year will long be remembered as the year in which the internal combustion engine demonstrated with triumph its ability to achieve the oft-sought "conquest of the air." Designers are not likely, however, to rest even on such brilliantly won laurels as these; so it seems that the time has come to take a stock of the present position of the gas engine, and to see how far it has maintained its character of being by far the most efficient form of all heat engines. Its old rival the steam engine has greatly advanced in fuel economy. Engineer Vice-Admiral Oram, the Engineer-in-Chief of the Fleet, in his recent presidential address before the Junior Institution of Engineers, stated that with the latest warships of the "Indomitable" class the steam turbines, when working at full load, show a fuel consumption equivalent to 12 lbs. of steam (at 123 lbs. per square inch) per shaft horse-power per hour—and that without the employment of super-heating. This is a great improvement on what has hitherto been thought possible, as it corresponds to a thermal efficiency of no less than 19 per cent, a figure hitherto associated with tests on internal combustion engines rather than steam engines.

The brake thermal efficiency of the internal combustion engine has increased from about 14 per cent in 1882 to about 35 per cent to-day, or almost double that of the steam turbines above mentioned. So that, despite the efforts of the steam engine to catch it up, the gas engine is still well ahead in the race. This record sounds very favourable to gas engineer, but it is time for a warning note to be sounded. The gas engine is rapidly approaching the limit of what is possible with the present cycle (the Otto cycle), on which fully 90 per cent of such engines work, and some radical step in the method of operation has now to be taken if the engine is to make anything like the advance in fuel economy in the next ten years that it has done in the last ten. This circumstance leads to an interesting situation.

Up to a comparatively recent date it had always been customary to measure the performances of gas engines against what is known as the "air standard of efficiency," a standard based on the assumption that a given amount of heat increases the temperature of a mass of gas by exactly the same number of degrees, no matter whether its temperature is that of the freezing point of water or that of the melting point of silver. Thus it might happen that, for a gas engine showing a thermal efficiency of, say, 30 per cent, the "air standard" would prescribe 50 per cent as the theoretically attainable figure. This would leave a 20 per cent margin to be made up, so affording room for further improvements to be made. The basis of this old standard of efficiency has since been shown to be incorrect, and scientific men have lately made a new one which is based on the latest ascertained facts. It is found that instead

of the gas engine above referred to having achieved what may be called a figure of merit of 30 points out of a possible 50, it really obtained 30 out of a possible 35. This leaves but little room for improvement, as there must always be some "clearance" between what is scientifically possible and what can practically be obtained.

This discovery is of vital importance, and it is necessary to consider the results to which it leads. But before doing so some reference is due to the committee whose work has definitely confirmed the long-entertained suspicions of some engineers that the old standard was a misleading one. The committee in question was appointed at the Leicester meeting of the British Association in 1907 to report on the subject of "Gaseous Explosions." The names of the most active members are Mr. Dugald Clerk and Professors Hopkinson and Callendar. Their first report was presented at the Dublin meeting last year, and their second at Winnipeg this summer. The reports are long and detailed, and it is not possible in a brief summary to do justice to them. But it may be mentioned that all previous experimental work in this subject was carefully scrutinized, and additional experiments were devised and carried out. The most important conclusion was that the specific heat of the products of explosion in a gas engine, so far from being independent of the temperature, is some 25 per cent greater at 1,400 deg. cent than at 0 deg. cent, and the committee published a curve showing the results for other temperatures also. The figures given in the committee's report are far from final, and further experiments are being made which, it is hoped, will carry the curve on to 3,000 deg. cent, and establish a much greater exactitude than the five per cent accuracy, which is all the committee feel they can claim at present. It is to be earnestly desired that by the time the third report is presented the committee will have such definite experimental results before them that they will be enabled to lay down a curve of specific heats from 0 deg. cent to at least 2,500 deg. cent, with an accuracy throughout of two per cent. When that has been done engineers will be able to frame a new standard of performance in accordance with the new facts.

We now return to the discovery that the best existing gas engines are very close to the limit of theoretical efficiency for the compressions used when working on the Otto cycle of four strokes of equal length (explosion, exhaust, suction, and compression). To allow of further development it is essential either to raise the compression pressure considerably or to abandon the Otto cycle of operation. Consider first the earlier and less revolutionary of the two alternatives. At the present moment the compression rarely exceeds 140 lbs. per square inch for engines working on producer gas, or 180 lbs. when working on blast furnace gas containing only one or two per cent. of hydrogen. To increase the compression beyond these limits leads to such high temperatures that the gas spontaneously ignites without waiting for the proper ignition point, unless

SILK-WEAVING INDUSTRY IN SWITZERLAND.

The following information is from the report by the British Vice-Consul at Zurich (Mr. J. C. Milligan) on the trade of Switzerland in 1908, which will shortly be issued:—

According to official reports, the year 1908 was a most unfavourable one for the Swiss silk-weaving industry, not only owing to the prices of the raw material, but also very largely to the fact that the exports to France, the United States and Germany declined in consequence of the increased duties on silk levied by those countries. The sales to the two first-named have fallen off by nearly 50 per cent during the last few years; it is stated that the trade with Germany in silk stuffs is also steadily declining, and that the Swiss silk industry is becoming each year more dependent upon the United Kingdom as a market for her products. The exports to the principal countries have declined to such an extent that Switzerland has been compelled to turn her attention to smaller markets, such as the Argentine Republic, Canada, Belgium, Italy and Roumania, where a good trade is gradually being built up.

The following table shows the changes which have occurred in the principal markets for Swiss silk during the last 20 years:—

Exported to	1887-8.	1889-93.	1894-8.	1899-1903.	1904-8.
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
United Kingdom	23.5	30.1	42.1	46.8	42.9
France	34.2	27.0	13.9	16.2	13.5
United States	18.3	16.5	17.4	13.9	13.0
Germany	10.0	9.7	8.9	5.7	5.6
Austria					
Hungary	2.3	2.9	3.6	4.0	7.2
Belgium	1.5	2.2	2.9	2.6	2.4
Other countries	10.2	11.6	11.2	10.8	15.4
TOTAL	100	100	100	100	100

The number of mechanical looms running in Germany, France, Italy, and the United States, on account of the Zurich industry, has increased from 8,563 in 1900 to 12,702 in 1908. The weaving mills in the countries mentioned, with the exception of the United States, are under the direct supervision of Zurich. It is estimated that the Swiss branches in these countries give employment to between 14,000 and 15,000 workpeople. As the same class of silk is produced as in the Swiss mills, the value of the silk produced by Zurich weavers in South Germany is calculated to be at least 1,200,000l.; in France, 600,000l.; in Italy, 280,000l.; and in the United States, 1,200,000l., making a total value of 3,280,000l. of silk produced in foreign countries for the Swiss weavers. If the value of silk produced in Switzerland (4,680,000l.) be added to this amount, the total value of silk produced for the Zurich silk trade exports 8,000,000l.

the proportion of hydrogen present is even more minute than it is in blast furnace gas, or the gas has been cooled on admission by water injection, or in some other equivalent way. It is not a simple matter, however, to avail oneself of these alternatives, although some engines are in actual use with producers which do not use any steam and so contain only about a quarter of one per cent of hydrogen—with the consequence that compressions as high as 200 lb. per square inch are possible—and others have fittings for water injection, super-compression, etc. Moreover, the gain in efficiency which is brought about by high-compression ratios is not at all considerable unless the compression is very high indeed, when the engine is liable to become difficult to control. It is not sufficient, therefore, to work in this direction alone towards a way out of the difficulty, and the big problem of change of operating cycle has to be faced.

A number of engines already work on what is known as the Clerk, Korting, or two-stroke cycle, but increase of output rather than higher efficiency is what is then aimed at. What is really needed is an engine with a long expansion stroke, so that the gas is not liberated to the exhaust until it is far nearer the atmospheric pressure than is now customary—with present-day engines the larger proportion of the heat energy in the fuel goes to the exhaust. The lengths of the other strokes are of nothing like such importance, but an ideal engine would probably have all its four strokes of different lengths. One obvious solution is to use the exhaust gas in a second cylinder and so work "compounded." Another solution is the one lately suggested in Mr. Humphrey's ingenious gas pump, where use is made of a column of water to act as piston, as connecting rod, and as fly-wheel. In this engine all four strokes are of different lengths, and during the explosion stroke the gases expand to atmospheric pressure. The machine is, however, quite a new one, and no one can tell how it will turn out, but its promise is undeniably great, despite the apparent incongruity of bringing cold water and white-hot gases into close contact.

To indulge in prophecy and predict what type of engine is to be produced to carry on the development of the internal combustion engine is outside the purpose of an article such as this, which has only the modest aim of drawing the attention of the engineering world to the interesting crisis which has been reached in the development of the gas engine. Some will feel that with the gas engine already so far in advance of the steam engine there is no need for concern, but such a point of view, common sense as it may perhaps appear, is not the kind of attitude that brings about great changes, and the internal combustion engine, with its brilliant past, is not likely to be allowed to sink behind in the race for the highest possible utilization of the latent energy of fuel. It is to the brains of the many engineers now earnestly at work on the problem that its solution must be left.

RUST-PREVENTING PAINTS FOR METAL STRUCTURES.

We take the following particulars from a paper, read by Mr. E. Camerman, chief of the testing department of the Belgian State railroads, at the Copenhagen Congress of the International Society for Testing Materials:—A report presented to the Zurich Congress by Mr. Valat, Ingenieur en chef à la Compagnie de l'Est Française, and my own experiments on several paints, which had recently been advertised, tend to show that poor results are obtained with the following rust-preventing paints:—With paints prepared with a mixture of linseed oil and of essence of turpentine, with paints prepared with tar or its derivatives, with zinc white paints (enamels), with paints containing sulphate of barium, with paints in which manganese resinate forms the siccativ, with zinc sulphide paints, with lithopone colours (mixtures of zinc sulphide and barium sulphate), with a pure linseed oil paint which developed blisters.

These poor results will be understood, when we consider the difficulties that the rust-preventing coating should meet. I will enumerate these difficulties.

(1) The coating may be wanting in thickness from the very moment of its application, or at least after having dried. It will be conceded that, other things being equal, a thin coating will not resist so long the incessant bombardment by the particles of atmospheric dust, and will not remain so impervious, as a thick coating. Thus a paint containing 50 per cent of essence of turpentine is very fluid. It spreads to a much finer film than a paint prepared with boiled linseed oil, which forms a relatively viscous product. The former coating, moreover, is further reduced in thickness by the volatilisation of the whole of its essence of turpentine, which constitutes half of its volume. The great influence of such mixtures which comprise volatile constituents is evident. Almost all the tar paints, which generally consist of some pitchy, more or less dry material, dissolved in an essential oil, may be classed with this series of defective paints. The essential oil is to evaporate and the paint to dry in this way, which will necessarily leave the final coating much weakened. (2) The coating may gradually diminish in thickness. In addition to their solvents the tar paints themselves slowly and gradually give off their volatile constituents. There result hollow spaces, shrinkages, and consequently thin, weak spots, and even fissures. (3) The coating, although satisfying the conditions as to thickness, may be wanting in elasticity. It is thus again with preparations of dry pitch and essential oils. The dried linseed oil, on the contrary, forms a soft elastic pellicle which has often been compared to leather. (4) The coating may lack hardness and not be able to resist the impact of the dust particles, that is to say, it may not wear well. The two qualities, elasticity and hardness, may at first thought appear contradictory. But the two qualities are quite compatible if we mingle a powder of hard grains with a paste of a soft and elastic material. This consideration quite justifies

the addition of powders or pigments to the bodies; we need not restrict ourselves to pure linseed oil for instance. (5) The coating may be liable to develop cracks and breaks in the continuity of the surface. Such accidents may be ascribed to two chief causes. (a) The powdered material mixed with the body of the paint does not sufficiently adhere to the latter and separates from it under the inevitable contractions and dilations. This will be the case of certain inert materials; sulphate of barium, sand in mixtures with ochre, and others. (b) The body may be decomposed. This occurrence is almost always due to polymerisation or depolymerisation processes. Owing to the latter reaction certain oils give rise to the formation of simple hydrocarbons, which act as solvents for the remaining substances. The colour then turns pitchy; the simple hydrocarbons are slowly volatilised, and hollow spaces and cracks make their appearance. (6) The powdered substance must be intimately united with the liquid mass of the body. Chemical combination between the components form the most perfect bond, which will best resist any tendency to disintegration under the influence of dilatations and contractions; the lead oxides may be quoted as a noteworthy example. (7) Neither the body nor the powdered substance should be liable to atmospheric corrosion by the oxygen and particularly by the furnace gases from large industrial works; zinc preparations, zinc oxide, zinc sulphide, and the lithopones in particular, leave much to be desired in this respect.

Of all the liquids which serve as paint body, linseed oil appears to us to be the best. It spreads in relatively thick films. Instead of diminishing in thickness by volatilisation, it gains in mass by absorption of oxygen, and it is scarcely liable to deperdition. Judiciously applied it never turns pitchy, nor is it inclined to crack. It keeps sufficiently elastic, moreover, for years, at any rate. Linseed oil can be obtained in different grades: as crude linseed oil, old linseed oil, as linseed oil merely boiled in air, as standolie de Hollande, as thickened linseed oil boiled with litharge or with manganese peroxide. The crude linseed oil, when well clarified, is relatively light in colour and readily taken up. It is, however, a little more fluid than the boiled oil and spreads in slightly thinner films. During its oxidation it loses 6 to 8 per cent of the decomposition products of glycerine; for this reason it forms blisters when applied in the hot, or especially as long as hot.

The oil stored linseed oil is very clear, loses little by oxidation, dries pretty rapidly and is superior to the just described raw oil. But it rarely comes on the market. Linseed oil, simply air-bottled (kettle-boiled) differs little from the two grades mentioned and need not further be dwelt upon. The oil which is designated standolie de Hollande of considerable thickness; but it dries very badly and can only be used as an additive in the proportion of 20 or 30 per cent.

A NEW METHOD OF LACQUERING.

A NEW method has recently been adopted in Germany for lacquering brass bedsteads, for which it is claimed a greater degree of permanency and economy has been attained. Formerly the method was to heat the brass tubes in an oven, and then apply the lacquer. In the new method the tubes are placed on a lathe, and adjusted and turned by hand or other power. The main point is that the tubes while rotating are heated electrically, and the heating can be regulated as desired. The lacquer is applied while the tube is rotating, and in this way several layers of lacquer can be applied in a short time, as the electrically-charged tube dries the lacquer almost as fast as applied. Formerly a composition of shellac and spirits made from rye was used. The tubes are usually thin, and possess a large surface for heating purposes in proportion to their volume, so that they only retain the heat a short time and rapidly cool off. In the old method, according to the American Consul at Chemnitz, the tubes were heated in an oven, they had to be quickly taken out, and the lacquer applied, then again placed in the oven, remaining there for ten to thirty minutes, and then another coating was applied. It was important after the first coating had been applied to see that no alcohol remained on the lacquered part, so that it would not soften the next application. By the quick evaporation of the alcohol the warm tubes soon became cool, and had to be re-heated before a new coating could be applied. In consequence the lacquerer must work rapidly, and even then the coating may be defective; and this method required from three to six coatings of lacquer, with the corresponding number of re-heatings. The time required for finishing a brass tube was from one to one and a half hours, depending on the length and size of the tube, and the number of coatings desired. Other methods in use also possess many drawbacks. The new method requires only a minute for giving a tube several coats of lacquer, since the heating and lacquering form only one continuous process, and no cooling or re-heating is required. In other words the cooling of the tubes caused by the evaporation of the alcohol, is counterbalanced by the electric heating of the tubes during the process of lacquering. A steady, even heat can be maintained in the current flowing through the tube in spite of the cooling effect of the evaporating alcohol. By this new method the tubes do not have to be heated above a temperature of 288° Fahrenheit, so that there is no waste of heat, as is the case in re-heating in the oven. Another advantage is that the colour of the lacquer does not suffer on account of the super-heating, as in the old method. The economy in space is also an important factor to be considered, as the ovens and working tables required much space. Now the tube is simply adjusted to the lathe and the current turned on; then all dust that may have accumulated during the heating is wiped off, the tube rotated, the lacquer applied, and the finished tube removed and placed in a rack, the entire process requiring from forty-five seconds to two minutes.

Linseed oil, boiled with litharge or manganese peroxide, is a comparatively thick fluid, which does not diminish in mass while drying, does not throw up blisters, and which requires only a very small quantity of artificial siccativ, but it is of a very dark colour. We recommend this last-mentioned grade of oil for all rust-preventing paints when the shade of colour is not of importance, and when the quality of the oil can be controlled. The oil must be absolutely free from manganese resinate, because this product is subject to depolymerisation, to turn pitchy and to crack.

Pigments: We will now pass to the diverse powders or pigments which are mixed with the linseed oil. Experience shall be our guide. My own experiments have demonstrated that lead white mixed with inert powders, such as sulphate of barium, in the proportions of 25, 50, 75 per cent of barium sulphate, possessed a rust-preventing capacity which was almost directly proportional to the percentage of lead white. In other words, in panels of iron, painted under the same conditions and examined at certain intervals, spots made their appearance whose intensity was approximately proportional to the percentage of the barium sulphate present in the paint. Lead white paints, paints containing iron oxide (iron minium), minium (lead oxides), or graphite have resisted best. Zinc oxide is far inferior to these pigments; zinc sulphate and lithopone (mixture of zinc sulphide and barium sulphate) are worthless.

Conclusion: In my opinion we should, in the actual state of our knowledge, impose the following conditions concerning paints which are to protect iron structures from rust:—The paint should consist of iron minium, prepared with boiled linseed oil under exclusion of essence of turpentine. The determination of the amount of siccativ to be used may be left to the superintendent in charge. So far as my own experience goes, equally good results are realised when graphite is substituted for the iron minium. The graphite must also be reduced to an impalpable powder and should contain at least 55 per cent of carbon. The quantity of powdered pigment which should be mixed with the linseed oil may be left to the judgment of the painters.

—It will be remembered that the Manchester Chamber of Commerce has been opposed to the applications made for the registration of certain letters as a trade mark. The secretary of the Chamber has received the following letter on the subject from the Board of Trade, dated London, 10th December:—With reference to previous correspondence and the hearings which have taken place at this office with regard to the applications of the Bradford Dyers' Association, Nos. 117,150 and 117,151, for the registration of the mark "B. D. A." under section 62 of the Trade Marks Act, 1905, in class 24, I am now directed by the Board of Trade to inform you that they have arrived at the decision that it would not be to the public advantage for them to accede to these applications.

WIRELESS TELEGRAPHY.

On receiving the Nobel prize for physics, jointly with Professor Braun, at Stockholm on December 11th, Mr. Marconi gave a sketch of the history of wireless telegraphy.

In the course of his address he remarked that a result of scientific interest, which he first noticed during the tests on the steamship *Philadelphia* and which was a most important factor in long distance radio-telegraphy, was the very marked and detrimental effect of daylight on the propagation of electric waves at a great distance, the range by night being usually more than double that attainable during daytime. He did not think that this effect had yet been satisfactorily investigated or explained. At the time he carried out the tests he was of opinion that it might be due to the loss of energy at the transmitter caused by the dis-electrification of the highly-charged transmitting elevated conductor under the influence of sunlight. He was now inclined to believe that the absorption of electric waves during the daytime was due to the ionization of the gaseous molecules of the air affected by ultra-violet light; and, as the ultra-violet rays which emanated from the sun were largely absorbed in the upper atmosphere of the earth, it was probable that the portion of the earth's atmosphere which was facing the sun would contain more ions or electrons than that portion which was in darkness, and, therefore, as Sir J. J. Thomson had shown, this illuminated and ionized air would absorb some of the energy of the electric waves. Apparently the length of wave and amplitude of the electrical oscillations had much to do with this interesting phenomenon, long waves and small amplitudes being subject to the effect of daylight to a much smaller degree than short waves and large amplitudes. According to Professor Fleming, the daylight effect should be more marked on long waves, but this had not been his experience. Indeed, in some very recent experiments in which waves about 8,000 metres long were used the energy received by day was usually greater than at night. The fact remained, however, that for comparatively short waves, such as were used for ship communication, clear sunlight and blue skies, though transparent to light, acted as a kind of fog to these waves. It had been observed that an ordinary ship station, utilizing about $\frac{1}{2}$ kw. of electrical energy, the normal range of which was not greater than 200 miles, would occasionally transmit messages across a distance of over 1,200 miles. It often occurred that a ship failed to communicate with a near-by station, but could correspond with perfect ease with a distant one. On many occasions last winter the *Caronia*, of the Cunard Line, carrying a station utilizing about $\frac{1}{2}$ kw. when in the Mediterranean, off the coast of Sicily, failed to obtain communication with the Italian stations, but had no difficulty whatsoever in transmitting and receiving messages to and from the coasts of England and Holland, although these latter stations were considerably more than 1,000 miles away, and a large part of the continent of Europe and the Alps lay

between them and the ship. Although high power stations were now used for communicating across the Atlantic, and messages could be sent by day as well as by night, there still existed short periods of daily occurrence during which transmission from England to America, or *vice versa*, was difficult. Thus, in the morning and evening, when in consequence of the difference in longitude daylight or darkness extended only part of the way across the ocean, the received signals were weak and sometimes ceased altogether. It would almost appear as if electric waves in passing from dark space to illuminated space, and *vice versa*, were reflected in such a manner as to be deviated from their normal path. It was probable that these difficulties would not be experienced in telegraphing over equal distances north and south, on about the same meridian, as in this case the passage from daylight to darkness would occur almost simultaneously over the whole distance between the two points. Another curious result, about which hundreds of observations continued for years left no further doubt, was that regularly, for short periods, at sunrise and sunset, and occasionally at other times, a shorter wave could be detected across the Atlantic in preference to the longer wave normally employed. Thus, at Clifden and Glace Bay, when sending on an ordinary coupled circuit arranged so as simultaneously to radiate two waves, one 12,500 ft. and the other 14,700 ft., although the longer wave was the one usually received at the other side of the ocean, regularly, about three hours after sunset at Clifden, and three hours before sunrise at Glace Bay, the shorter wave alone was received with remarkable strength, for a period of about one hour. This effect occurred so regularly that the operators tuned their receivers to the shorter wave at the times mentioned, as a matter of ordinary routine.

NEW REFERENCE BOOKS.

THE ECONOMICS OF RAILWAY TRANSPORT.

By S. C. WILLIAMS, Secretary to the Agent, East Indian Railway. 7 $\frac{1}{2}$ x 5, 308 pp. . . . 3s. 6d. net. Macmillan.

(Reproducing the substance of a course of lectures which Mr. WILLIAMS (late Exhibitioner and Sizar of Trinity) gave in Cambridge early this year.)

RECENT COTTON MILL CONSTRUCTION AND ENGINEERING.

By the late JOSEPH NASMITH and F. NASMITH. Third Edition. 7 $\frac{1}{2}$ x 5, 382 pp. . . . 6s. net. Heywood.

THE ENCYCLOPEDIA OF PRACTICAL ENGINEERING AND ALLIED TRADES.

Edited by J. G. HORNER, A.M.I.Mech.E., Vol. 10, Tin-Z. 10 x 7 $\frac{1}{2}$, 240 pp. . . . 7s. 6d. net. Virtue.

A CONCISE TREATISE ON REINFORCED CONCRETE.

A companion to "The Reinforced Concrete Manual." By C. F. MARSH. 8 $\frac{1}{2}$ x 5 $\frac{1}{2}$, 225 pp. . . . 7s. 6d. net. Constable.

SEA-BORNE TRADE OF INDIA.

THE following is a summary of the accounts relating to the Sea-borne Trade and Navigation of British India for the month of November, 1909, and for the eight months, 1st April to 30th November, 1909, compared with the corresponding period of the years 1907 and 1908:—

	MONTH OF NOVEMBER			EIGHT MONTHS, 1st APRIL to 30th NOVEMBER		
	1907	1908	1909	1907	1908	1909
IMPORTS—						
MERCHANDISE, PRIVATE—	R	R	R	R	R	R
Bengal	4,85,55,786	3,75,35,584	4,73,04,235	35,81,70,536	30,63,33,008	30,32,27,968
Eastern Bengal and Assam	2,74,814	2,01,560	4,05,555	37,50,670	38,39,415	41,23,105
Bombay	4,39,82,610	4,10,20,072	3,74,70,423	28,40,64,249	27,93,41,571	26,06,98,730
Sind	1,06,72,908	1,12,91,753	78,33,606	6,24,28,022	8,16,37,488	6,90,47,803
Madras	83,46,886	88,33,997	8,41,554	6,53,71,896	8,31,99,797	6,23,54,574
Burma	1,04,90,938	1,14,75,417	1,06,16,977	6,74,10,480	8,96,71,012	7,13,70,643
TOTAL	12,23,23,942	11,03,58,383	11,24,72,350	84,11,98,853	84,49,22,491	77,11,22,823
DITTO, GOVERNMENT STORES	56,46,073	65,60,969	29,11,525	4,25,00,942	5,37,94,219	4,19,42,377
TOTAL MERCHANDISE	12,79,70,015	11,69,19,352	11,53,83,875	88,36,99,795	89,78,16,710	81,30,65,200
TREASURE, PRIVATE—						
Bengal	67,76,711	20,43,346	59,18,062	5,87,43,476	2,35,27,887	3,22,09,823
Eastern Bengal and Assam	38,151	7,794	15,406	99,079	87,491	1,30,568
Bombay	86,84,303	1,65,42,561	1,68,23,245	16,19,67,265	13,35,90,787	11,15,93,098
Sind	4,10,892	4,98,626	7,33,959	51,39,486	41,80,885	47,89,714
Madras	6,20,068	4,09,654	12,79,840	61,35,559	43,95,542	89,31,133
Burma	2,19,576	29,350	1,60,745	9,61,438	1,77,805	5,37,728
TOTAL	1,07,40,706	1,95,31,331	2,49,31,257	23,30,46,303	16,59,60,397	15,81,92,064
DITTO, GOVERNMENT	17,89,917	...	...	9,44,80,685	8,89,900	9,73,999
TOTAL TREASURE	1,25,30,623	1,95,31,331	2,49,31,257	32,75,26,988	16,68,50,297	15,91,66,063
GRAND TOTAL OF IMPORTS	14,05,00,638	13,64,50,683	14,03,15,132	121,12,26,783	1,06,46,67,007	97,22,31,263
EXPORTS—						
MERCHANDISE, PRIVATE—						
(Foreign Merchandise)—						
Bengal	1,24,057	1,29,467	83,853	14,43,790	14,52,834	11,54,064
Eastern Bengal and Assam	...	...	150	550	8,739	630
Bombay	24,08,396	17,69,668	23,37,161	1,97,70,222	1,47,59,925	1,60,44,035
Sind	6,50,463	8,39,313	4,10,878	33,83,894	32,02,154	26,31,817
Madras	68,025	67,891	85,679	8,73,022	7,53,476	8,85,442
Burma	42,315	30,778	36,010	4,85,548	3,27,187	2,95,276
TOTAL	32,93,256	28,37,617	29,53,731	2,59,62,020	2,05,04,315	2,10,11,864
(Indian Merchandise)—						
Bengal	7,14,14,988	7,28,15,948	7,36,89,463	49,87,24,239	44,53,00,632	46,52,81,303
Eastern Bengal and Assam	91,95,518	89,63,518	98,37,181	2,73,10,912	3,48,35,423	3,06,34,529
Bombay	2,74,45,584	2,34,40,573	2,84,75,826	32,52,13,422	22,21,36,077	25,09,43,415
Sind	1,05,08,329	53,26,369	1,02,91,670	14,37,64,753	4,42,43,515	15,57,87,565
Madras	98,25,578	1,09,57,717	1,23,13,795	12,95,42,853	11,83,16,403	12,45,16,046
Burma	56,37,300	43,49,361	71,62,458	9,29,69,210	7,05,84,783	8,21,43,898
TOTAL	13,40,29,297	12,58,53,366	14,17,70,396	121,75,25,389	93,54,16,833	108,93,06,756
Total Foreign and Indian Merchandise exported—						
Bengal	7,15,39,045	7,39,45,415	7,37,73,316	50,01,68,029	44,67,53,466	46,64,35,367
Eastern Bengal and Assam	91,95,518	89,63,518	98,37,331	2,73,11,462	3,48,44,162	3,06,35,159
Bombay	2,98,53,980	2,52,10,241	3,08,12,987	34,49,83,644	23,68,96,002	26,69,88,050
Sind	1,11,58,792	61,66,082	1,07,02,548	14,71,53,647	4,74,45,669	15,84,19,382
Madras	98,95,603	1,10,25,608	1,23,99,477	13,04,15,875	11,90,69,879	12,54,01,488
Burma	56,79,615	43,80,189	71,98,468	9,84,54,758	7,09,11,970	8,24,39,174
TOTAL	13,73,22,553	12,86,91,003	14,47,24,127	124,34,37,415	95,59,21,148	111,03,18,620
DITTO, GOVERNMENT STORES	1,59,383	30,372	1,49,569	10,12,931	7,94,077	5,22,556
TOTAL MERCHANDISE	13,74,81,936	12,87,21,375	14,48,73,696	124,45,00,346	95,67,15,225	111,08,41,176
TREASURE, PRIVATE—						
Bengal	5,78,467	5,12,269	6,23,033	26,40,865	42,67,586	8,98,739
Eastern Bengal and Assam	...	...	...	...	...	...
Bombay	32,84,893	39,22,850	37,23,867	2,82,23,711	2,99,64,613	3,14,35,421
Sind	28,943	4,884	97,204	10,36,313	5,24,510	24,45,149
Madras	10,07,922	19,250	13,069	85,20,415	40,63,900	55,08,032
Burma	...	53,000	10,000	98,275	3,35,000	35,000
TOTAL	49,00,225	44,11,773	44,67,203	3,55,14,579	3,92,23,609	4,08,22,341
DITTO, GOVERNMENT	12,500	...	8,100	1,75,000	38,06,729	15,100
TOTAL TREASURE	49,12,725	44,11,773	44,75,303	3,55,32,079	4,28,30,338	4,03,37,441
GRAND TOTAL OF EXPORTS	14,23,94,661	13,31,33,148	14,93,48,999	128,00,32,425	100,95,46,563	115,11,78,617
GROSS AMOUNT OF IMPORT DUTY	63,21,272	66,99,563	67,40,629	4,78,25,962	5,06,78,669	4,77,37,184
DITTO, EXPORT DUTY COLLECTED	2,48,795	2,37,719	4,44,324	52,96,000	58,68,291	48,47,585

WEEKLY TRADE MOVEMENTS.

For the week ending 1st January, 1910.

COTTON GOODS.

Twist and Yarn.

Foreign—	Calcutta lba.	293,290
Imports by sea into	Bombay "	204,330
	Madras "	16,500
Indian—	Calcutta "	32,960
Exports by sea from	Bombay "	3,689,392
	Madras "	300

Grey Piece Goods.

Imports by sea from	Calcutta yds.	9,130,148
Foreign ports into	Bombay "	1,110,554
	Karachi "	9,000
	Madras "	36,940
	Rangoon "	210,257

White Piece Goods.

Imports by sea from	Calcutta yds.	2,532,372
Foreign ports into	Bombay "	1,964,255
	Karachi "	127,934
	Madras "	65,809
	Rangoon "	347,823

Other Piece Goods.

Imports by sea from	Calcutta yds.	926,189
Foreign ports into	Bombay "	2,133,185
	Karachi "	95,001
	Madras "	69,931
	Rangoon "	987,914

Piece Goods.

(Indian and Foreign.)

Despatches by rail from	Calcutta cwt.	6,899
	Bombay "	12,830
	Madras "	5,316

Cotton, Raw.

Imports into Bombay	By sea cwt.	10
	Coastwise "	27,720
	By rail "	386,536
Imports into Karachi by rail	"	78,127
" " Calcutta by rail and river	"	32,702

JUTE.

Arrivals by all routes in	Calcutta cwt.	*493,786
Exports by sea from	Calcutta { Gunny bags No. 9,454,181	
	" cloth yds. 20,915,750	
	Jute cwt. 262,038	
	Chittagong—Jute " 525,596	

COTTON SEEDS.

Exports by sea from Bombay	cwt.	320,530
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OIL SEEDS.

Linseed.

Imports into	Calcutta by rail and river cwt.	*11,633
	Bombay { By sea " 51	
	Coastwise " 790	
	By rail " 7,197	
	Karachi by rail " 131	
Exports by sea from	Calcutta " 3,023	
	Bombay " 17,500	
	Karachi "	

Rape and Mustard Seed.

Imports into	Calcutta by rail and river cwt.	*55,576
	Bombay { By sea "	
	Coastwise " 3,920	
	By rail " 96,416	
	Karachi by rail " 6,018	
Exports by sea from	Calcutta " 23,707	
	Bombay " 30,756	
	Karachi "	

RICE.

Arrivals by all routes in	Calcutta cwt.	*170,792
	Calcutta " 172,187	
	Chittagong " 6,396	
Exports by sea from	Bombay " 9,901	
	Karachi " 17,107	
	Madras " 276	
	Rangoon " 39,080	

TEA.

Arrivals by all routes in	Calcutta lbs.	*4,343,340
Exports by sea from	Calcutta " 3,083,435	
	Chittagong " 459,924	

WHEAT.

Imports into	Calcutta by rail and river cwt.	*115,657
	Karachi by rail " 200,195	
	Bombay { By sea " 12,462	
	Coastwise " 37,693	
	By rail "	
Exports by sea from	Calcutta " 2,075	
	Bombay " 221,806	
	Karachi "	

EXPORTS—RUNNING TOTALS INCLUDING FIGURES RECORDED ABOVE.

	FROM APRIL		FROM JANUARY					
	1908.	1909.	1909.	1910.	1909.	1910.	1909.	1910.
	Wheat.		Linseed.		Rape and Mustard Seed.		Cotton Seed.	
Calcutta . . . Cwt.	45,359	3,376,126	8,004	3,023	2,511	6,018	Not reported.	
Bombay . . . "	76,477	2,636,106	9,855	17,500	6,030	23,707	85,065	320,530
Karachi . . . "	3,636,302	15,247,529	...	...	34,257	30,756	Not reported.	

*Incomplete.

KEROSENE OIL, WEEK ENDING 1st JANUARY, 1910.

Imports by sea into—	FROM			
	Russia.	America.	All other foreign countries.	TOTAL.
	galls.	galls.	galls.	galls.
Calcutta	...	...	...	...
Bombay	...	2,233,124	...	2,233,124
Karachi	...	...	...	...
Madras	...	...	413,242	413,242
Exports by sea from Burma to				
Bengal				425,700
E. B. & Assam				...
Bombay				400,000
Sind				...
Madras				800,000
Ladian Ports, Non-Br.				...
Foreign Ports				...

IMPORTS OF SUGAR, WEEK ENDING 1st JANUARY, 1910.

Country of Shipment.	KINDS OF SUGAR IMPORTED INTO						
	Calcutta.	Chittagong.	Bombay.	Karachi.	Madras.	Rangoon.	TOTAL.
	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.
United Kingdom	10	...	2	...	1	8	21
Germany	...	...	500	5,209	...	...	5,709
Austria-Hungary	...	...	...	...	...	...	...
Other European Countries	...	...	715	...	...	25,067	26,782
Java	267,430	...	4,652	8,491	...	...	275,673
Mauritius	16,542	...	500	...	...	41	17,083
Other Non-European Countries	...	...	...	...	...	...	...
Total refined							329,258
Total un-refined							...
Grand Total							329,258

BRITISH CENSUS OF PRODUCTION.

PRELIMINARY tables summarizing the returns received under the British Census of Production Act, 1906, have now been issued as a Blue-book, and those responsible for the work, says the London Chamber of Commerce *Journal*, are to be congratulated upon the promptitude with which they have issued the first results of their gigantic task. The first census was taken in 1908, covering the production of the previous year, and involving the issue of no less than 440,000 schedules of questions. The tables now issued constitute the first of a series of preliminary tables for important groups of trades, with reports thereon, and cover the production of mines (including coke works and shale oil works) of cotton factories, of woollen and worsted factories, of tinplate factories, and of iron and steel factories (smelting, founding, and rolling). The figures given will be of no little interest and value, particularly in future years, when they will enable general comparisons to be made as to the progress of different industries, but it will scarcely be safe to make them the basis of hard and fast deductions, as although every effort has been made to avoid duplications it is inconceivable that this can be altogether achieved. The principle adopted has been to ascertain firstly the gross selling value of goods produced and, secondly, the total cost of materials used and the amount paid to other firms for the

work given out. Deducting the latter from the former we arrive at what is called the "net output" of the industries or the group, which represents the value added to the raw materials in the course of manufacture. Taking this "net output" value the figures for 1907 for the trades above-mentioned are as follows:—Mines, £110,134,000; cotton factories, £46,941,000; woollen and worsted factories, £19,452,000; tinplate factories, £2,147,000; iron and steel factories, £30,948,000; total £209,622,000. These industries together employed no less than 1,967,948 persons. Particulars are, of course, also given as to quantities as well as values. For instance, we are told that in 1907 the quantity of coal raised was 265,134,000 tons, of which 63,631,000 tons were exported, and 18,619,000 tons were shipped for the use of steamers engaged in the foreign trade. The total number of yards of cotton piece-goods woven for sale was 7,029,622,000 yards; and the quantity of tinplates, etc., made is returned as 529,000 tons. While the figures given are of a preliminary character, they are probably sufficiently close to those to be issued later to afford a good indication of the quantity and value of the principal products of the industries dealt with, but, as we have said before, their interest and value will naturally be much enhanced when the results of succeeding censuses are available, and a comparison is possible between the production at different periods.

THE "GALVO" FILTER

AND WATER STERILISER ANTI-SPLASH.

The most Wonderful Invention of the 20th Century.

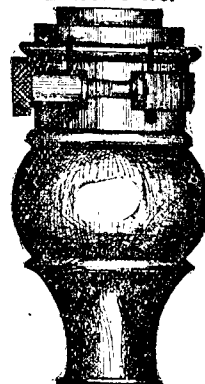
See Medical Report.

LONDON, S.W., August 5th, 1909.

I hereby certify that the "Galvo Filter and Water Steriliser Anti-Splash" has been rigorously tested in these laboratories, the data obtained being of an entirely satisfactory character, and indicating it to be a unique appliance that is extremely well suited for the purpose for which it is designed.

I have passed through the "Galvo Filter" distilled water containing pure cultivations of the microbes of Typhoid Fever and Asiatic Cholera, and the filtered water was then tested by the ordinary methods of bacteriology, but in no instance did microbial growths make their appearance. The filtered water was free from microbes.

To fit $\frac{1}{2}$ inch Taps
1 Re. 8 as.



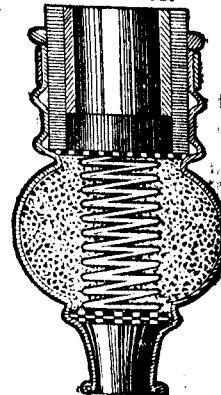
The "GALVO" FILTER is a BRITISH INVENTION and of BRITISH MANUFACTURE. Can be fitted to the ordinary water tap instantly. All that is required is to take it off periodically, and boil it for a few minutes in water, to clear out all the vegetable matter that is retained, and it becomes as new.

GALVO SYNDICATE, LD. (Sole Proprietors),
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(Sd.) A. B. GRIFFITHS, Ph.D.,

Bacteriologist and Consulting Chemist,
Author of "A Manual of Bacteriology," &c.

To fit $\frac{3}{4}$ inch Taps
2 Rs. 4 as.



PUBLISHED WEEKLY.

REGISTERED.

The Indian Trade Journal.

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CALCUTTA, THURSDAY, JANUARY 13, 1910.

[ANNAS 4.]

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NOTES.

MONEY MARKET.

Wednesday Evening.

PRESIDENCY BANK RATES	Calcutta	6 per cent. (Dec. 9).
	Bombay	6 per cent. (Nov. 25).
	Madras	6 per cent. (Jan. 4).
EXCHANGE	On demand	1-4 $\frac{3}{4}$
	Telegraphic	1-4 $\frac{1}{8}$
	Transfers	
	3 months	1-4 $\frac{5}{8}$
	6 months	1-4 $\frac{7}{8}$
GOVERNMENT PAPER (3 $\frac{1}{2}$ per cent.) Rs. 93 $\frac{1}{8}$.		

The Final General Memorandum on the Sesamum (til or jinjili) crop of the season 1909-10 will appear in the *Indian Trade Journal* of the 20th instant. The gist of it in tabular form will be exhibited, as usual, at the street door of the office of the Director-General of Commercial Intelligence at No. 5, Clive Street, Calcutta, on the 19th instant at 4 P.M.

The spot price of wheat at Karachi on the 8th January was Rs. 35-6-0 per candy of 656 lbs. This is for white wheat on a basis of 30 per cent red wheat, 5 per cent barley and 3 per cent dirt; the price of bags included. The price of Indian grey yarn (20's) at Bombay on the 11th January was Re. 0-2-0 to Re. 0-7-9 per lb. and of Mutla Bhawnagar cotton, January delivery, Rs. 265 per candy of 784 lbs.

CAVALRY POUCHES
BELT ORNAMENTS
HELMET FITTINGS
PUORI BADGES
CAP BADGES
COLLAR BADGES
SHOULDER TITLES
BADGES OF RANK
REGULATION WHISTLES
SHOULDER CHAINS
DRUM MAJORS' STAVES
BAND MASTERS' BATONS
PROGRAMME DESKS
BRIDLE & BOSSES
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BUTTONS.

METAL HELMETS AND ORNAMENTS.
56, CONDUIT STREET, LONDON, W.

WORKS: DERITEND, BIRMINGHAM.

WARRANT HOLDERS BY APPOINTMENT TO

H. M. THE KING & H. R. H. THE PRINCE OF WALES.

Full Particulars can be obtained from—

F. H. BIRD & Co., 3/6, Old Court House Corner, CALCUTTA

The wholesale spot prices of the undermentioned articles in Calcutta on the 12th instant were as under:—

Jute—C. D. M. and Co. (Red) Group	
per 400 lbs.	Rs. 36 0 0
" M. per 400 lbs.	" 32 8 0
Rice—Ballam No. 1 per B. md.	" 3 12 0
Moonghy "	Nil.
Linseed—Bold 4 ¹ / ₂ per B. md.	Nil.
Rapeseed—Yellow, mixed, bold,	
Cawnpore, 4 ¹ / ₂ per B. md.	Nil.

A Bombay correspondent states that at a special general meeting of the **Bombay Millowners' Association** on the 10th instant, Mr. Arno Schmidt, the representative of the **International Federation of Master Cotton Spinners' and Manufacturers Association**, explained the objects of his Association. A resolution was passed that the members present agreed that the Bombay Millowners' Association be affiliated to the International Federation of Master Cotton Spinners' and Manufacturers' Associations.

In their circular on the **American textile trades** the H. B. Claffin Company remind us that the appreciation in values is not confined to cotton, "but has been steadily accumulating in all sections of agricultural products as well as on returns of farm properties and on real estate." General commodity prices have risen more during the last five years than for at least several decades. Messrs. Claffin believe in a continuance of **strong cotton markets** and they compare the figures of consumption of American cotton for the last six seasons with the crops. The increase of consumption from 1903-04 to 1908-09 is calculated as about 30¹/₂ per cent. but if the 1908-09 crop were to be taken as a normal one the increase in cotton would be even greater. The total consumption for the six seasons comes to 71,967,000 bales and the total crops to 73,851,650 bales. Thus in the six years the crops had gained 1,184,650 bales on the consumption. There will be another tale to tell at the end of the 1909-10 season.

The Census Bureau of the **United States** Department of Commerce and Labour issued on December 20th its seventh statement of the amount of **cotton ginned** of the growth of 1909. It makes the total ginned to December 13th 9,362,000 bales, against 11,905,000 on the same date last year, 9,284,000 in 1907, and 11,113,000 in 1906. The amount ginned from the 1st to the 13th December was 484,000 bales, against 897,000 last year, 941,000 two years ago, and 1,085,000 in 1906. The decrease is quite general, but is specially marked in Texas (which only ginned 51,000 bales during the 13 days, against 176,000 last year, 141,000 in 1907, and 228,000 in 1906), in Oklahoma (which has only 10,000 bales, against 64,000, 87,000 and 70,000 respectively), in Louisiana (which only gives 11,000, against 41,000, 78,000, and 92,000), in Mississippi

(with 92,000, against 145,000, 166,000, and 177,000), and in Alabama (with 66,000, against 90,000, 105,000, and 118,000). Georgia ginned 89,000 bales, against 129,000, 114,000, and 124,000; Arkansas 29,000, against 71,000, 88,000, and 102,000; Tennessee 15,000, against 23,000, 27,000, and 37,000; South Carolina 68,000, against 83,000, 70,000 and 69,000; North Carolina 46,000, against 62,000, 55,000, and 55,000. The following table gives the usual details with comparisons (in thousands of bales):—

	Ginned to				
	Dec. 13, 1909.	Dec. 13, 1909.	Dec. 13, 1908.	Dec. 13, 1907.	Dec. 13, 1906.
N. Carolina	582	536	616	523	546
S. Carolina	1,066	998	1,134	1,014	839
Georgia	1,766	1,677	1,869	1,632	1,515
Florida	59	56	61	46	56
Alabama	986	920	1,266	962	1,137
Mississippi	959	867	1,442	1,121	1,185
Louisiana	249	238	436	502	765
Texas	2,263	2,212	3,369	1,990	3,485
Arkansas	61	614	847	572	673
Tennessee	221	206	303	204	221
Oklahoma	515	505	495	686	644
Other States	53	49	64	32	47
Total	9,362	8,878	11,905	9,284	11,113
Crop according to Bureau	...	...	13,432	11,326	13,305

The Committee of the **Association of Master Cotton Spinners' Federations** met again on the 21st December in **Manchester** specially to consider the question of recommending short-time working to spinners of **Egyptian cotton**. The meeting was very brief. After a quarter of an hour's sitting the discussion was adjourned till after the New Year. The subject of short-time running for spinners of Egyptians was brought up about the beginning of December. There is a fairly strong measure of opinion in favour of the proposal, and it is stated that some spinners intend voluntarily to run short time. On the other hand there are mills opposed to this curtailment of production. A meeting of the Organization Committee of the Federation of Master Cotton Spinners' Associations was held in **Manchester** on 21st December when reports were received from the various districts on the short-time running by spinners of **American cotton**. It was stated that the efforts of the Committee had been successful among non-members of the Federation, and the owners of upwards of 4,000,000 spindles had fallen into line with the members of the Federation. There are still about 5 per cent of the spindles in the Federation outside the movement, the owners of these being chiefly on fine numbers. It is said that these firms are waiting to see what Egyptian spinners will do in the matter of curtailment of production.

In their weekly report on the **Shanghai piece-goods market**, dated the 16th ultimo, Messrs. Noel, Murray and Co., Ltd., say:—The continued advance

in exchange and anxiety of native holders to meet the market for **Indian yarn** has caused a much weaker feeling, but one which importers decline to recognise. The result has been an almost entire stoppage of business during the interval, so far as they are concerned, one solitary transaction being reported only, namely 50 bales No. 10's *Chinese Eleven Moon Chop* at \$101.00 for one of the River Ports. There is a decidedly weaker feeling at the moment, which, however, a reaction in sterling rates might easily change into one of strength, although of course the Northern markets are now practically closed, as the expense of transport by rail from Chingwantao is too heavy for the bulky but comparatively cheap bales of yarn. Stocks of unsold spinnings are naturally accumulating, the S.S. *Delta* having brought up 7,090 bales.

The following return shows the number of **b e** of cotton imported and exported at the various ports of the **United Kingdom** during the week and 50 weeks ended 16th December, 1909:—

	IMPORTS.		EXPORTS.	
	Week ended 16th Dec., 1909.	50 Weeks ended 16th Dec., 1909.	Week ended 16th Dec., 1909.	50 Weeks ended 16th Dec., 1909.
	Bales.	Bales.	Bales.	Bales.
American	96,517	3,242,363	6,408	188,989
Brazilian	232	52,085	488	9,110
East Indian	5,326	110,854	134	37,140
Egyptian	25,805	520,741	10,329	111,430
Miscellaneous	4,117*	136,522†	28	8,871
Total	131,997	4,062,565	17,387	355,549

* Including 119 bales British West African and 741 bales British East African.

† Including 6,284 bales British West Indian, 12,566 bales British West African, 10,891 bales British East African and 326 bales foreign East African.

NOTE.—Cotton "in transit" or "for transhipment under bond," if described as such in the ships' reports, is not included in this return.

His Majesty's Consul at Buenos Ayres (Mr. A. C. Ross, C.B.) has furnished, under date 18th November, the **final statistics** of the extent of land sown with certain crops in **Argentina**, in 1909, as compared with 1908 and 1907, published by the Argentine Department of Agriculture:—

	Wheat.	Linseed.	Oats.
	Acres.	Acres.	Acres.
1907	14,233,770	3,439,050	702,000
1908	14,982,730	3,791,550	1,565,000
1909	14,423,000	3,596,540	1,413,500

The acreage sown this year is somewhat less than in 1908, but His Majesty's Consul remarks that the climatic conditions for the two months preceding

the date of his report had been very favourable, and that it is quite possible that the total crops may equal in quantity those of last year.

The **prices of British corn** per quarter of 8 bushels, as received from the inspectors and officers of Excise in the week ended 18th December, 1909, were as follows:—Wheat, 33s. 2d.; barley, 25s. 3d.; and oats 17s. 4d.

The official estimate of the **Australian wheat crop** for 1909-10 is 82,000,000 bushels, of which 52,000,000 bushels will be available for export. The following are the totals for the different States:—

	1909	1908	1907
New South Wales	25,500,000	15,731,000	9,152,000
Victoria	28,500,000	24,164,000	12,100,000
South Australia	20,140,000	19,980,000	19,098,000
West "	6,000,000	2,854,000	4,000,000
Queensland and Tasmania	1,900,000	1,750,000	1,700,000
Total	82,040,000	64,479,000	46,054,000

The *Corn Trade News* gives the following summary of the **world's crop** as on the 21st ultimo:—**United States of America**—Winter crops favourable; large area without snow but temperature been mild, no complaints. Receipts rather larger. **Pacific Coast** keeps prices well over export level. **Canada**—Receipt smaller. **Argentina**—Beneficial general rains fallen. Our agent now estimates wheat surplus 12,000,000 quarters, which same this year's; linseed 4,200,000 quarters against 4,800,000. **Australia**—Wheat crop Victoria and New South Wales together, official 54,000,000 bushels against 39,000,000 in 1908. **India**—Crop prospects favourable but insects infest fields some districts. Increased shipments old crop indicated. **Russia**—Weather turned wintry, snow wanted southern regions; crop advices generally less favourable. Semi-official bulletin says crops beginning winter unsatisfactory in south-centre, south-east and east, elsewhere satisfactory to good; acreage decreased considerably in regions where condition unsatisfactory. Receipts interior points been hindered bad roads. **Roumania**—Weather mild, favourable for crops. **Bulgaria**—Warm, moist weather during month November favoured growth young crops, but some fields could not be seeded. **Hungary**—Official bulletin says crops highly satisfactory, but mention some insect damage. Arrivals foreign wheat large. **France**—Crop conditions generally satisfactory but some districts with weak plant. Further complaints disappointing threshing results. **Germany**—Weather turned wintry, but good snowfall some parts—change considered favourable. Imperial Statistical Bureau confirms big 1908 crops, but receipts show much inferior quality. **Italy**—Crop reports favour-

able. *North Africa*—Very favourable reports from coastal districts. *United Kingdom*—Weather wintry, crops healthy but backward.

The Liverpool Chamber of Commerce has received a letter from Members of the Chamber suggesting that the Chamber should, in the interest of British shipping, make representations to the proper quarter to induce the Port authorities at Havre to adopt elevators for discharging grain at that Port, instead of the obsolete custom of discharging by hand at the rate of 200 tons per day. It was resolved to write to the British Chamber of Commerce at Paris and to the Havre Chamber of Commerce.

The total quantity and value of gold extracted from the Indian mines during the month of November, 1909, were 47,258 ozs. and Rs. 26,98,788, and those in the eight months, April to November, 1909, were 372,222 ozs. and Rs. 2,12,47,951. The output as compared with the corresponding periods of 1908 and 1907 was as follows:—

Month of November.

	1909.	1908.	1907.
Mysore	ozs. 45,957	ozs. 46,001	ozs. 44,541
Nizam's Territory	Rs. 26,20,788	Rs. 26,49,529	Rs. 25,54,598
	ozs. 1,301	ozs. 1,508	ozs. 966
	Rs. 78,000	Rs. 86,495	Rs. 53,258

Eight months, April to November.

	1909.	1908.	1907.
Mysore	ozs. 361,932	ozs. 354,296	ozs. 353,207
Nizam's Territory	Rs. 2,06,48,701	Rs. 2,04,20,527	Rs. 2,02,70,183
	ozs. 10,290	ozs. 11,423	ozs. 9,102
	Rs. 5,92,250	Rs. 6,52,620	Rs. 5,12,668

The following statement shows the quantity and value of manganese ore exported by sea from each province of British India to countries of final destination in November, 1909:—

Countries of final destination.	Bengal.		Bombay.		Total.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Cwt.	Rs.	Cwt.	Rs.	Cwt.	Rs.
NOVEMBER, 1909.						
United Kingdom	50,000	45,000	...	...	50,000	45,000
Belgium	20,000	20,000	150,000	1,32,500	170,000	1,52,500
France	20,000	20,000	100,000	97,000	120,000	1,17,000
United States of America	...	...	127,000	96,250	127,000	95,250
Total	90,000	1,00,000	377,000	3,34,750	467,000	4,00,750

It appears from the *Review of River Plate* (Buenos Ayres) that the "Camara Arbitral de Cereals" report that for the coming crop new bags, of 10 oz. and 9½ oz weight respectively, are to be employed for bagging linseed and wheat.

The rain in Argentina which took place about the 18th December and which is likely to repair to a great extent the damage done to crops by the earlier drought will be good news to the Calcutta jute and gunny market. It may reasonably have been regarded with misgivings by the Indian shippers of oil-seeds, who were congratulating themselves on the strength displayed by prices in spite of the redoubtable soy bean, but the rise has continued. Linseed, which was quoted in London at about 53s. in the middle of December, is now about 58s. 6d. and rapeseed is reported firmer.

The daily prices of opium per chest for the periods mentioned below were as follows:—

For the week ending 1st January, 1910—

In the Calcutta market—

Behar opium—Rs. 1,890; 1,903; 1,922; 1,929; 1,950; 1,958; 1,998.

Benares opium—Rs. 1,910; 1,925; 1,940; 1,950; 1,970; 1,980; 2,015.

The prices in the time bargains for the Bihar opium of the 1st sale of 1910 were exactly same as mentioned above in case of Behar opium.

In the China market—

At Hongkong—(Exchange Rs. 133½ per \$100.) Behar opium—\$1,415; 1,417½; 1,430; 1,440; 1,445; 1,465; 1,490.

Benares opium—No quotations received.

At Shanghai—(Exchange—No quotations received).

Behar opium—No quotations received.

Benares opium—No quotations received.

In the Bombay market—

During the entire period of the week (new, 1908-09) Rs. 1,210; (new, 1907-08) Rs. 1,250 to 1,720; and (old, 1906-07) Rs. 1,325 to 1,780. The latest prices at Hongkong and Shanghai were (new) Rs. 1,700 and 1,888; (old) Rs. 1,798 and 1,923, respectively.

For the week ending 8th January, 1910—

In the Calcutta market—

Behar opium—Rs. 2,012; 2,035; 2,085; 2,130; 2,130; 2,148; 2,210.

Benares opium—Rs. 2,030; 2,000; 2,060; 2,110; 2,120; 2,140; 2,200.

The prices in the time bargains for the Behar opium of the 1st sale of 1910 ending on the 3rd instant were Rs. 2,212; and 2,030; and of the 2nd sale of 1910 begun on the 4th instant were Rs. 2,085; 2,130; 2,140; 2,158; 2,220.

In the China market—

At Hongkong—(Exchange Rs. 133½ per \$100.) Behar opium—\$1,490; 1,505; 1,550; 1,565; 1,600; 1,605; 1,605.

Benares opium—No quotations received.

At Shanghai—(Exchange—No quotations received).

Behar opium—No quotations received.

Benares opium—No quotations received.

Sanction has been accorded by the Railway Board to an estimate for the construction of the Balaghat Katangi Extension of the Bengal Nagpur Railway, 29½ miles long.

The net earnings of the Barsi Light Railway Co., Ltd., for the year ended June 30th last amounted to Rs. 14,838. A dividend of 4 per cent for the year has been declared. At a meeting of the East India Distilleries and Sugar Factories, Ltd., held in London on the 23rd ultimo, it was reported that a decrease in the profits necessitated a large reduction in the dividend on the preference shares, but it was hoped that the decline, which was entirely due to climatic causes, was only temporary.

The following particulars of Australian wool sales are taken from the monthly circular of Messrs. Goldsbrough, Mort & Co., Ltd., dated Melbourne, December 16th:—Owing to the complications arising from the coal strike, it was found necessary to suspend sales for a week, but as shippers were able to guarantee sufficient bunkered space for each week's purchases, sales were resumed on 15th ultimo, and progressed steadily until the close of this week. With the advent of the choice Western district clips, prices have ruled on a higher level than previously, but the great bulk of wools have shown but little change apart from the ordinary variations inseparable from any auctions. During the past week a slight irregularity has been noticeable in that section, which does not quite reach up to the top, but this has been more than counterbalanced by the attention paid to top making parcels of all classes. Apart from merinoes, the general trend of the market has been towards crossbreds of all grades, which have met with widespread competition from the inception of the sales. The very choice lots of super comebacks and fine crossbreds, for which extreme rates were forthcoming, have lately exhibited signs of weakness; on the other hand, Lincoln grades have moved up. Lambs of all descriptions have also been in much demand, and are to-day distinctly dearer than at the time of our last report. Victorian sales to-day show an increase of 58,067 bales as compared with the corresponding period of last year; the figures being 2,60,550 and 324,117 respectively. It is estimated that there will be 120,000 available for the second series, which, as at present arranged, will open on 10th January. The table below shows

present prices for tops, corresponding period last year, and prices current two years ago:—

	Dec., 1909.	Dec., 1908.	Dec., 1907.
Super 60's	26½d.	23½d.	27d.
Common 60's	25½d.	22½d.	26½d.
46's (medium crossbred)	16½d.	13d.	15d.
40's (coarse crossbred)	13½d.	11½d.	3½d.

The *Manchester Guardian* of December 20th writes:—From July 1st, when the present Australian wool year began, to the present date, the sales have aggregated 940,000 bales, compared with 912,000 bales for the corresponding period of 1908. Taking into account the various circumstances which have tended to prevent the marketing of wool throughout the Commonwealth during the present season, viz., the delays to shearing on account of the rainy weather, the controversy between the selling brokers and the buyers, the adjournment of the last advertised auction at Adelaide until the new year, and, finally, the labour troubles, the increase of 28,000 bales in the quantity disposed of in the Australian markets is very surprising and is one more indication of the record size of the clip. At Bradford sensational cablegrams from Buenos Ayres are being put about which estimate that the clip from Argentina this season will show a decrease variously estimated at anything from 125,000 down to 70,000 bales. The difference between these figures should put the trade upon its guard. Similar stories were circulated last year, although when the final statistics were available it was found that instead of a decrease there was an increase of no less than 85,000 bales. Uruguay is having one of the best seasons on record, and if the record exports of beef, mutton, and lamb now being made from Buenos Ayres and other Argentine ports are anything to go by, there should be no decrease in its exports of wool, for in all countries when fat stock of all kinds is plentiful the clip of wool does not generally show any falling off. The market at Bradford for all classes of tops is fairly steady, but Continental markets are dull.

Applications in respect of the following new inventions were filed in the Patent Office, Calcutta, during the week ending 3rd January, 1910:—N. R. Stiles, commercial traveller, 34, Leadenhall Street, London—Improvements in devices for automatically delivering articles. H. Sewill, stockbroker, 42, Poultry, London—Improvements in the means for suspending bird cages, flower pots and the like. Monotype Machine Syndicate, Ltd., 43, Fetter Lane, London—Improvements in or relating to moulds and mould adjusting mechanism for type-casting machines. O. Halliday, East India merchant, 57½ Old Broad Street, London—An improvement in rice and other grain milling hullers and cones. A. R. Angus, solicitor, Spit Road Mosman, New South Wales—Improvements in and relating to devices for preventing collisions between Railway trains. T. Reid, Rivers Steam Navigation Company's

Dockyard, Calcutta—Improvements in or relating to the transference of a vessel from one position to another on land. J. R. Kinney, manufacturer, 100 Bolyston Street, Boston—Improvements in rotary motors. R. Stock, manufacturer, 48-49, Copenickerstrasse, Berlin—Improvements in or relating to motor ploughs and the like. D. Roberts and J. W. Young, engineers, Spittlegate Iron Works, Grantham, Lincolnshire, England—Improvements in or connected with vaporisers for internal combustion engines. V. J. Kuess, chemist, 2, Impasse Ben Nessib, Tunis—Process of manufacture of paper pulp from the fruit of trees of the cocoanut tribe. C. Forstmann, gentleman, Rheinstein Villa, Darjeeling—A flexible watertight fastening clip for corrugated iron sheets. K. Lal, merchant, Bazar Thompsongunj, Sitapur (Oudh)—Hand-power grinding machine. C. Jost, engineer, Standard Buildings, Hornby Road, Bombay—Improvements in apparatus for cooling or moistening air.

In its issue of December 18th the *Manchester Guardian* says:—In Lombard Street the customary end-of-the-year stringency in money is being witnessed, but as usual the market is hoping that when the year has turned much easier condition will rule, and a few are backing their opinion by taking three months' bills deliverable then at 3½ per cent against the current rate for spot business of about 4 per cent. Similar business was indulged in freely a year ago, but it proved expensive, for instead of the Bank rate falling in January, as is frequently the case, it had to be advanced. It may be doubted whether the hopes of easier money with the new year will be fully realised. One cannot be dogmatic on the point, for the position is complicated by the unknown extent of borrowings by the Treasury to fill the gap caused in the revenue by the absence of a Finance Bill. Even assuming that money so borrowed will come out again quickly there are one or two other considerations to be borne in mind. The most important is that early in the new year the London market will have to find a large amount to meet the maturity of bills bought by France when the rise in the value of money here was most marked, which repayment must be effected in sovereigns. There is the possibility of the Argentine demand for gold proving to be important owing to the satisfactory character of the crops, and although this may be largely met still from New York it cannot be expected that London will not be troubled. The crops of India, too, are exceptionally good, and the financing of them in the next month or two will require a considerable sum. Further, the Continental demand for gold in our open market, which was little in evidence while the Bank was prepared to pay a premium over its statutory quotation, has since revived, and more than one European country is understood to be desirous of increasing its stock. The outlook, therefore, is an uncertain one, but a satisfactory feature is that the speculative business on the prospects of cheap money in the new

year is on a much smaller scale than has been frequently the case. Probably the keynote of the situation will be the ability of the Government to finance the country until new money powers are obtained.

It is reported in Bombay that arrangements have been completed to form a **new stock exchange in Bombay** with a capital of five lakhs and that the sum of Rs. 1,50,000 has already been subscribed.

The weather conditions in India during the week ended Tuesday last were marked by the formation of a depression at the head of the Bay of Bengal which caused general rain in Orissa and local rain in Chota Nagpur and Eastern Bengal and Assam. A fresh disturbance appeared over Baluchistan, giving overcast skies north-east of that area.

NOTICES.

CALLS FOR TENDERS.

Miscellaneous Stores.

The Superintendent, Army Clothing Factory, Alipore (Calcutta), is calling for tenders up to the 24th proximo for the supply of miscellaneous stores, other than woollen, cotton and leather goods.

Woollen and Cotton Sweepings.

The Superintendent, Army Clothing Factory, Alipore (Calcutta), is calling for tenders up to the 24th proximo for the purchase of unsorted woollen and cotton sweepings.

Ordnance Stores.

The Ordnance Officer in charge, Agra, is calling for tenders up to the 8th proximo for the supply of petty stores.

Tea.

The Divisional Contract Officer, Meerut, invites tenders up to the 29th instant for the supply of Indian tea.

Government Rubber.

Sealed tenders will be received at the office of the Conservator of Forests, Western Circle, Eastern Bengal and Assam, up to noon 31st January, 1910, for the purchase of the whole quantity of rubber which is collected by the Forest Department during 1909-10 from the Government Rubber Plantations at Charduar and Kulsi. The yield is estimated to be more or less:—Charduar Plantation, 12,000 lbs.; Kulsi Plantation, 5,000 lbs. Tenders should state the price per pound offered separately for each of the plantations.

ENQUIRIES.

(For particulars address the Director-General of Commercial Intelligence, 5, Olive Street, Calcutta.

An asterisk (*) preceding an enquiry indicates that bank references are offered.)

Cocoanut Oil.

(568)—A firm in Limassol desires to be placed in communication with exporters of cocoanut oil suited for the manufacture of cocoanut butter or of the latter product.

Corn-sacks, Bran-bags and Wool-packs.

(569)—A firm in Sydney is desirous of being placed in communication with firms in Calcutta dealing first-hand in corn-sacks, bran-bags and wool-packs.

Electrical Switch Gear.

(570)—A British firm of electrical and general engineers desires the addresses of firms in a position to push the sale of electrical switch gear and accessories.

Glues, Oils and Colours.

(571)—A Manchester firm desires the addresses of importers of glues, oils and colours, etc.

Ignition Apparatus.

(572)—A Birmingham firm of manufacturers of electrical ignition apparatus for motor-cars, gas engines, and all internal combustion engines, desires the addresses of dealers.

Jewellery.

(573)—A firm of manufacturing jewellers in Birmingham desires the addresses of importers.

Floor-cloths.

(574)—A Fifehire firm of cloth manufacturers desires the addresses of import firms.

BOOKS OF REFERENCE.

The following publications have been received and may be consulted by any desirous of studying them at the office of the Director-General of Commercial Intelligence, 5, Clive Street, where they will be displayed in the ante-room till Wednesday, 19th January, 1910:—

Parliamentary Publications.

Colonial Reports—A. Series No. 628—Grenada, 1908; M. Series No. 63—Imperial Institute—Selected Reports from the Scientific and Technical Department, Part II—Gums and Resins, —No. 64—Uganda—Report on the Botanical Forestry, and Scientific Department for the year ended 31st March 1909. Foreign Trade and Commerce—Monthly Account, November, 1909. United Kingdom—

Annual Statement of Trade, 1908, Supplement to Vols. I and II—Abstract and Detailed Tables Showing Countries of Consignment of Imports and Countries of Ultimate Destination of Exports.

Foreign and Colonial Publications.

Canada—Weekly Trade Report, dated 13th December 1909;—Monthly Trade Report, September, 1909. Denmark—Annual Trade Accounts, 1908. Egypt—Monthly Trade Accounts, November, 1909. France—Annuaire Statistique de la ville de Paris, 1907. Netherlands—Monthly Trade Accounts, November 1909. Queensland—Report of the Director of Labour and Chief Inspector of Factories and Shops for the year ended 30th June 1909. Russia—Monthly Trade Accounts, October 1909. Strassburg—Beitrag zur Statistik der Stadt. Sudan—Central Economic Board—Monthly Report for November 1909. United States Department of Agriculture:—Bureau of Plant Industry—Circular No. 39—Decay of Cabbage in Storage; Its Cause and Prevention; Bulletin No. 154—Farm water Supplies of Minnesota. Bureau of Soil—Bulletin No. 57—Study of Crop Yields and soil Composition in relation to Soil Productivity. Office of Experiment Stations—Circular No. 89—Organization, Work, and Publications of Food and Nutrition Investigations;—No. 91—Secondary Education in Agriculture in the United States Experiment Station Work, Vol III, No. 13. Bureau of Statistics—Bulletin No. 7—Imports of Farm and Forest products, 1906-1908. Forest Service—Bulletin No. 76—How to Grow and Plant Conifers in the North-Eastern States;—No. 78—Wood preservation in the United States;—Circular No. 167—Status of Forestry in the U. S.;—No. 168—Commercial Importance of White Mountain Forests. Bureau of Animal Industry—Circular No. 151—Competitive Exhibitions of Milk and Cream;—No. 152—Directions for the Home Pasteurization of Milk; Bulletin No. 117—Leucocytes in Milk: Methods of Determination and the Effect of Heat upon their Number;—No. 119—Studies of Blood and Blood Parasites. Porto Rico Agricultural Experiment Station—Annual Report for 1908. Bureau of Entomology—Circular No. 113—The Chinch Bug; Bulletin No. 58, Part IV—Some Insects Injurious to Forests; Bulletin No. 77—Hibernation of the Mexican Cotton Boll Weevil; Bulletin No. 83, Part I—Practical Information on the Scolytid Beetles of North American Forests; Bulletin No. 84, Part I—Papers on Cereal and Forage Insects. Bureau of Chemistry—Circular No. 46—Occurrence of Pinene in Lemon Oil;—No. 47—Hydrolysis of Salicin by the Enzym Emulsin;—No. 129—Enological Studies. Farmers' Bulletin—No. 369—How to Destroy Rats; No. 370—Replanting a Farm for Profit; No. 371—Drainage of Irrigated Lands; 372—Soy Beans;—No. 374—Experiment Station work, III; No. 376—Game Laws for 1909; No. 377—Harmfulness of Headache Mixtures; No. 378—Methods of Exterminating the Texas Fever Tick.

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The Indian Trade Journal.

THURSDAY, JANUARY 13, 1910.

TANNING MATERIAL INDUSTRY FOR INDIA.

THERE would seem to be ample room in India just now for a tanning extract industry on a large scale. The raw materials are abundant and the process of manufacture is relatively simple. As matters stand, however, this trade in tanning extracts and materials appears to be on a very unsatisfactory basis so far as India is concerned. To show its extent we append below a statement giving the exports by sea from British India during the past two years of tanning and dyeing materials:—

Articles.	1907-08.		1908-09.	
	Cwts.	Rs.	Cwts.	Rs.
Cutch . . .	91,690	14,47,581	62,812	9,25,242
Gambier . . .	79	2,346	29	800
Indigo . . .	32,490	63,72,734	24,946	49,04,791
Myrabolams . . .	1,493,294	58,95,246	1,466,740	57,20,302
Safflower . . .	3,486	63,222	1,708	37,681
Turmeric . . .	82,844	9,91,081	91,416	9,59,666
Other sorts . . .	25,785	1,56,497	26,654	1,54,611
Total . . .	1,729,668	1,49,28,707	1,674,405	1,27,03,093

It will be noticed that the figures prove that the trade is a very substantial one. The next table gives particulars of imports of tanning and dyeing materials into British India during the past two years, and here again the sum involved is large:—

Articles.	1907-08.		1908-09.	
	Cwts.	Rs.	Cwts.	Rs.
Alizarine dyes . . .	56,308	33,18,869	50,101	30,29,126
Aniline . . .	59,387	51,46,412	56,438	50,18,749
Cochineal . . .	1,573	2,21,827	2,434	2,41,919
Cutch . . .	123	3,135	111	2,447
Gambier . . .	32,191	6,60,542	30,097	5,62,117
Indigo . . .	1,078	97,539	1,254	1,53,484
Madder or manjit . . .	513	8,503	249	4,551
Myrabolams . . .	335	1,324	419	1,563
Saffron . . .	407	6,64,344	382	6,07,115
Other sorts . . .	10,265	3,00,862	12,728	3,98,455
Total . . .	162,180	1,04,23,357	154,213	1,00,19,524

This has the appearance of being a very unsatisfactory and wholly wasteful state of affairs, which could be righted by the judicious investment of not a very large amount of capital in a well equipped factory (or several of them in the different Presidencies) for the up-to-date manufacture of tanning materials, for which there is always an active demand in most countries. In this matter, India should, and could, not only be in a position to manufacture all the tanning materials she may require for her own use, but be a very large exporter of such into the bargain. Almost from any point of view the manufacture of tanning extracts in India from, of course, Indian materials merits study, for, amongst other advantages, such a course would preclude the necessity of paying heavy freight charges on bulky raw material, only a small percentage of which is convertible into tannin. In some cases as much as three-fourths of a shipment of raw tanning materials may be waste, so that a large saving in freights would be made by converting the raw materials into extract in this country. There would be a still further saving by using the refuse as fuel in the preparation of the extract.

As we have said, the process of manufacture is a simple one. The machinery required is far from costly, and text books, such as Procter's *Principles of Leather Manufacture* (Spon, London) and

Modern American Tanning (Jacobsen Publishing Co., Chicago), are to be had that furnish all the information requisite to not only start a factory but to conduct it on scientific lines. The first step is to grind the raw materials so that the tannin they contain may be easily extracted. For this purpose a grinding mill is required, several varieties of which are on the market at prices far from exorbitant. In the case of divi-divi and algarobilla the tannin is so very loosely contained that no grinding is required. On the other hand, myrabolams and mimosa bark, owing to their combined hardness and toughness, require special treatment as they tend to clog an ordinary grinding mill. For these a "Disintegrator" has been invented and does its work thoroughly. Again several kinds of disintegrators are on the market and may be readily obtained at a price that is strictly within the means of the average capitalist.

Those named are the principal grinding machines used, but an oil or other engine would be required to drive them at a high speed (perhaps as fast as 3,000 revolutions per minute) to obtain the best results with refractory raw materials. But the engine horse-power for this class of work would not be excessively high and engines of the type required are now cheaply obtainable.

The raw material having been reduced to a certain state of fineness, the next step is to remove the tannin by soaking the material in water. This process is called "Leaching" and there are many inexpensive devices obtainable for hastening it. Extraction completed, the next move is to concentrate, by evaporation, the liquor obtained from the leaching vats to the syrupy consistency of liquid extracts or to solid extracts, if such be desired. This process is carried out in an apparatus known in the trade as an "Evaporator" and demands a certain amount of skill to ensure a uniform extract.

It is not improbable that the tanning industry in India would in itself furnish the backbone of the business to be done by a manufacturer of extracts in this country, and that the offer of such extracts at low rates would give a new stimulus to leather making and so create a still further demand for the extracts. It is well known that the exhaustion of the supply of crude tanning materials over wide tracts about the principal tanneries is becoming a very grave matter. The creation of a fresh supply in such tracts involves complicated questions of forest practice and of land tenure, and even if these were

overcome the problem would remain unsolved, seeing that the babul, for instance, must have from eight to ten years' growth before it becomes fit to cut for bark. It is impossible to move a large tannery in pursuit of retiring bark supply and it is impossible to carry bark profitably over more than a certain distance. But the plant required for the manufacture of extracts is not so elaborate but that it is practicable to remove it from a region that has been denuded of material and reinstall it in the centre of a fresh supply. This procedure is followed in other countries. The extract represents only a small proportion of the material. As a saving in sea freights would be made in respect of exports, so a saving in railway freight would be made both on exports and the substance required by Indian tanneries. Viewed from this point, the proposition would appear to be one that might well commend itself to one of the large tanneries that have been feeling the pinch in respect of bark and which might find it to their advantage to combine export trade with the production of such extracts as they required for their own use. In such a business it is often well to have two strings to the bow.

—A Constantinople correspondent of the *Cologne Gazette* states that the Turkish Minister of Works is considering the introduction of a scheme with the object of advancing the development of national industry. By this the law would give certain benefits to companies the entire capital of which was in Turkish hands and employing over 25 workpeople. According to the *Manchester Guardian* the main principles of the new proposals are—(1) The land required for building the works will be granted to the manufacturer free; (2) the plant must be running within three years from the time the land concessions are made; (3) whilst the new law is in operation and in any case during the next fifteen years, the land is to be free from all taxes; (4) any machinery or plant imported from abroad will be allowed to enter the country duty free; (5) firms founding industrial training schools will be granted further advantages; (6) the Government will specially favour those industries whose raw material is produced in Turkey itself, provided the finished article can be sold at a price not more than 10 per cent above those ruling abroad. If these proposals should actually materialise their influence on the commercial progress of the country will be watched with interest.

CHAMBER OF COMMERCE.

BURMA.

At a meeting of the Committee of the Burma Chamber of Commerce on November 11th, the following among other items of business were transacted:—

Fuchite Quartzite.

Read letter, dated 30th September, 1909, from Mr. D. Shama Rao, Shimoga, sending samples of Fuchite Quartzite and enquiring whether this quartzite could be used as a substitute for Jade commercially.

Resolved—That Mr. Shama Rao be informed that the Committee suggest that the samples be sent on to the Chinese Chamber of Commerce; and to ask whether he is agreeable to this being done.

The Indian Chamber of Commerce.

Considered letter, from the Indian Chamber of Commerce, who use the style of "The Rangoon Chamber of Commerce" and to whom a letter of protest was sent by this Chamber as the name was considered likely to lead to confusion with this Chamber, stating that they do not consider there is any reason why their Chamber's style should be altered.

Resolved—That the Indian Chamber of Commerce be informed that there is likely to be confusion as this Chamber was known, until quite recently, as the Rangoon Chamber of Commerce. And that the Secretary call on the Secretary of the Indian Chamber of Commerce and explain this, at the same time requesting them to use some distinguishing title for their Chamber.

Bamboo Pulp for Paper-making.

Read letter, dated August from Mr. R. W. Sindall, F.G.S., enclosing book regarding the manufacture of paper from Bamboo Pulp.

Resolved—That the letter and book be circulated to Members.

Read letter dated 2nd November, 1909, from the Rangoon Municipality regarding the Report of the Royal Commission on Decentralisation in India, and asking this Chamber for an expression of its views on the subject. Also letter, dated 10th November, 1909, from the Chinese Chamber of Commerce asking this Chamber to forward a copy of its reply to the Municipality to them.

Resolved—That the President of the Rangoon Municipality be interviewed by the Chairman on the subject.

That the Chinese Chamber of Commerce be informed that a copy of the Chamber's reply to the Municipality will be forwarded in due course.

TARIFF CHANGES AND CUSTOMS NOTIFICATIONS.

The Board of Trade Journal, published on the 23rd December, 1909, in the section relating to Customs Regulations, gives particulars about:—

DOMINION OF NEW ZEALAND.—Customs Decisions.
BRITISH SOUTH AFRICA.—Customs Decisions.
ORANGE RIVER COLONY.—Regulations respecting Importation of Plants, etc.

NETHERLANDS.—Customs Decisions.
ROUMANIA.—Duty-free Importation of Sheet Iron under the Mining Law.

CUBA.—Reduction of Certain Import Duties.
HAWAII.—Imposition of a Surcharge on Import Duties.

COSTA RICA.—Customs Duty on Syrups with Bromide Base.

CHILE.—Reduction of Certain Customs Duties.

ARGENTINE REPUBLIC.—Excise Duty on Toilet Preparations. Temporary Duty-free Admission of Works of Art for Exhibition at Buenos Aires in 1910.

EASTERN BENGAL AND ASSAM.

Crop Reports.

(By Telegram.)

Shillong, Jan. 11th.

The following is a summary of the weather and crop reports of Eastern Bengal and Assam for the week ending 10th instant:—

The weather is seasonable. Light showers have fallen in most districts. The harvesting of winter rice continues, and a normal outturn is expected.

The transplantation of spring rice has commenced. The harvesting of sugarcane and mustard and the transplanting of tobacco are going on. Soil is being prepared for jute.

The prospects of tea, wheat, tobacco and sugarcane are good; mustard and pulses fair.

The average price of common rice has fallen by about 3 per cent.

Cattle disease is reported in Dinajpur, Kamrup, Darrang and Sibsagar.

—The Mexican Herald states that experiments which have been made in the cultivation of the guayule rubber plant at Torreon during the last three years have proved successful, and that a large area will now be planted; the plants will require about four years before they become of commercial value. The capacity of the guayule factory in Torreon was recently increased from 140 to 150 drums, and has an abundant supply of guayule on hand. A company has been organised and a guayule factory established in Worcester county, Texas. A large tract of land has been bought in that county, on which the company intend to plant guayule, and a narrow plant of 24 drums is being erected, which is to use the Ephraim patent process for extraction.

CENTRAL SUGAR FACTORY SYSTEM.

In our last issue we dealt with this subject at some length. The following particulars from an article by Francis Watts, C.M.G., D. Sc., F.I.C., F.C.S., Imperial Commissioner of Agriculture for the West Indies, in the *West Indian Bulletin*, Vol. X, No. 2, show the nature of the issue as presented to the West Indies and it will be seen that it is if anything less pressing than that which faces us in the East Indies. We believe that the experience of those manufacturers in India who already have experience of the difficulty of finding a market for their molasses will see in an increased yield of that commodity small compensation for a loss of crystallised sugar:—

Briefly stated, the arguments in favour of the introduction of modern factories are:—That the mills of large factories are capable of obtaining a much greater quantity of juice from the canes and of producing a better class of sugar, which may be stored and handled without loss: whereas the small mills of muscovado factories are said to be inefficient and the sugar produced is of lower grade not in ready demand, and is liable to loss in handling and storing.

The arguments on the other side are:—That the cost of the machinery necessary to effect the improvement absorbs a large portion of the profits; that while the existing system produces a lower grade of sugar, it produces also a high grade of molasses for which a good price can be obtained, and that in the aggregate, the muscovado process pays as well as the modern factory process.

The argument obviously turns first on the amount of juice expressed from the canes by modern mills as compared with small mills. Now, here at the outset, difficulties arise in regard to the comparison of the work done by different mills on different kinds of canes; for it is clear that the quantity of juice which can be crushed from a cane depends on the quantity that it contains, and planters know well that the amount of juice contained in canes varies considerably. Hence we learn very little when we are told that one mill is giving 68 per cent of juice and another 57½ per cent. Under some conditions the mill giving the lower figure may really be doing the better work.

Our ideas concerning the composition of canes and the amount of juice which it is possible to obtain from them may be rendered much clearer by a very simple formula, which, although not perfectly accurate, affords approximations, which are sufficiently near for our purpose. The quantity of juice contained in cane may be calculated approximately thus:—From 100 deduct one and one-third times the percentage of fibre in the cane. On this assumption we obtain the following:—

Canes which contain	would contain
10 per cent of fibre	86·7 per cent of juice.
11 " "	85·3 " "
12 " "	84·0 " "
13 " "	82·7 " "
14 " "	81·3 " "
15 " "	80·0 " "
16 " "	78·7 " "
17 " "	77·3 " "

Following on this, we have a most useful suggestion formulated by Mr. J. Lely, Chemist to the Antigua Sugar Factory Company, namely, that the efficiency of the work done by a mill may be measured by ascertaining, in the megass coming from the mill, the quantity of juice carried away by 100 parts of fibre. (See *West Indian Bulletin*, Vol. IX, p. 85.)

A number of experiments have demonstrated that the ordinary three-roller mill leaves in the megass from 150 to 180 parts of juice per 100 of fibre, or even more if very poor work is being done. The megass from a single mill with a cane splitter contains about 120 to 130. That coming from a train of mills, consisting of a Krajewski cane-crusher and two 3-roller mills, in which maceration is effected, contains from 65 to 70; while the megass coming from a train of mills consisting of a Krajewski cane-crusher and three 3-roller mills employing maceration may be reduced to a content of 25 to 30 parts of juice to 100 parts of fibre.

If we tabulate the results which may be obtained from various systems of milling as effected on canes of different fibre contents, we obtain interesting results:—

Type of milling plant.	Juice per 100 of fibre in megass.	Juice extracted per 100 of cane when fibre content of cane is:—				
		10 per cent.	12 per cent.	14 per cent.	15 per cent.	16 per cent.
Bad single mill	200	66·7	60·0	53·3	50·0	46·7
Fair " "	180	68·7	62·4	56·1	53·0	49·9
Good " "	150	71·7	66·0	60·3	57·7	54·7
Cane splitter and single mill	130	73·7	68·4	63·1	60·5	57·9
Krajewski and two 3-roller mills with maceration	70	78·7	75·6	71·5	69·5	67·7
Krajewski and three 3-roller mills with maceration	30	83·7	80·4	77·1	75·5	73·9
Krajewski and three 3-roller mills with maceration, best work	25	84·2	81·0	77·8	76·2	74·7
Total juice in cane	...	80·7	84·0	81·3	80·0	78·7

Such a table enables us to realize at once the enormous influence exerted by the fibre of the cane upon the quantity of juice which is obtainable. Thus, a good single mill will obtain from 71·7 to 54·7 per cent of juice according as the cane contains from 10 to 16 per cent of fibre. The table also enables us to see at a glance the influence on the crushing of the perfection or imperfection of the mills employed. This table shows the futility of judging the character of the mill work solely on the basis of the percentage of juice obtained. It shows also how many of the conflicting statements concerning mills which have puzzled us in the past may have arisen.

The question at once arises: "What quantity of fibre may we expect to find in our own canes?" The amount of fibre in the canes dealt with at the Antigua Sugar Factory averages somewhat over 15 per cent; we are without accurate data for the fibre content of whole crops in Barbados, but I believe the amount will lie in the neighbourhood of from 14 to 15 per cent. This being so, we should expect the single mills of Barbados to have crushing records ranging from 53 to 60 per cent; and these figures, I believe, correspond fairly well with actual observations.

In this connexion, it must be remembered that the work of the mill must be measured by its average performance during the whole crop, taking into account all defects arising from the steam or wind power, bad feeding, and such like. What a mill can do may be very different from what it actually does on the average.

Let us turn now from the extraction of juice from the canes to the extraction of sugar from the juice. Experience has shown that in a modern factory 88° to 89° lb. of sugar of 96° polarization are sent to market for every 100 lb. entering the factory in the juice, whereas under the muscovado system about 76 lb. of sugar of 89° polarization are produced. In the case of the muscovado system about 90 wine gallons of molasses are produced for each ton of sugar, while in the modern factory about 30 wine gallons of low grade molasses are produced. That is, about 3.05 wine gallons of muscovado molasses and 1.02 wine gallons of "factory" molasses for every 100 lb. of sugar in the juice.

Calculating on the basis of the foregoing figures we find that if a factory (as at Antigua) working on canes of a fibre content of 15 per cent requires 9.15 tons of cane to make a ton of crystals, a muscovado factory with the same canes and a mill giving megass containing 180 of juice per 100 of fibre will require 13.9 tons of cane to produce a ton of muscovado sugar. Should the mill give megass containing 150 of juice per 100 of fibre, the canes required will be 12.8 tons per ton of sugar.

In order to show the influence of the fibre in the canes and of the working of the mill on the number of tons of cane required to make a ton of sugar, the following table has been prepared:—

Assuming that the juice contains 1.95 lb. of sucrose per gallon.

Kind of mill.	Tons of cane required to make 1 ton of sugar when fibre content is:—		
	14 per cent.	15 per cent.	16 per cent.
Muscovado			
Bad single mill . .	13.66	14.56	15.60
Fair " "	12.98	13.74	14.60
Good " "	12.08	12.62	13.31
Factory (Crystals),			
Double crushing and			
Krajewski	8.80	9.05	9.29

All these figures justify the general conclusion, that under conditions where 13½ tons of canes are

required to make a ton of muscovado sugar, a ton of crystals can be made in a modern factory from 9 tons of canes: if the canes dealt with are of such a quality that more or less is required in one case, a corresponding amount more or less will be required in the other.

These calculations, as given in Appendix A of that report, are as follows:—

Muscovado System.

Thirteen and one-half tons of canes are estimated to produce 1 ton 89° muscovado sugar and 90 wine gallons of molasses.

The value of the canes is estimated thus, when muscovado sugar is worth:—

	\$2.12 per 100 lb. £ s. d.	\$1.80 per 100 lb. £ s. d.
1 ton 89 muscovado	9 17 10	8 8 0
90 wine gallons molasses at 13½c.*	2 10 8	2 10
Punchon	0 16 8	0 16 8
The value of produce is	13 5 2	11 15 4
But the cost of manufacture (exclusive of renewals of machinery, say, 4s. per ton of cane) is	2 14 0	2 14 0
So that the value of 13½ tons cane without provision for upkeep of machinery, etc., is . .	10 11 2	9 1 4
And the value of 1 ton of cane is	0 15 7½	0 13 5

* With molasses at 16c. per gallon add 2½c. per gallon, i.e., 2½ × 90 gallons = \$2.25 or 9s. 4d. as increased value of molasses from 13½ tons of cane, i.e., per ton of cane 0 0 8½
The value of 1 ton of cane is increased to 0 16 4 0 14 1½

Factory System.

Thirteen and one-half tons of cane will produce 1½ tons of 96° dark crystals and say 36 imperial gallons of molasses. The value of the canes will be as follows, when 96 dark crystals are worth:—

	\$2.57 per 100 lb. £ s. d.	\$2.25 per 100 lb. £ s. d.
1½ tons of 96 dark crystals	18 0 0	15 15 0
36 imperial gallons molasses at 6c.	0 9 0	0 9 0
The value of the produce is	18 9 0	16 4 0
But the cost of manufacture of 1½ tons is	4 2 6	4 2 6
So that the value of 13½ tons cane (without provision for purchase and renewal of machinery and buildings) is	14 6 6	12 1 6
And the value of 1 ton cane is	1 1 2½	0 17 10½

† One hundred imperial gallons equal to 120 wine gallons. To change imperial to wine gallons add one-sixth. To change wine to imperial gallons deduct one-sixth.

The increased value of canes in the factory system is between 5s. 7d. and 4s. 5½d. per ton, which represents the sum available by means of which to procure a factory. This difference is reduced to 4s. 10½d. and 3s. 9d. if molasses sells at 16c.

The calculations given take no account of the sum required for the purchase and upkeep of the machinery under either system. Under the muscovado system the machinery and buildings already exist and have been paid for; the cost of their upkeep and renewal alone has to be taken into account. It is estimated that this is equal to about 13s. 6d. per ton of sugar or 1s. per ton of canes. The cost of ordinary renewals necessary to keep the factory machinery in good order has been included in the 55s. per ton allowed for manufacture.

The sum required to purchase a modern factory will depend to a considerable extent on its size, and may range from £15 per ton of output for a 3,000 tons factory to £11 or £12 per ton for one of 5,000 tons capacity. It seems reasonable to suppose that a sum equal to about 12 per cent should, over a period of twelve or fifteen years, be sufficient to pay interest and sinking fund on the capital and create a small reserve fund. This would constitute a charge of from 3s. to 4s. per ton of cane, as against the 1s. per ton estimated under the muscovado system. The direct gains to be expected from a factory may therefore be taken to be equal to 1 or 2s. per ton of cane, pending the time that the capital is paid off, and after that they may be some 3s. or 5s. per ton.

These figures show that there is much truth in the argument that the cost of the machinery absorbs a very large proportion of the estimated gains. It must, however, be remembered that the cost includes a charge for sinking fund, so that under favourable circumstances it is estimated that the capital would be repaid in about fifteen years, when the heavy charge for interest and sinking fund would cease. The figures also show that the success of a factory must largely depend on the obtaining of capital at reasonable rates and they go far to support the idea that the factory must be on a co-operative basis, whereby the cane growers can obtain the ultimate advantages to be derived when the capital is paid off.

For the sake of convenience and easy calculation, the estimated gains under a factory system have been reckoned on the basis of a ton of canes: there is some danger lest the statements of the results on the basis of so small a unit may create the impression that the probable gains are trifling or negligible. That this is not the case may be better appreciated perhaps if these probable gains are re-stated in terms based on the ton of sugar or on the crop of an estate.

The estimated gain of a shilling or 2s. per ton of cane means an estimated gain of 13s. 6d. to 27s. per ton of sugar as now made; or, for a small estate making 100 tons, an estimated gain of from £62 to £135, while after the repayment of the capital of

the gains may rise to something like £2 to £4 per ton of sugar now made, or £200 to £400 on a small estate now making 100 tons of muscovado sugar.

SOY BEANS.

The United States Department of Agriculture has just published a useful work on Soy Beans (Farmers' Bulletin No. 372) from which we take the following extracts:—

Like other legumes, soy beans are able to utilize the nitrogen of the air and add it to the soil by means of root nodules. These nodules (fig. 5) are caused by certain bacteria, unless they are present soy beans in the usual types of soil will make but a weak growth, and many of the plants will turn yellow and die.

Throughout the south the proper bacteria for soy beans seem to be widely distributed, so that natural inoculation now occurs generally. In isolated localities where this crop has not been grown, however, some difficulty may be expected from lack of inoculation during the first season at least. Northward and Westward greater difficulty in this regard is experienced.

Inoculation of a new field may be secured either by the soil-transfer method or by the use of the pure cultures prepared by the Department of Agriculture. The soil-transfer method consists in scattering soil from an old, well-inoculated soy-bean field over the new ground at the rate of 200 to 300 pounds per acre. To facilitate even scattering this should be thoroughly mixed with several times its weight of ordinary soil. The soil may be either drilled or broadcasted. In the latter case it should be done toward evening or on a cloudy day, as bright sunshine is very harmful to the germs. The objections to the soil-transfer method are the labour and cost involved and the serious liability of spreading weeds and dangerous plant diseases. Successful inoculation by this method is, however, practically certain.

The method of inoculation by means of the pure cultures prepared by the United States Department of Agriculture is fully described in Farmers' Bulletin 315. Fresh liquid cultures are sent out in sealed bottles, and for small quantities of seed the culture may be diluted and used directly upon the seed. Directions and material for increasing the culture are supplied if a larger quantity is desired. The advantages of the artificial cultures lie in the greater ease of transportation and application, as well as in the absence of the danger of introducing plant diseases or harmful weeds. This method is frequently unsuccessful with soy beans, due possibly to the oily nature of the seeds.

When growing soy beans or any of the legumes for the first time it is an excellent plant to plant a small experimental plot, inoculating thoroughly by the pure-culture method. If this plot is successful, an abundance of soil will be available for inoculating large fields without danger of introducing weeds or diseases.

MADRAS CHEMICAL INDUSTRIES COMMITTEE.

Report and Government Orders.

In January last year a Committee was appointed by the Government of Madras to consider and report upon the question of establishing chemical industries in the Madras Presidency. The Committee have now submitted their Report and in the course of it they say :—

In order of importance the Committee would first draw the attention of Government to the resolution dealing with the question of railway freights. The material before them is sufficient to justify the opinion that some of the chemical industries of the Presidency are at the present moment seriously hampered by unfair or prohibitive rates. Mr. A. D. Jackson's note gives concrete instances as regards such important items as sulphuric acid and fertilizers and the whole question deserves investigation and sympathetic treatment at the hands of Government.

The Committee regard as of scarcely less importance the question of the fuel supply of Southern India. The introduction of coal from Bengal is hampered by heavy transport charges, and Madras must therefore look to a further exploitation of her forests if her fuel supply is to be extended and cheapened. The Committee have been unable to discover any information in the Forest Administration Reports of this Presidency bearing upon the potential amount of fuel available and the arrangements made for maintaining a constant supply. They wish to emphasise the importance of Resolutions 4 and 6 in this connection.

Apart from the question of a cheap fuel supply, Resolution 8 points to a direction in which the development of the industries of the Presidency may be stimulated. The utilization of the large amount of water power available in the Presidency would undoubtedly be an important factor in encouraging industrial enterprise. The Sivasamudram and Jammu schemes show what may be done in this direction. The Periyar scheme which is now before Government originated in its new form in the notes contributed by Mr. Tressler and Mr. Chatterton which are placed below, and it is not necessary to elaborate further the advantages which would accrue to Madras from a supply of electric power.

The Committee do not wish to add anything to Resolutions 5 and 7, as they understand that the question of wood distillation in the Nilgiris with the resulting charcoal supply has been considered by another Committee and has been the subject of various memoranda—some of which accompany this report—and that the question is now before the Government of India in connection with the supply of acetone for military purposes.

Resolutions 2 and 9 deal with more general subjects. The Committee are convinced that the expenditure of money by Government and private bodies upon sending students abroad with scholarships to

learn arts and manufactures has resulted in no commensurate benefit, and doubts whether the industrial development of the country will be appreciably assisted by such means. Such students find it increasingly difficult to gain access to factories and workshops in Europe and America and return to India with perhaps some theoretical knowledge, but lacking that practical experience which is essential to commercial success. It would be possible to illustrate this from the history of students returned from England and Japan during the last two years. As regards chemical and electrical industries, the training which will be provided by the Indian Institute of Science will, in the opinion of the Committee, far exceed in practical value any opportunities which are likely to be afforded to Indian students abroad.

The Committee are aware that the recognition of the principle of direct or indirect subsidies, common in continental countries, is fraught with danger, and may fail in its object in forwarding the industrial expansion of India unless restricted in its application according to definite principles and hedged round with certain safeguards.

The principles which the Committee would regard as indispensable are—(a) that the industry shall be a pioneer one backed by sufficient capital, possessing adequate plant, and under expert technical and scientific control; (b) that the subsidy be indirect and preferably bearing some relation to output; (c) that the subsidy be for a limited period only. And the safeguards they would suggest—(d) that subsidies shall be given only to companies registered under the Indian Companies Act, and not to private individuals; (e) that during the period of the subsidy no portion of the same shall be paid away in dividends; (f) that the accounts shall be audited by Government agency, or by an auditor approved by Government.

Provided these conditions are fulfilled, the grant of indirect subsidies is, in the Committee's opinion, likely to minimise the risk of failure and to demonstrate at the same time to the general public that those who incur a large expenditure in industrial experiments of this kind are deserving of State encouragement and assistance.

The Committee have, in their minutes or in special resolutions, considered and dealt with all the questions which affect the chemical industries generally of this Presidency, and also examined in some detail the position and prospects of the major industries themselves; but they are conscious that there remain untouched an indeterminate number of minor industries with which, in the absence of a complete industrial survey of the Presidency, they have been unable to deal. There being no provincial bureau of information to supply the necessary data, the Committee is unable to make any specific recommendations for the creation of new industries.

The Resolutions.

That this Committee should first consider such questions (fuel, power, freight, etc.) as are of

general interest and should then concentrate their energies on those industries actually in existence or potential in which Southern India on account of special circumstances such as cheap supply of raw material or convenient market for finished products, is placed in some peculiarly favourable position for profit-earning as compared with other parts of the industrial world.

2. The Committee considers that the system of sending students abroad with scholarships for the purpose of studying the practice of the arts and manufactures has been found to be without advantage either to the students themselves or to the industries of the country as a whole.

3. The Committee after careful consideration of the whole matter are prepared to submit at an early date a preliminary report indicating the nature and scope of their work, but that in view of the fact that in some cases information must be acquired both locally and abroad, involving possibly experimental work, they recommend to Government that the period during which this Committee shall be in existence shall not be defined at present.

4. After enquiry the Committee have ascertained that the price of fuel in the Madras Presidency is so high as to offer a serious obstacle to the development of chemical industries. As regards coal they are of opinion that little can be done to effect any reduction in the price in the industrial centres of the Presidency, and that any extension and cheapening of the fuel supply can only be secured by further exploitation of the forests.

5. In respect to the manufacture of charcoal the Committee are of opinion that a good case has been made out for further investigation which should take the form of detailed enquiries in Europe as to the design and cost of a suitable plant and the employment of an Industrial Chemist in India to ascertain the value of the distillation products.

6. The Committee recommend to Government that a special Committee be appointed, on which the Forest Department should be strongly represented, to review the present situation of the forests in respect of fuel supply, and to advise how it can be best increased to meet the growing demand and make provision for the future.

7. A review of the proposal to establish a wood distillation plant in the Nilgiris leads the Committee to the conclusion that it stands on a different footing from the Nellore scheme in which charcoal is the essential product. They consider that experiments should be made to ascertain definitely that a market exists or can be created for the charcoal either in its crude form or as briquettes and for the products of distillation.

8. This Committee welcomes any scheme for the supply of cheap electric power as tending to stimulate the development of industries in general, including those in which chemistry plays an important part.

9. After consideration of the correspondence placed before them the Committee recommend that Government should grant the concession of free wood asked

for by Messrs. Ramsay and Co. on behalf of the Madras Glass Syndicate.

10. The question of railway freights is, in the opinion of the Committee, deserving of special investigation by Government, particularly in so far as it affects agricultural and industrial development in the Presidency.

11. This Committee recommend that an Industrial survey of the Presidency be undertaken on the lines of that recently completed in Bengal so that a complete presentation of the position of all existing industries may be available to the public.

Government Order.

The Order of the Government of Madras on the Committee's Report and the Resolutions is as follows :—

A committee was appointed in G. O., No. 203, Revenue, dated 26th January, 1909, to consider and report upon the question of establishing chemical industries in this Presidency. The committee having submitted a report and a number of resolutions embodying its recommendations the Government will now proceed to consider them.

Resolution 2—Technical Scholarships.—The system of State technical scholarships for the encouragement of further study by Indian students of the higher branches of technical education in Great Britain and in foreign countries was instituted by the Government of India in 1903. None of the four scholars who have proceeded to England from this Presidency has yet returned to India. The Government are not prepared at present to make a pronouncement on the merits of a system which is still on trial.

Resolutions 4 and 6—Fuel supply of Southern India.—This subject is of great importance, and the Board of Revenue is requested to offer its remarks on the committee's recommendation that a special committee should be appointed to consider and report upon it.

Resolutions 5 and 7—Manufacture of Charcoal.—Orders will be issued separately on these resolutions.

Resolution 8—Supply of cheap electric power.—The scheme drawn up by Mr. Tressler for generating electric power from the water power available at the Periyar is under the consideration of Government.

Resolution 9—Grant of wood free of charge to the Madras Glass Works (Ld.).—Orders will be issued separately on the concession applied for by the company.

Resolution 10—Railway freights.—This resolution will be considered in the Public Works Department (Railway).

Resolution 11—Industrial Survey of the Presidency.—The committee's suggestion will be further considered after the return of Mr. A. Chatterton from leave.

His Excellency in Council takes this opportunity of thanking the committee for its recommendations to which he attaches great value. He desires that the committee should not be dissolved but should continue so as to be available for consultation whenever required.

FOREIGN SEABORNE TRADE IN NOVEMBER, 1909.

THE trade returns for November, 1909, show increased values in imports, exports and re-exports in comparison with the returns of November, 1908. The following tables show the value of imports and exports for November and for the past eight months together with the increase or decrease compared with the corresponding periods of 1908 :—

November, 1909.

	Rs.	Rs.	Per cent.
Imports	11,24,72,350	+21,13,967	+1.9
Exports	14,17,70,396	+1,59,17,010	+12.6
Re-Exports	29,53,731	+1,16,114	+4.1

Eight months ending November, 1909.

Imports	77,11,22,823	-7,28,99,668	-8.6
Exports	1,08,93,06,756	+15,38,89,923	+16.4
Re-Exports	2,10,11,864	+5,07,549	+2.5

IMPORTS.

Articles of Food and Drink.

There was a fall in the total value of Rs. 30,86,417 (—12.6 per cent). Imports of grain and pulse declined from Rs. 9,36,031 to Rs. 97,663 (—89.6 per cent) and those of pepper from Straits Settlements from Rs. 3,71,061 to Rs. 12,226 (—96.7 per cent). Arrivals of tea receded from Rs. 3,03,900 to 1,27,330 (—58.1 per cent). Imports of sugar 16, Dutch Standard and above from Java increased by 107,270 cwt. in quantity (+11.7 per cent) and Rs. 14,23,666 in value (+16.5 per cent) but those from Mauritius were less by 87,303 cwt. in quantity (—24.0 per cent) and Rs. 8,72,156 in value (—24.3 per cent) of beet sugar. Only 23,956 cwts. valued at Rs. 2,54,327 were received from Austria-Hungary during the month against 148,595 cwt. valued at Rs. 14,52,845 in the preceding year. Imports of salt contracted from Rs. 8,28,400 to Rs. 2,60,106 (—68.6 per cent).

Metals and Manufactures of Metals.

The total value was smaller by Rs. 25,25,840 (—10.1 per cent). Imports of copper rose from Rs. 21,25,833 to Rs. 28,53,324. But machinery and mill-work fell off by Rs. 18,33,915 (—31.0 per cent), imports into Bengal and Bombay being smaller by about 10½ lakhs and 11½ lakhs respectively as against the increase of about 4½ lakhs in the figures for Burma. Railway materials showed a heavy drop of Rs. 14,84,152 (—24.3 per cent).

Chemicals, Drugs, etc.

The total value was higher by Rs. 6,22,270 (+21.0 per cent). Imports of drugs and medicines were higher by Rs. 2,78,467 (+37.7 per cent), of chemicals by Rs. 2,38,791 (+42.6 per cent) and of tobacco by Rs. 1,74,552 (+28.4 per cent), but those of alizarine and aniline dyes decreased by Rs. 54,256 (—6.5 per cent).

Oils.

The total value decreased by Rs. 3,82,154 (—14.8 per cent). This decrease is due mainly to the facts

that there were no imports of kerosine oil from Roumania during the month and that arrivals of the said oil from Sumatra were comparatively small. The Straits Settlements which sent 104 gallons of kerosine oil valued at Rs. 62 last year shipped 973,672 gallons valued at Rs. 2,43,521. The shipments from the United States were greater by 850,916 gallons (+53.2 per cent) in quantity and Rs. 2,51,656 (+31.8 per cent) in value.

Raw Materials and Unmanufactured Articles.

The total value advanced by Rs. 6,307 (+.1 per cent). Imports of silk were higher by Rs. 3,86,055 (+56.9 per cent). On the other hand, there were decreases in imports of precious stones and pearls by Rs. 1,81,732 (—12.9 per cent), of wood (timber) by Rs. 1,20,215 (—20.3 per cent) and of coal and coke by Rs. 81,993 (—2 per cent).

Articles Manufactured and Partly Manufactured.

The total value rose from Rs. 5,04,72,686 to Rs. 5,76,19,612. Imports, mainly from the United Kingdom, of cotton yarn, cotton piece-goods and cotton, other manufactures increased by Rs. 8,38,276 (+31.5 per cent), Rs. 49,51,446 (+18.7 per cent) and Rs. 3,48,033 (+15.6 per cent) respectively. There were also increases in the imports of silk manufactures by Rs. 2,00,397 (+11.2 per cent), of apparel by Rs. 1,09,613 (+4.2 per cent), of carriages and carts by Rs. 2,25,597 (+24.5 per cent), of glass and glassware by Rs. 2,07,468 (+20.6 per cent) and of paper and pasteboard by Rs. 1,52,384 (+19.9 per cent). Woollen goods declined by Rs. 2,93,043 (—10.3 per cent) and instruments and apparatus etc., by Rs. 1,29,005 (—11.3 per cent).

Treasure.

Imports of gold showed an advance of Rs. 89,30,882 (+168.8 per cent), the United Kingdom, the Straits Settlements, China, Egypt and Australia having sent larger quantities. Silver, mainly from the United Kingdom, Australia, Ceylon and the Straits Settlements, showed a drop of Rs. 35,30,956 (—24.8 per cent).

Government Stores.

The value decreased by Rs. 36,49,444 (—55.6 per cent). This is almost entirely due to reduced imports of arms and ammunition and railway plant and rolling stock.

EXPORTS.

Articles of Food and Drink.

The total value advanced by Rs. 83,47,919 (+29 per cent), rice being responsible for Rs. 19,71,298 (+26.3 per cent), wheat and wheat flour for Rs. 28,32,798 (+15.7 per cent) and tea for Rs. 25,66,077 (+16 per cent). Exports of coffee improved by Rs. 1,21,259 (+143.7 per cent), of fruits and vegetables by Rs. 2,84,427 (+71.5 per cent), of spices by Rs. 2,14,102 (+84.7 per cent)

and of provisions by Rs. 1,26,570 (+16.8 per cent). Tea to the United Kingdom increased by 5,430,730 lbs. (+21.2 per cent) in quantity and Rs. 33,21,228 (+29.1 per cent) in value, to Ceylon by 1,074,503 lbs. (+261.5 per cent) and Rs. 4,45,364 (+161.4 per cent), to Germany by 581,081 lbs. (+177.3 per cent) and Rs. 3,25,022 (+248.8 per cent) and to Canada by 369,371 lbs. (+38.8 per cent) and Rs. 2,75,438 (+63.8 per cent); but Russia took 3,804,788 lbs. (—83.6 per cent) valued at Rs. 16,55,210 (—80.9 per cent), less than in November of the preceding year.

Metals and Manufactures of.

The value showed a decrease of Rs. 63,931 (—8.8 per cent). There was a drop from Rs. 6,24,341 to Rs. 4,09,750 in the exports of manganese ore.

Chemicals, Drugs, etc.

The value increased by Rs. 18,08,600 (+27.1 per cent). Exports of opium rose by Rs. 20,95,845 (+39.9 per cent) and of indigo by Rs. 1,64,261 (+152.1 per cent) but those of myrabolams and saltpetre fell by Rs. 1,87,183 (—47.4 per cent) and Rs. 1,21,108 (—26.4 per cent) respectively.

Oils.

The value advanced by Rs. 4,21,201 (+71.3 per cent). This is due principally to larger exports of coconut oil which were higher by 262,142 gallons (+403 per cent) in quantity and Rs. 3,70,859 (+392 per cent) in value.

Raw Material and Unmanufactured Articles.

The value increased by Rs. 10,26,057 (+1.7 per cent), the rise showing itself in all the items under this class with the exception of coal, jute, and silk. Coal declined by 11,728 tons (—21.8 per cent) and Rs. 1,03,715 (—21.8 per cent), Ceylon and Sumatra having taken very little. Exports of jute declined in value from Rs. 3,52,31,479 to Rs. 2,69,75,013 and in quantity from cwt. 2,997,396 to cwt. 2,520,407. Silk fell off by 56,539 lbs. in quantity (—29.9 per cent) and Rs. 1,85,970 (—35.4 per cent) in value. Hides and skins increased by 16,763 cwt. (+21.4 per cent) in quantity and Rs. 9,95,553 (+18.9 per cent) in value. Seeds increased by 643,328 cwt. (+95 per cent) in quantity and Rs. 38,34,823 (+69.3 per cent) in value, United Kingdom, France and Germany taking larger quantity. Cotton increased by Rs. 36,10,625 (+37.9 per cent), Wool by Rs. 9,28,256 (+65 per cent) and wood and timber by Rs. 4,56,495 (+181 per cent).

Articles Manufactured and Partly Manufactured.

The value increased by Rs. 43,59,725 (+15.2 per cent), Cotton Yarn decreased by 3,555,290 lbs. (—19.4 per cent) in quantity and Rs. 11,40,777

(—15.3 per cent) in value. Cotton Piece-goods increased by 2,590,514 yards (+39.4 per cent) in quantity and Rs. 6,06,515 (+47.1 per cent) in value. The shipments of Gunny bags were larger in number by 13,312,592 (+56.4 per cent), and in value by Rs. 24,64,716 (+40.5 per cent), the United Kingdom, China, Chile, New Zealand and Australia taking larger quantities; gunny cloth too showed an increase of 23,203,697 yards (+38.9 per cent) in quantity and Rs. 19,79,916 (+35.7 per cent) in value. Coir (excluding rope) increased by cwt. 35,303 (+79.2 per cent) in quantity and Rs. 3,97,347 (+84 per cent) in value. Exports of hides and skins (dressed) fell off by 3,266 cwt. (—11 per cent) in quantity and Rs. 3,30,535 (—8.7 per cent) in value. Exports of shellac increased in quantity by 25,703 cwt. (+91.4 per cent) and in value by Rs. 5,36,430 (+25 per cent).

Treasure.

Exports of gold declined by Rs. 2,92,012 (—9.3 per cent). Silver advanced by Rs. 3,47,442 (+27.4 per cent) due mainly to large consignments to China.

Re-exports.

The total value rose from Rs. 28,37,617 to Rs. 29,53,731. Cotton manufactures showed an increase of Rs. 3,21,214 (+37.9 per cent) and sugar of Rs. 1,29,342 (+175.1 per cent).

Miscellaneous.

There was an improvement of Rs. 41,066 in import duty and of Rs. 2,06,605 (+86.9 per cent) in export duty.

—As has been frequently pointed out in these columns, the Java sugar industry is at present of the greatest importance to that island. At the present time the annual produce amounts to about 900,000 tons. On the other hand, the coffee produce is diminishing both in Java and Sumatra; but tea and tobacco have now come to the front in Java. A great quantity of tobacco is also grown in Sumatra. Opium is also doing well. The trade in copra has greatly increased. In Central Sumatra, two gold mines are being worked at a profit. The exploitation of petroleum springs is very profitable in Java, Sumatra, and Borneo. It is believed that but small profits are obtained from coal which is worked by the State in Central Sumatra. In the Island of Laut, however, to the south of Borneo, private coal mines of some importance exist. The tin mines in Banks and Billiton continue to yield great profits. A systematic and geological search for minerals has now been commenced in Central Sumatra.

OIL AND SHELLAC MARKETS.

In the course of an article in its issue of December 25th, 1909, the *Ironmonger* says:—Although the volume of trade in oils and paints during December has not been very great, there has been a general tendency to advance in most markets, the cause of which is not altogether as clear as it might be. High prices caused by great activity in trade are of course an advantage, but when they are brought about by a scarcity of material, or by the concerted holding back of supplies, they are by no means a sign of general prosperity. In the present case dealers and travellers have complained a good deal of the difficulty of making sales, although from the market reports one would have concluded that things were booming.

Linseed Oil.

During the early part of the month linseed oil showed some signs of weakness, in consequence perhaps of the dropping off of trade which usually takes place in the winter, but later on the prices recovered under the belief that there was going to be a greater shortage of linseed oil than had been previously expected. A rather curious idea has been promulgated to the effect that crushers of seed-oils were devoting more attention to the new Soy-bean oil, which was a more profitable article to deal with, and that linseed crushing would be comparatively neglected. As a matter of fact all seed crushing is profitable just now; and although it is possible that a greater return is obtained from the new bean than from either linseed or cotton-seed, yet these two seeds show a very big profit to the crusher; and it seems probable that every mill will turn out as much oil and cake as it can do while present conditions last. The increase in the value of linseed oil since we last wrote is 25s. per ton, and the market is very firm at the late advances. The present prices are the highest of the year, and the total advance since the beginning of January amounts to £9 per ton, or about 45 per cent. During the second half of the year the imports have not been much more than half the normal quantity, and we estimate that the shortage over the whole year will not be much less than 450,000 qrs. The following are our usual statistics of imports and prices up to November 30th:—

	1905.	1906.	1907.	1908.	1909.
Imports of seed	Qrs.	Qrs.	Qrs.	Qrs.	Qrs.
Price of oil	£17 12s. 6d.	£21 10s.	£22 2s. 6d.	£21 15s.	£29
Dec. 1					

The bulk of the shortage in linseed is to be found in the Argentine figures, viz., 329,659 qrs., but there has been a reduction of considerable importance in the receipts from Russia. Indian supplies have been better.

Cotton Oil.

A good deal of interest has been taken in the cotton-oil market this month, and prices have been improving steadily. Our readers are, of course, mostly concerned with edible oils for fish frying,

and these have naturally been pushed up by the extravagant demands of American holders. Fine American edible oil, known in the trade as P. S. Y., would cost to import at the present time £36 10s. per ton; but there is a small stock of this oil still available here which is being offered at from £2 to £3 per ton less than the cost of fresh importations. English edible oil is, as a rule, with the exception of the London "water-white" variety, not so satisfactory in use and often leads to disputes with customers. This is now quoted at about £29 per ton naked in Hull. There is, however, nothing to be done but to pay the enhanced prices, because any other competitive fish-frying material is still more expensive; animal oils and lards having reached a prohibitive price. The rise in the ordinary English refined cotton oil, known as a soap-making quality, is during the last month £2 7s. 6d. per ton, and of course lardine has risen proportionately, although the price of the latter is now such that it cannot be worth while to use it as a component part of lubricants. The statistics of cotton-seed imports do not show the shortage noticeable in linseed, but there is a small reduction in "Egyptian" seed, and it is feared that this will become more pronounced in the early part of the next year. The figures are as follows up to end of November:—

	1905.	1906.	1907.	1908.	1909.
Imports of seed	Tons.	Tons.	Tons.	Tons.	Tons.
Prices of oil	£14 15s.	£23	£21	£22 10s.	£27 15s.
Dec. 1					

Rape Oil.

The rape-oil market has been the exception to the general rise in fats and oils throughout the world. It is difficult to account for the lethargy of this article, and it may soon be shaken off, although in our opinion the consumption of rape oil has been largely injured by the high prices ruling in 1907 and 1908. With comparatively low values, the consumption ought now to increase, and the very small supplies of seed should help the market to recover tone. No change has been made in the nominal quotations during the month, although Stettin colza has been a little firmer. There is, however, still a backwardation of 10s. per ton on this article. The following are the statistics of seed imports up to November 30th:—

	1905.	1906.	1907.	1908.	1909.
Imports of seed	Qrs.	Qrs.	Qrs.	Qrs.	Qrs.
Price of oil	£24 10s.	£33 5s.	£37	£31	£27 10s.
Dec. 1					

Turpentine.

The market for turpentine has not been much disturbed during the month. There was a slight tendency to weakness at the beginning of December, and some sales were made down to £38 15s. when the price recovered and reached £40 again. As we write, the feeling is quiet and the value about 15s. less than that price. Dealers do not appear to anticipate any serious change in the situation, and consumers are now well used to the present value, and have arranged their prices accordingly. The sale of

substitutes has been fairly good, and in many places it is now the custom to use these regularly for certain work, and even for some kinds of varnish. Prices for these range from 9d. up to 2s. 6d. per gallon, according to quality. Russian turpentine keeps at about £26 10s. to £29 per ton. The following are the import figures:—

	1905.	1906.	1907.	1908.	1909.
Imports	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
Price, Dec. 1	£11 5s.	£17 0s.	£15 15s.	£20 15s.	£29 5s.

THE RUBBER POSITION.

THE *Economist* of December 18th has an elaborate article on this subject, from which we take the following particulars:—After the rise of Para rubber to 9s. 6d. per lb., it is natural enough that the market in the shares of rubber companies should fall away with a decline of about 2s. 3d. per lb. in the product. Present rubber prices are regarded with some disappointment in the Stock Exchange, though a decline was generally expected for various reasons, particularly the constant increase in the amount offered for sale. At this week's auctions the quantity advertised was 151½ tons against 57 tons a year ago, 122 tons of Malaya being offered in place of 42 tons last year. Visible supplies, too, are increasing, and Para stocks now stand at 957 tons against 635 tons in December, 1908. In their report on the sales Messrs. Gow, Wilson, and Stanton say that, considering the quiet state of the market in the past few days, the competition was good and the tone confident; nevertheless, fine plantation rubber, which was up to 9s. per lb. four or five weeks ago, fetched at these last sales 6s. 11½d. to 7s. 7½d. The effect upon quotations in the Stock Exchange market has been mildly depressing, and the House expects rubber shares to be dull for possibly another month or two. The interim dividends declared within the past few weeks were less stimulating than some people had hoped, but it is argued that interim distributions are seldom a source of great congratulation. Good as the dividends were in a great number of cases, the extraordinary rise in the price of rubber had led to extravagant estimates of the profits being earned. When the books are closed for making-up the accounts to the end of the year and the final dividends are under consideration, that will be the time for anticipations of generous distributions, because it is certain that many of the companies will have remarkable results to show. Several months however must elapse before the next dividend period approaches, and in the meanwhile there is the chance that the price of rubber may further decline. One significant point is that contracts have already been made for taking large amounts of rubber during the whole of next year at the fixed price of 8s. per lb. Some of the pioneer undertakings, which can make good profits with rubber no higher than 3s. per lb., are naturally doing more than well, and their reports are expected to buoy

the market up into public favour again. So far as the open account in the market goes, there is not much carrying-over done, and it is difficult to say whether any stale bull account exists, since the banks have probably taken up a good many shares for their customers. Judging from the quiet of the market, it would seem as though shareholders in rubber companies were content to wait for better times again, the fluctuations which tend to lower prices being produced mainly by a few realisations on account of speculators who are impatient and eager to reduce commitments at the end of the year.

The frank confession made the other day by a synthetic rubber company that it had failed in its search for a rubber substitute has received, perhaps, less attention than the importance of the matter deserved. For this concern had gone thoroughly into synthetic rubber, and had it been possible to make the substitute a commercial proposition, it would have done so. The collapse of this particular proposition is, in a sense, of greater consequence than a natural reaction in the price of rubber itself, and its full effect will be felt when the rubber share market again revives. At present there is a pause, and it is perhaps a suitable moment for considering the position reached by the companies and the valuation of their shares.

The Malayan companies are turning out constantly more and more rubber, some of them having produced in eleven months twice or three times as much as they produced in the whole of 1908. Even the older companies which have been producing for two or three years are increasing their output enormously, and the following figures, which give a few typical examples of the larger type of company, are worth reproducing, even though they have already appeared in our table of outputs:—

Companies.	Period.	1908.	1909.	Increase.
	Months.	Lbs.	Lbs.	Lbs.
Consolidated Malay	11	94,766	186,475	91,709
Federated (Selangor)	8	35,597	61,117	25,520
Golconda	11	29,659	89,415	59,755
Highlands and Lowlands	11	187,652	295,908	108,256
Labu	11	21,037	72,613	51,576
Lanadron	11	59,771	224,828	165,056
Linggi	11	238,500	468,000	229,500
Pataling	11	71,348	130,044	58,696
Vallambrosa	8	169,731	241,902	72,171
		908,052	1,761,301	853,249

The first thought that arises at sight of these figures is "how can the price of rubber be main-

tained if nine of the older companies are increasing their output at the rate of nearly 100 per cent. per annum, and new companies are being started every week to put still more rubber on to the market? The answer, of course, is that rubber will not stay at its present price; it is certain sooner or later to come down, and the only question is how long it will take in coming, and at what point the fall is likely to stop. While it remains at its recent high level the existing companies, some of which have a big start, can make enormous profits, and, as we have already explained, some of them have contracted to sell the whole of their next year's output at prices that must give them a very wide margin.

Among the oldest companies in this table are the Cicely and the Vallambrosa, both of which were formed in 1904. The Vallambrosa paid its first dividend in 1906 and the Cicely in 1907. In the past two years the Vallambrosa shareholders have received 176 per cent. on their capital and the Cicely 132 per cent.; two years' dividends on the Pataling and Selangor amount to over 100 per cent. on the capital, and Linggi shareholders have had exactly 100 per cent. since the beginning of 1908. These companies are of course, the pick of the market, but the increase in other dividends is scarcely less remarkable, and our readers can study the table in detail for themselves. They would, however, be wise to take it in relation to the following table, which shows the nominal capital and the market value of the capital of these same 21 companies:—

Names.	Share	Nominal value.	Market value.	Premium
		£	£	%
Anglo-Malay . . .	Rs. 2	150,000	1,050,000	600
Bukit Rajah . . .	£ 1	66,700	550,300	7-5
Cicely Rubber . . .	Rs. 2	10,000	122,500	1,125
Consolidated Malay	£ 1	58,507	358,350	512
Damansara . . .	£ 1	102,500	397,200	287
Federated (Selangor)	£ 1	23,430	184,500	687
Golden Hope . . .	£ 1	44,000	187,500	211
Highlands and Low-	£ 1	260,000	796,300	263
lands.				
Java Rubber . . .	£ 1	24,030	24,700	3
Kuala Lumpur . . .	£ 1	180,000	810,000	350
Labu (F. M. S.) . .	£ 1	90,000	248,100	176
Lanadron . . .	£ 1	188,970	708,500	275
Linggi . . .	Rs. 2	88,324	1,070,900	1,113
P. P. K. (Ceylon) . .	£ 1	65,000	91,000	40
Pataling . . .	Rs. 2	22,500	270,000	1,100
Perak . . .	£ 1	77,500	237,300	206
Rubber Estates of	£ 1	91,000	170,000	87
Ceylon.				
Selangor . . .	Rs. 2	30,000	525,000	1,650
Str. Settlements	£ 1	174,615	283,700	62
(Bertam).				
Sumatra Para . . .	£ 1	99,500	298,500	200
Vallambrosa . . .	Rs. 2	50,600	581,900	1,050
		1,97,169	9,168,500	383

Comment on these figures is needless. They convey some idea of the profits made by speculators in a comparatively small market in the course of two or three years, and they are also a warning against rash speculation at the present time.

MESSRS. NEILL BROTHERS ON THE COTTON CROP.

MESSRS. NEILL BROTHERS maintain their estimate 11,000,000 to 11,250,000 bales for the American cotton crop in spite of the disagreement of Mr. Larmour Neill. After quoting a very gloomy report of the state of Lancashire trade, Messrs. Neill say that Continental reports are not much more hopeful and they have the following on the general position:—

We are therefore forced to conclude that short time will last longer than we previously allowed for, so that the actual consumption will very likely be further reduced, probably to not much, if anything, over 12,000,000 bales, against 12,920,000 last year. But if, for the sake of argument, we allow 12,250,000 and, also for the sake of argument, only 10,750,000 bales for the American crop, then the outlook for the remainder of the season will be about as follows:—

	1909-10.	1908-9.	1907-8.	1906-7.	1905-6.
18th December, visible supply . . .	3,692	4,196	3,407	3,791	3,899
18th December, mill stock . . .	2,575	2,125	1,525	1,650	1,900
	6,267	6,321	4,932	5,441	5,799
Rest of American crop . . .	4,237	6,107	5,830	6,383	4,898
Total supply . . .	10,504	12,428	10,762	11,824	10,697
Balance of consumption . . .	8,804	9,229	8,440	8,968	8,581
31st August closing V. S. and mills . . .	1,700	3,199	2,322	2,856	2,116

which is certainly enough to carry over into a new season of probable abundance and lower prices. There will be no difficulty whatever in providing the 12,250,000 which we assume to be needed for the season's actual consumption. According to our careful computations, the spinners of the world on 1st September last held at their mills 1,769,000 bales of American cotton. If they draw on this stock to the extent of a million bales they need only take out of the current crop 11,250,000 bales, and in that case the visible supply would work out as follows:—

	1909-10.	1908-9.	1907-8.	1906-7.	1905-6.
Opening visible supply . . .	1,430	956	1,282	871	1,594
Crop delivered, if only . . .	10,750	13,797	11,593	13,490	11,321
	12,180	14,753	12,875	14,361	12,915
Season's takings, if only . . .	11,250	13,323	11,919	13,079	12,044
Closing V. S. 31st August 1910 . . .	930	1,430	953	1,282	871
And mill stocks will be . . .	770	1,769	1,336	1,574	1,245
Total V. S. and mill 31st August . . .	1,700	3,199	2,322	2,856	2,116

Messrs. Neill believe that with a supply which is, as they show, enough for any probable requirements, the market will presently be dominated by "the influence of coming abundance" rather than by "crude notions of insufficiency." We hope so, says the *Manchester Guardian*, but what we have to dread is a short crop for the season 1910-11.

TEA TRADE IN 1908-09.

THE following report on the Tea Trade in 1908-09 has been received from Messrs. Brooke Bond and Co. Ltd.:—

Last year, in our annual review of the history of the Tea Trade during the preceding twelve months, we said that consumption was steadily increasing throughout the world. This year we are glad to be able to state that the increase has on the whole been maintained, and that the prospects of those connected with tea are brighter than has sometimes been the case.

The trade has gone through many vicissitudes during the year, and there have been times of great anxiety for all concerned in it.

We have had the usual annual dislocation of business consequent on the anticipation of a change in the duty. This year the disturbance was more serious than in the two preceding years, as there was a very prevalent belief that the duty would be raised. Consequently large quantities of tea were taken out of bond. Stocks went down 28,000,000 lbs. in eight weeks, a quite unprecedented fall. Naturally, after the Budget had been introduced, dealers had as much tea in their hands as they wanted for some months, and duty payments were very small for some time. Now, eight months after the disturbance began, they are about normal.

The brighter prospects now opening before tea producers and distributors are chiefly due to the fact that for the last three years consumption has exceeded production. It may be that this excess of consumption over production may continue for some time, as the area under tea throughout the world has not been greatly extended lately, and the growth of the rubber industry may eventually reduce the output of tea in Ceylon. China will, no doubt, try to regain the position she has lost, and more tea will probably be sent from Java in the near future. The Chinese are making great efforts to increase the consumption of their tea by advertising, and also in the case of some manufacturers by trying to make their product better suited to palates accustomed to British-grown tea, more "coloured in the cup," in fact, more like Indian and Ceylon tea. In spite, however, of these endeavours, home consumption of China tea shows a decline of over 2,000,000 lbs. during the year 1908-09 from the amount consumed during the preceding twelve months. The figures are 10,595,738 lbs. during 1907-08, and 8,365,156 lbs. during 1908-09.

Total exports from Ceylon were 182,000,000 lbs. in 1908-09. Direct exports from Colombo to foreign markets were higher than in the preceding year, being 71,819,000 lbs., against 70,453,000 lbs. in 1907-08. The increase was chiefly to America. Home consumption of Ceylon tea surpassed that of any previous year, owing greatly to the efforts made by dealers to educate their customers to drink good tea. The sales of Ceylon tea in the second week of June this year established a record, 46,370 packages being sold. The nearest approach to such

a quantity as this was in the second week of August 1900, when 42,978 packages were put up to auction.

There has been a great increase in output in Java lately, production having more than doubled in seven years. This is not so much owing to increase in area—indeed, the Government practically refuses to lease land for tea planting—as to the replacing of the China bushes with Indian seed. Chinese seed apparently does not suit the soil and climate, but Indian seed, particularly the Assam indigenous, does very well in Java.

The proportion borne by the different producing countries in supplying the tea-drinkers of the United Kingdom may be seen from the following figures:—

	1908-09.		1907-08.	
	Lbs.	Percent- age.	Lbs.	Percent- age.
India . . .	176,552,195	59-5	155,633,166	57-0
Ceylon . . .	93,513,998	31-6	92,162,114	33-7
China . . .	8,365,156	2-6	10,595,738	4-0
Java, etc. . .	18,832,859	6-3	14,749,117	5-4
	297,264,208	100-0	273,140,375	100-0

In round numbers, 270,000,000 lbs. (91 per cent) of the tea consumed in the United Kingdom in the year 1908-09 was British-grown and 27,000,000 lbs. (9 per cent) foreign. In the preceding year 243,000,000 lbs. of British-grown (90-6 per cent.) and 15,000,000 lbs. (9-4 per cent) of foreign tea was consumed.

Under the heading "Java, etc." is included Natal and all other tea not British-grown or Chinese. Small quantities of tea are grown in Burma, Nyasaland, the Straits Settlements, and one or two other places, but the amount exported is very small. Natal tea is a good deal drunk in the colony itself and to a small extent in other parts of South Africa.

So far as to the production of tea throughout the world. Now let us turn to the question of consumption.

We have already seen that the United Kingdom consumed, in round numbers, 24,000,000 lbs. more tea in 1908-09 than in 1907-08. Consumption is also increasing in other countries, notably in France, Russia and Germany.

The great development of the Russian trade in Indian tea is one of the features of the year. Russia is India's best customer outside the United Kingdom, Australia being the second best. During 1908-09 Russia took 3,000,000 lbs. (about 20 per cent) more Indian tea than during 1907-08. There is a report that the steamers of the Russian Volunteer fleet are ceasing to run direct between Calcutta and Vladivostok, which will oblige Russian buyers to send their Indian tea *via* Colombo. We need not fear that this will prevent their buying in Calcutta. Indian tea suits them and they will not suffer small inconveniences to interfere with their obtaining it.

There is now an Anglo-Russian Chamber of Commerce in St. Petersburg, which it is expected

will further trade, including the Indian tea trade, between the two nations. There is to be a Russian Exhibition in London in 1911, and it is hoped that the London and St. Petersburg Chambers of Commerce will arrange a British Exhibition in St. Petersburg later.

Steady efforts have for some years been made to popularise British-grown tea in Germany. There are tea-rooms where it is served in Berlin, Hamburg and Wiesbaden, and it is suggested that one shall be opened in Munich, where Ceylon tea has been made popular by means of the Tea Pavilion at the Exhibition last year, when the tea and the arrangements were alike excellent.

There are to be Exhibitions at Brussels and Turin next year, of which no doubt advantage will be taken to demonstrate the excellence of British-grown tea.

The introduction of packet teas has caused an enhanced demand in British Guiana and the West Indies, particularly Barbadoes, where the increased consumption is doubtless partly owing to the growing prosperity of the inhabitants.

The impossibility of obtaining complete returns as to the amount of tea retained for use in the country makes it very difficult to estimate consumption in India, but there is every reason to think that tea is growing in favour with the natives.

It is difficult to obtain reliable figures with regard to the consumption of tea in the United States during 1908-09, as imports were governed by other considerations than demand. Early in the present year it was known that there would be a deficit, estimated at \$135,000,000 (£27,000,000) in the revenue for the year, and it was thought probable that a tax would be imposed on tea. As was expected, the Tariff Bill, introduced April 17th, proposed such a tax. For the next four months, until August 5th, when the Bill (minus the clause imposing a tea duty) was signed, American speculators were in a state of feverish excitement. Imports from countries of production, from the United Kingdom and from Canada, increased until it was estimated that there was enough tea in the country to satisfy the ordinary demand for at least two years. These events render it impossible to estimate the exact consumption for the year or the proportion consumed of the various growths of tea. It seems, however, certain that the popularity of British-grown tea has increased. *Per capita* consumption, would probably increase faster were it not for the constant influx of persons from Italy and other coffee-drinking countries. In Canada, on the contrary, we find that the tea-room habit has taken root owing to the constant influx of persons from England and other countries where "Five o'clock tea" is an institution.

Four years ago, in our annual review of the history of the tea trade, we drew attention to the fact that a tea auction had been held in Liverpool, for the first time for nearly half a century. Since then imports of tea have greatly increased, and some Liverpool merchants think that more tea ought to

be landed there than in London. They point out that the population within 100 miles of the centre of Liverpool is greater than the population within the same radius of the centre of London; also that the greater part of the tea brought from the East to London comes in Liverpool ships. Were the tea to be taken straight on to Liverpool instead of being landed in London and sent thence to the North by rail, a great saving would be effected in railway rates, cartage, etc. Liverpool is also more conveniently situated than is London for transshipments to America. A tea Trade Section of the Liverpool Chamber of Commerce has been formed, with the object of encouraging direct importation, and thus securing the monopoly of the trade of North Wales and of the North of England.

Any speculations regarding the future of the tea industry at this moment would be incomplete which did not take into account the possibilities of a change in the duty. The tea trade would seem to be in the fortunate position of standing to win both ways, whichever political party is in power next Budget time. Both are practically pledged to reduce the tea duty.

Mr. Lloyd George only this week stated that it was with the greatest regret that he found himself unable to reduce the tax this year, and that the most favourable consideration would be given to tea directly the finances of the country made any reduction in any tax possible.

If, on the other hand, by next spring the Protectionist party find themselves in power they, also, are pledged to reduce, if not to entirely take off, the tax on British-grown tea.

What would be the result of a big reduction of the Tea Duty? It is difficult to answer this question, but our own opinion is that if the tea duty were removed entirely, it would be some time before the consumer would reap the whole benefit. The immediate result of the abolition of the duty would probably be a sharp jump upwards in consumption and consequently in prices, as it is impossible for production in India and Ceylon to be increased otherwise than slowly. Thus, the immediate effect of the abolition of the duty would probably be to put the price of tea to the consumer on only a slighter lower level than it is at the present time.

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lation. By F. NORMANDY, Barrister-at-Law,
xxv + 244 pp. 8x5½. (Griffin's Scientific Text-
books) 6s. net each.
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WORLD'S SUGAR SUPPLY.

Final Estimates.

MR. C. CZARNIKOW, in his Sugar Report, dated 23rd December, 1909, says the final factory estimate were published on Sunday, the 19th December, and if we add usual corrections, based on previous years they are as follows:—

	Hectares (00 omitted).		TOTAL ROOTS IN THOUSAND TONS.				Tons Roots per Hectare.	
			1909.		1908.		1909.	1908.
	1909.	1908.	Dec.	Probable.	Dec.	Final.		
Germany	456.1	436.2	12,847	12,900	11,799	11,809	28.3	27.1
Austria	319.1	330.4	8,100	8,100	7,933	7,933	25.4	24.0
France	240.0	214.8	6,355	6,400	5,811	5,919	26.7	27.7
Belgium	64.0	57.0	1,765	1,765	1,697	1,697	27.6	29.8
Holland	55.8	48.5	1,292	1,292	1,350	1,350	23.4	27.8
	1,135.0	1,086.9	30,359	30,457	28,590	28,738		
Russia	565.0	556.2	6,889	6,750	8,435	8,185	11.9	14.7

	TOTAL SUGAR IN THOUSAND TONS.				Tons Sugar per Hectare.	
	1909.		1908.		1909.	1908.
	Dec.	Probable.	Dec.	Final.		
Germany	1,965	2,015	2,041	2,075	4.42	4.75
Austria	1,260	1,265	1,395	1,387	3.97	4.20
France	808	420	775	792	3.41	3.69
Belgium	241	242	255	257	3.73	4.51
Holland	176	180	211	214	3.23	4.41
	4,470	4,522	4,667	4,725		
Russia	1,114	1,140	1,262	1,240	2.02	2.23
Others	42	448	490	552		
	6,043	6,110	6,419	6,517		

The Austrian figure is compared as follows:—

	Hectares.		Roots.		Sugar.	
	1909.	1908.	1909.	1908.	1909.	1908.
Bohemia	108.2	131.6	3,283	3,785	514	677
Moravia	104.7	100.2	2,645	2,416	415	425
Hungary	106.2	98.6	2,172	1,732	310	286
	Roots per Hectare.		Sugar per Hectare.		Quality per cent.	
	1909.	1908.	1909.	1908.	1909.	1908.
Bohemia	30.4	28.8	4.75	5.13	15.7	18.0
Moravia	25.3	24.1	3.96	4.51	15.7	17.6
Hungary	20.5	17.5	2.92	2.76	14.8	16.5

The other countries are the following:—

Denmark.		Sweden.		Italy.		Spain.		Roumania.		Others.		Total.	
1909.	1908.	1909.	1908.	1909.	1908.	1909.	1908.	1909.	1908.	1909.	1908.	1909.	1908.
65	65	125	138	116	179	83	110	29	25	16	10	433	527

These estimates did not affect the market, as they confirm previous anticipations, but owing to easier prices cabled from New York and the proximity of holidays, we had a slow market, May moving from 12s. 7½d. to 12s. 8d. to 12s. 6d. to 12s. 6½d. to 12s. 4½d. to 12s. 4½d. New York, which, nominally quoted last week 4.17 cents (though early January was selling at 4.10 cents), has declined to 4.05 cents, and Cuban or January sold at 2.625 cents c. & f. New York, or 3.98 cents duty paid.

TRADE OF FOREIGN COUNTRIES AND BRITISH POSSESSIONS.

The following summary table has been prepared at the Board of Trade, showing the total imports and exports of merchandise of the principal countries for which the particulars can be given up to September, 1909, inclusive, and referring in all cases to the same period, viz., the nine months ended September. The corresponding figures for 1908 and 1907 are added for comparison :—

	Imports (see NOTE). Nine Months ended September.			Exports (Domestic) (see NOTE). Nine months ended September.		
	1907.	1908.	1909.	1907.	1908.	1909.
	£	£	£	£	£	£
Germany	320,742,000	276,327,000	296,975,000	249,437,000	232,656,000	235,779,000
Belgium *	107,557,000	93,940,000	100,919,000	78,299,000	71,450,000	75,012,000
France	182,610,000	165,715,000	173,546,000	165,260,000	148,389,000	159,536,000
Switzerland†	48,975,000	43,481,000	45,391,000	33,846,000	30,227,000	31,763,000
Spain	28,024,000	27,918,000	28,008,000	26,165,000	25,527,000	25,674,000
Italy	86,543,000	83,880,000	89,085,000	55,855,000	50,266,000	52,771,000
Austria-Hungary	74,147,000	77,351,000	84,952,000	72,375,000	71,982,000	72,559,000
Egypt	18,927,000	18,501,000	16,163,000	16,829,000	13,301,000	14,383,000
United States	230,818,000	166,344,000	222,614,000	272,828,000	252,572,000	237,670,000
Japan	38,238,000	35,766,000	31,480,000	32,509,000	27,380,000	29,216,000
British India	62,344,000	68,741,000	58,690,000	97,220,000	73,310,000	84,205,000
Canada	57,305,000	43,249,000	51,764,000	34,878,000	33,538,000	34,637,000
British South Africa†	20,969,000	18,851,000	20,021,000	34,880,000	33,334,000	36,318,000
United Kingdom	402,886,000	378,064,000	382,400,000	319,281,000	285,663,000	277,337,000

* Value of principal articles only.

† Including bullion.

A comparison of the total figures for the ten months ended 31st October is possible for four countries, as follows, viz. :—

	Imports (see NOTE). Ten Months ended October.			Exports (Domestic) (see NOTE). Ten Months ended October.		
	1907.	1908.	1909.	1907.	1908.	1909.
	£	£	£	£	£	£
Belgium *	119,139,000	105,636,000	111,758,000	87,713,000	79,332,000	83,662,000
France	202,454,000	183,152,000	193,884,000	184,652,000	164,648,000	178,994,000
United States	254,164,000	187,612,000	249,064,000	309,970,000	287,997,000	278,571,000
United Kingdom	453,665,000	421,713,000	427,434,000	357,601,000	318,671,000	311,268,000

* Value of principal articles only.

The latest figures available as regards other countries from which returns are received by the Board of Trade are as follow :—

	Imports (see NOTE).			Exports (Domestic) (see NOTE).		
	1907.	1908.	1909.	1907.	1908.	1909.
	£	£	£	£	£	£
Russia* (8 months)	46,962,000	50,613,000	53,753,000	63,573,000	58,471,000	61,539,000
Mexico† (8 months)	16,793,000	12,357,000	11,208,000	17,845,000	15,092,000	16,915,000
Australian Commonwealth† (8 months)	33,003,000	33,196,000	32,365,000	39,947,000	34,692,000	35,050,000

* European, Russo-Finnish and black Sea Frontiers.

† Including bullion and specie.

NOTE.—The values stated for the latest year shown in the foregoing statements are provisional and subject to rectification. In some cases all the values are those declared by importers or exporters, as in the United Kingdom; in others they are based on an official schedule of values which is subjected to revision after the close of each year, the values used in the current returns being those fixed in the latest completed revision. In general, the values so fixed represent the level of prices in the preceding year. The countries adopting the system of official values annually revised are :—Austria-Hungary, Belgium, France, Germany, Italy, Spain, and (for imports) Switzerland. The figures in italics are based, wholly or mainly, on the prices of some earlier year than that under which they are shown.

In the case of Russia, Germany, Belgium, France, Switzerland, Italy, Austria-Hungary, Egypt, Japan, Canada and United Kingdom, the import figures given in the above summaries represent imports for home consumption. In all cases the export figures are intended to represent exports of domestic produce. In most cases, however, they include a certain amount of "nationalised" goods, i.e., goods originally imported for consumption, and which, if dutiable, have been charged with duty, but which are subsequently re-exported.

JOINT STOCK COMPANIES.

Number and particulars of new Companies working exclusively in India with sterling capital, and similar Companies increasing their capital, registered in the United Kingdom in the month of November, 1909.

No.	Class and Name.	Shares.	CAPITAL.		New Debentures issued.
			Nominal.	Extra.	
		£ s.	£	£	£
I.—TRADING.					
1	Indian Motor Taxi-cab Company	1 0	P. Shares 90,000	...	...
II.—TEA AND OTHER PLANTING COMPANIES.					
2	Indian Peninsular Rubber and Tea Estates	1 0	45,000	...	...
III.—MINING AND QUARRYING.					
3	Burma Development Syndicate	...	...	...	18,000
GRAND TOTAL			135,000	...	18,000

Number and particulars of Joint Stock Companies registered in each Province in British India in the month of November, 1909.

No.	Class and Name.	Situation of Registered Office.	Object.	Nominal Capital.
I.—BANKING, LOAN AND INSURANCE.				
1	United Provinces Co-operative Bank	Allahabad, United Provinces	Banking	Rs. 3,00,000
II.—TRADING.				
(a) Co-operative Associations.				
2	Akola Co-operative Pioneers Company	Akola, Central Provinces and Berar	General Traders and Contractors, etc.	50,000
(b) Printing, Publishing and Stationery.				
3	Fraser Printing and Publishing Company	Bengal	Printers, publishers and book-binders, etc.	20,000
4	Bangalore Daily Post	Civil and Military Station of Bangalore	Ditto ditto	50,000
Total, Printing, Publishing and Stationery				70,000
(c) Others.				
5	Oriental Bioscope Company	Rangoon, Burma	Carrying on business of Bioscope exhibitors, etc.	20,000
6	Deccan Cutlery and Metal Works Company	Sangola, Bombay	Founders and dealers in cutlery	10,000

JOINT STOCK COMPANIES—contd.

No.	Class and Name.	Situation of Registered Office.	Object.	Nominal Capital.
	II.—TRADING—contd.			Rs.
	(c) Others—contd.			
7	Krishna Company	Bombay	Commission Agents	2,50,000
8	Sbri Sidheshwar Mandli	Sholapur, Bombay	General Merchants	5,000
9	Cotton Trading Company of India	Bombay	Dealers in Cotton	1,01,000
10	Kerala Weaving Company	Calicut, Madras	Trading in cotton and other goods	50,000
	Total, Others . . . .	.....	.....	4,36,000
	Total, Trading . . . .	.....	.....	5,56,000
	III.—MILLS AND PRESSES.			
	(a) Cotton Mills.			
11	Coromandel Cotton Spinning and Weaving Mills Company	Kistna, Madras	Spinning, weaving, and dyeing cotton, etc. . . .	4,50,000
	(b) Cotton and Jute Screws and Presses.			
12	Best's Pressing and Ginning Factory	Madras	Ginning and pressing cotton	1,20,000
	Total, Mills and Presses . . . .	.....	.....	5,70,000
	IV.—TEA AND OTHER PLANTING COMPANIES.			
13	Bengal Agricultural Company	Bengal	Carrying on agriculture scientifically, etc. . . .	75,000
	V.—ICE MANUFACTURING COMPANIES.			
14	Benares Industrial Association	Benares, United Provinces	Manufacturing ice	1,00,000
	GRAND TOTAL . . . .	.....	.....	16,01,000

ABSTRACT TABLE OF COMPANIES REGISTERED IN THE MONTH OF NOVEMBER, 1909.

1 Banking, Loan and Insurance Companies	Rs. 3,00,000
1 Co-operative Association	50,000
2 Printing, Publishing and Stationery Companies	70,000
6 Trading Companies (other than specified above)	4,36,000
1 Cotton Mill Company	4,50,000
1 Cotton and Jute Screw and Pressing Company	1,20,000
1 Tea and other Planting Company	75,000
1 Ice Manufacturing Company	1,00,000
14	
GRAND TOTAL	16,01,000

FOOD-GRAINS AND SALT.

Retail Prices of certain Food-grains and Salt at selected stations for the first half of December, 1909. (Prices are stated in annas and pies per ser of 2·06 lbs.)

	Rice, common	Wheat	Barley	Jawar	Bajra	Ragi	Gram	Salt
	a. p.	a. p.	a. p.	a. p.	a. p.	a. p.	a. p.	a. p.
BURMA—								
Rangoon	1 6	...	...	...	...	...	...	1 2
Toungoo	1 4	...	...	...	...	...	...	1 2
EASTERN BENGAL AND ASSAM—								
Rangpur	2 2	2 1	...	...	...	...	...	0 11
Backerganj	1 9	...	...	...	...	...	...	0 11
BENGAL—								
Calcutta	1 11	1 9	...	...	...	...	...	0 10
Patna	1 4	1 5	0 10	...	...	...	...	0 10
UNITED PROVINCES—								
Cawnpore	...	1 8	0 11	0 11	0 11	...	1 9	0 9
Fyzabad	...	1 8	0 11	0 11	1 1	...	1 2	0 10
Meerut	...	1 6	0 10	0 11	1 0	...	1 0	0 9
PANJAB—								
Delhi	...	1 6	0 10	0 11	1 0	...	1 0	0 9
Amritsar	...	1 5	0 10	0 11	1 0	...	0 11	0 7
Rawalpindi	...	1 6	0 10	0 10	1 0	...	1 0	0 7
SIND—								
Karachi	...	1 9	...	1 2	1 3	...	1 4	0 7
BOMBAY—								
Belgaum	...	1 9	...	1 0	1 1	...	...	0 9
Ahmadnagar	...	1 10	...	0 11	0 11	...	...	0 11
Bombay	...	2 6	...	1 5	1 5	...	...	0 11
Ahmadabad	...	1 7	...	1 0	1 3	...	...	0 7
CENTRAL PROVINCES—								
Jubbulpore	...	1 7	...	0 10	...	...	1 1	0 11
Nagpur	1 4	1 7	...	1 1	...	...	1 3	1 0
Raipur	1 3	1 7	...	...	...	...	1 2	1 0
MADRAS—								
Bellary	1 10	...	...	1 2	...	1 2	...	0 11
Madras	2 3	...	...	...	...	1 4	...	0 7
Salem	2 2	...	...	1 5	1 7	1 2	...	1 0

—The Santos coffee market, writes a Rio de Janeiro correspondent under date November 30th, is at present in a very unsettled condition. Exporters could easily place abroad at 4\$300, type 4, but there is no certainty about being able to ship it before the limit is reached, and, of course, they do not wish to subject themselves to the extra 20 per cent *ad valorem* duty, or, in the alternative, to carry the coffee over to next season. Shipments are being rushed at a great rate, and the general idea is that we shall reach the 9,500,000 limit before the 20th proximo. On the 27th instant the balance for shipment stood at 1,234,000 bags, Minas coffee having been taken into consideration, although they are not included in the limit total. The Rio market has kept steady right through the current month, No. 7 being quoted at 4\$775 per 10 kilos. Rio clearances up to the 27th instant totalled 1,775,000 bags, and the stock on the same date amounted to 437,000 bags. At the beginning of the present month prices in Santos were more or less firm, No. 4

being quoted at 4\$400. Later on the proximity of the 9,500,000 limit was realised, and the market became depressed, quotations dropped to 4\$050, a decrease of 350 reis in less than a month. Santos clearances to the 27th instant amount to 8,266,000 bags, and the stock on the same date totalled 2,313,000 bags. Deducting the quantity still open for export to complete the Government's limit, a balance is left of 1,079,000 bags, which will be stored in Santos until next season unless the Sao Paulo Government modifies the present prohibitive law. It is stated on very good authority that prospects for the coming crop, while not so bright as last year, are not so unfavourable as certain interested parties make out. Anything between eight and nine million bags may be safely anticipated as the probable output of the State of Sao Paulo. In any case with what is left over from the present crop there will be plenty of coffee to make up the Government's limit of 10,000,000 bags for the coming season and possibly a very good balance to carry forward.

INDIAN CUSTOMS REVENUE.

The following statement shows the Total Gross Indian Sea and Land Customs Revenue (excluding Salt Revenue) in thousands of rupees :—

SEA CUSTOMS.	IN THE NINE MONTHS, APRIL TO DECEMBER, OF									
	1900-01	1901-02	1902-03	1903-04	1904-05	1905-06	1906-07	1907-08	1908-09	1909-10
IMPORTS.										
<i>Special Import Duties.</i>										
Arms, ammunition, and military stores	2,01	2,36	2,54	2,40	3,15	3,07	3,16	4,06	3,99	3,76
Liquors—										
Ale, beer, porter, cider and other fermented liquors	1,46	1,53	1,76	1,88	2,12	2,13	2,22	2,17	3,71	3,73
Spirits and liqueurs	47,24	47,50	51,20	55,52	56,24	58,80	55,16	68,02	69,59	69,76
Wines	2,56	2,50	2,95	2,76	2,70	2,89	2,75	2,92	2,87	2,83
Opium	2	2	3	2	3	3	2	3	2	3
Petroleum	33,72	39,85	39,88	31,32	31,69	28,81	26,75	31,91	40,01	34,96
Sugar (countervailing duties, 1899)	13,26	21,51	16,40	2,07	11	1	1	...	...	...
Sugar (countervailing duties, 1902)	—	—	3,25	17	8	1	...	...	...	...
<i>General Import Duties.</i>										
Articles of food and drink (excluding sugar)	11,88	11,20	10,71	11,22	12,99	14,21	14,41	18,07	20,02	18,01
Sugar (ordinary duties)	21,21	20,77	19,45	21,04	24,56	25,82	34,90	33,54	39,40	43,79
Chemicals, drugs, medicines and narcotics, and dyeing and tanning materials	7,79	8,59	8,62	10,18	9,92	10,51	10,84	13,46	12,20	13,90
Cotton manufactures—										
Piece-goods, grey	34,12	37,58	39,39	33,23	41,95	47,16	47,96	50,19	39,67	45,60
" white	13,60	20,55	12,05	14,16	20,14	20,88	17,63	23,51	21,54	17,42
" coloured	14,62	17,87	16,70	20,53	23,81	24,25	24,63	27,96	27,24	21,34
Other goods	2,01	2,31	1,87	2,97	4,21	4,61	4,92	5,19	4,93	4,92
Metals and manufactures of—										
Silver, bullion and coin	8,95	21,05	29,57	28,66	29,35	19,54	31,04	37,34	50,03	44,42
Other metals and manufactures of metals	15,72	16,96	22,18	23,81	27,14	22,99	25,12	30,71	36,00	32,89
Oils (excluding petroleum)	1,13	1,46	1,14	71	67	95	1,54	2,01	1,06	89
Manufactured articles	42,79	46,73	45,60	53,10	62,22	62,76	62,02	73,20	73,93	69,04
Raw materials and unmanufactured articles	7,69	6,83	6,71	6,60	7,55	8,97	8,48	10,40	12,54	10,96
TOTAL IMPORTS	2,82,08	3,27,17	3,32,00	3,22,55	3,60,63	3,58,43	3,73,56	4,39,69	4,58,80	4,38,15
EXCISE DUTY ON COTTON GOODS	8,60	12,48	12,92	14,19	16,00	18,73	18,55	22,25	22,09	23,96
EXPORT DUTIES—										
Rice and Rice-flour	15,05	54,28	71,00	65,65	78,95	69,21	57,84	56,19	42,27	52,07
LAND CUSTOMS AND MISCELLANEOUS	5,75	6,13	6,09	6,73	7,23	6,37	6,78	7,50	6,57	7,43
GRAND TOTAL	3,47,48	4,00,06	4,22,01	4,10,17	4,62,86	4,52,74	4,56,73	5,25,63	5,29,73	5,21,61

—The following information is from the Report by H. M. Consul at Loanda (Mr. H. G. Mackie) on the trade of Angola in 1908, which will shortly be issued :—Three concessions for obtaining petroleum have been registered by a British engineer, who managed to reach the deposits notwithstanding the threatening attitude of the natives. Borings have been made about eight miles east of Catumbo, near Barro do Dande, where a deposit of asphalt, reported to be 40 feet thick and several miles long, has been discovered. It is said to contain 16 to 20 per cent of bitumen, and will

probably soon be worked by British capitalists. In the neighbourhood there are apparently good petroleum lands, which have recently been examined and favourably reported upon by a prominent British authority on petroleum. Asphalt and bitumen also exist at Musserra, in the district of the Portuguese Congo, about 15 miles east of the port of Maculla. All these deposits are held by an Anglo-Portuguese syndicate, and as the result of recent expert examination, there seems every likelihood of active boring operations beginning in the spring of 1910.

WEEKLY TRADE MOVEMENTS.

For the week ending 8th January, 1910.

COTTON GOODS.			
Twist and Yarn.			
Foreign—	Calcutta lbs.	339,889	
Imports by sea into	Bombay "	213,167	
	Madras "	101,415	
Indian—	Calcutta "	307,660	
Exports by sea from	Bombay "	1,996,190	
	Madras "	...	
Grey Piece Goods.			
Imports by sea from	Calcutta yds.	25,185,847	
Foreign ports into	Bombay "	3,842,614	
	Karachi "	845,297	
	Madras "	25,935	
	Rangoon "	176,466	
White Piece Goods.			
Imports by sea from	Calcutta yds.	7,945,547	
Foreign ports into	Bombay "	2,957,817	
	Karachi "	4,380,757	
	Madras "	3,402	
	Rangoon "	720,466	
Other Piece Goods.			
Imports by sea from	Calcutta yds.	2,811,743	
Foreign ports into	Bombay "	5,046,858	
	Karachi "	2,894,659	
	Madras "	115,363	
	Rangoon "	2,010,528	
Piece Goods.			
(Indian and Foreign.)			
Despatches by rail from	Calcutta cwt.	300	
	Bombay "	4,720	
	Karachi "	13,512	
	Madras "	8,302	
Cotton, Raw.			
Imports into Bombay	By sea cwt.	83	
	Coastwise "	42,193	
	By rail "	418,114	
Imports into Karachi by rail	"	77,410	
" " Calcutta by rail and river	"	17,180	
JUTE.			
Arrivals by all routes in Calcutta	cwt.	514,920	
Exports by sea from	Calcutta { Gunny bags No. 10,516,328		
	Chittagong { " cloth yds. 35,450,758		
	Jute cwt. 507,128		
	Chittagong—Jute " 7,750		
COTTON SEEDS.			
Exports by sea from Bombay	cwt.	469,925	
OIL SEEDS.			
Linseed.			
Imports into	Calcutta by rail and river cwt.	7,528	
	By sea " 20		
	Bombay { Coastwise " 190		
	By rail " 3,713		
	Karachi by rail " 3,026		
Exports by sea from	Calcutta " 5,996		
	Bombay " ...		
	Karachi " ...		
Rape and Mustard Seed.			
Imports into	Calcutta by rail and river cwt.	34,047	
	By sea " ...		
	Bombay { Coastwise " 8,336		
	By rail " 70,806		
	Karachi by rail " 6,044		
Exports by sea from	Calcutta " 8,010		
	Bombay " 68,241		
	Karachi " ...		
RICE.			
Arrivals by all routes in Calcutta	cwt.	301,068	
	Calcutta " 181,519		
	Chittagong " 2,788		
Exports by sea from	Bombay " 13,887		
	Karachi " 6,642		
	Madras " 1,178		
	Rangoon " 81,543		
TEA.			
Arrivals by all routes in Calcutta	lbs.	3,302,133	
Exports by sea from	Calcutta " 4,095,444		
	Chittagong " 992,867		
WHEAT.			
Imports into	Calcutta by rail and river cwt.	69,090	
	Karachi by rail " 248,425		
	Bombay { By sea " 17,967		
	Coastwise " 54,630		
	By rail " 401		
Exports by sea from	Calcutta " 683		
	Bombay " 224,717		
	Karachi " ...		

* Incomplete.

EXPORTS—RUNNING TOTALS INCLUDING FIGURES RECORDED ABOVE.

	FROM APRIL		FROM JANUARY					
	1908.	1909.	1909.	1910.	1909.	1910.	1909.	1910.
	Wheat.		Linseed.		Rape and Mustard Seed.		Cotton Seed.	
Calcutta . . . Cwt.	45,648	3,376,527	25,080	6,049	5,099	12,062	Not reported.	
Bombay . . . "	77,013	2,636,789	13,231	23,446	6,030	31,717	853,308	790,455
Karachi . . . "	3,668,401	15,472,246	...	...	157,965	98,997	Not reported.	

KEROSENE OIL, WEEK ENDING 8th JANUARY, 1910.

Imports by sea into—	FROM			TOTAL.
	Russia.	America	All other foreign countries.	
	galls.	galls.	galls.	galls.
Calcutta	...	...	...	...
Bombay	...	184,906	...	184,906
Karachi	...	602,523	...	602,523
Madras	...	...	...	...
Exports by sea from Burma to				1,175,072
Bengal				...
E. B. & Assam				...
Bombay				...
Sind				...
Madras				146,800
Indian Ports, Non-Br.				...
Foreign Ports				...

IMPORTS OF SUGAR, WEEK ENDING 8th JANUARY, 1910.

Country of shipment.	REVISED SUGAR IMPORTED INTO						TOTAL.
	Calcutta.	Chittagong.	Bombay.	Karachi.	Madras.	Rangoon.	
	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.
United Kingdom	60	...	89	1	4	4	158
Germany	...	...	751	...	...	...	751
Austria-Hungary	...	...	1,500	500	...	...	2,000
Other European Countries	...	...	...	...	...	69	69
Java	123,957	...	2,464	...	9,320	2	135,743
Mauritius	...	...	66,503	18,335	...	...	84,838
Other Non-European Countries	...	...	417	...	...	...	417
Total refined							223,976
Total unrefined							7
Grand Total							223,983

RESULTS OF AUCTION TEA SALES IN CALCUTTA.

DISTRICTS.	SEASON 1909-10.				SEASON 1908-09.			
	Sold in sale of 7th January		Sold to 7th January		Sold in sale of 8th January.		Sold to 8th January.	
	Packages.	Average price per lb.	Packages.	Average price per lb.	Packages.	Average price per lb.	Packages.	Average price per lb.
	A. P.	A. P.	A. P.	A. P.	A. P.	A. P.	A. P.	A. P.
Assam	8,937	6 11	160,409	7 4-6	6,973	6 2-9	170,162	6 8-1
Cachar	8,527	5 10-8	140,858	5 10-1	5,576	5 1-2	123,773	4 11-8
Sylhet	5,936	5 8-9	95,410	5 9-7	4,224	5 0-9	98,237	5 0
Darjeeling	2,284	8 10-3	60,773	10 0-7	1,869	7 4-2	62,026	8 8
Dooars	7,229	7 1-3	182,375	6 10-7	9,053	6 5-5	175,466	6 0-3
Teral	730	6 0-9	17,104	6 3-4	933	4 8	24,090	5 1-8
Chittagong	263	5 9-7	6,913	5 10-7	187	4 7-8	7,153	4 11-6
Chota-Nagpore	78	6 4-3	1,678	6 7	60	5 2	1,647	5 4-1
Kumaon and Kangra	323	5 5-8	3,288	5 8-1	135	5 9	2,048	5 8-3
Madras	...	...	110	5 11-7	...	...	154	5 3-1
Dehra Dun	...	...	107	5 9-2	...	...	...	...
Nepal	43	5 4	517	6 2	...	...	552	5 3-9
TOTAL	34,350	6 7-1	670,042	6 10-7	28,110	5 11	665,308	6 0-6

(The above do not include second-hand Tea, damaged Tea and Dust from those concerns which sell only that grade on this market.)

Season 1909-10. Average price of 37,941 packages Dust* sold to 7th January As. P.
 " 1908-09. " 37,725 " " " 8th " 5 5-8
 " " " " " " " " " 5 1-5

* On account of gardens which sell only that grade on this market.

ARGENTINE TRADE WITH ENGLAND AND INDIA.

THE Argentine Republic in 1908 occupied, and may in the future occupy, the first, whilst the United States may have to be content with the second, place in the exportation of food-stuffs. The change is partly due to the shortage of meat in America, and partly to the fact that with their increasing population the United States will have less and less surplus provisions with which to supply the world. Last year the Argentine Republic sent England three times more maize than the United States did, something like four and a half million cwt. more wheat, and considerably over twice the amount of refrigerated and frozen cattle. The shipments of meat are considerably heavier for the first nine months of 1909, so the proportion shipped by the Argentine Republic is not likely to be less for the present year.

Aside from wheat, maize, and cattle, the Argentine Republic sent the United Kingdom in 1908 nearly as much frozen mutton as New Zealand, and two and a-half times more than Australia did. The following figures have just been prepared by the Director of the Division of Commerce and Industry of the Department of Agriculture of the Argentine Government:—

	Exported to Great Britain.	Total Exports to Great Britain from all countries.
	Value.	Value.
Wheat	£ 13,112,215	£ 38,295,940
Maize	5,660,599	10,388,061
Frozen Beef	6,102,926	10,308,380
Frozen Mutton	2,512,656	8,148,357

Nearly 41 per cent of these vitally important food-stuffs were, therefore, supplied by the Argentine — of wheat, 34-2 per cent; of maize, 54-5 per cent; of frozen mutton, 30-88 per cent; and of refrigerated and frozen beef, 60 per cent. Yet a large share of the meat business in the Argentine, if it has not already passed, may soon pass into the hands of the American Beef Trust. The United Kingdom, according to these Argentine official returns, purchased last year refrigerated and frozen beef as follows:—

	Cwt.	Value.
Argentine Republic	3,500,307	£ 6,102,926
United States	1,432,142	3,268,584
New Zealand	347,822	541,600
Other Countries	351,668	395,270
TOTAL	5,631,939	£ 10,308,380

India already secures a good share of the trade in bags for handling the grain and seeds; but the market for carcass cloth for the packing of frozen meat is one that might repay the study of the Bombay cotton mills. It is understood that samples of carcass cloth were some years ago procured from Australia for the guidance of the Bombay Mill-owners' Association, but it is not known whether anything further has been done to create a trade.

NOTICE.

The undermentioned publications can be purchased from the Statistical Department of the Custom House.

COMMERCIAL GUIDE (MONTHLY).

	RATE.
Per annum	Rs. A. 100 0
Per half-year	54 0
Per quarter	28 0
FOR LESS THAN 3 MONTHS:—	
To Subscribers	per copy 8 0
To Non-Subscribers	" 10 0
POSTAGE FOR ONE YEAR:—	
Abroad	per copy 5 0
In India	" 2 8

WEEKLY MANIFEST.

First copy per annum	100 0
" " " half-year	54 0
" " " quarter	28 0
Additional copy per annum	20 0
" " " half-year	12 0
" " " quarter	8 0
FOR LESS THAN 3 MONTHS:—	
To Subscribers	per copy 1 0
To Non-Subscribers	" 2 0
POSTAGE FOR ONE YEAR:—	
Abroad	per copy 5 0
In India	" 3 8

DAILY LISTS—IMPORTS OR EXPORTS (separately).

One copy of either per annum	65 0
" " " " half-year	35 0
" " " " quarter	20 0
For less than 3 months whether to Subscribers or Non-Subscribers, annas 5 per copy.	
POSTAGE FOR ONE YEAR:—	
Abroad—One copy despatched in batches once a week	5 0
In India—One copy despatched daily	20 0
In India—One copy despatched in batches once a week	5 0
The above charges apply also to back numbers.	

MISCELLANEOUS.

Review on the Maritime Trade of Bengal (per copy)	1 0
Annual Statement of the Sea-borne Trade and Navigation of the Bengal Presidency (per copy)	6 0
Rules under the Sea Customs Act (VIII of 1878) published by the Board of Revenue, L. P., with appendices (per copy)	4 12
Schedule IV of the Indian Tariff Act, 1894 (VII of 1894 with subsequent amendments) (per copy)	0 6

N.B.—All communications regarding the above Publications should be addressed to the Collector of Customs, Calcutta, by designation only and not by name.

H. F. HOWARD,
Collector of Customs, Calcutta.

23rd September, 1909.

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The most Wonderful Invention of the 20th Century.

See Medical Report.

LONDON, S.W., August 5th, 1909.

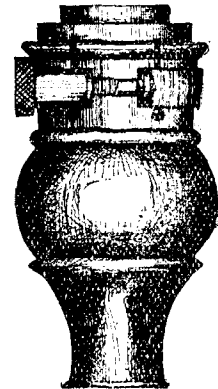
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(Sd.) A. B. GRIFFITHS, Ph.D.,

Bacteriologist and Consulting Chemist,
Author of "A Manual of Bacteriology," &c.

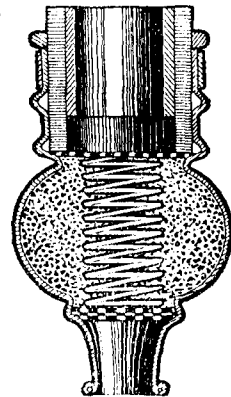
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REGISTERED.

The Indian Trade Journal.

*Issued by the Commercial Intelligence Department,
India.*

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CALCUTTA, THURSDAY, JANUARY 20, 1910.

[ANNAS 4

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NOTES.

MONEY MARKET.

Wednesday Evening.

PRESIDENCY BANK RATES	Calcutta	6 per cent. (Dec. 9).
	Bombay	6 per cent. (Nov. 25).
	Madras	7 per cent. (Jan. 4).

EXCHANGE	On demand	1-4 $\frac{1}{16}$
	Telegraphic	1-4 $\frac{1}{32}$
	Transfers	
	3 months	1-4 $\frac{1}{4}$
	6 months	1-4 $\frac{3}{8}$

GOVERNMENT PAPER (3 $\frac{1}{2}$ per cent.) Rs. 93 $\frac{1}{2}$.

Subscribers to this *Journal* should make arrangements in their offices for the regular scrutiny of the **Enquiries Column**, and for following up such enquiries as appear suitable. There is a steady increase in the number of enquiries received from firms of position in other countries who desire to find agents in India and who would naturally prefer to deal with a firm of high standing. But it is a rule in this Department not to suggest the name of any such firm in India unless expressly authorised to do so, the reason being that such selection might appear to give an opening for undue preference. It has been ascertained that the failure to respond to these enquiries is often due to a neglect to arrange for such a regular scrutiny of the **Enquiries Column** as is here suggested.

The final forecast of the winter rice crop of Eastern Bengal and Assam for 1909-10 will be exhibited at the street door of the office of the Director General of Commercial Intelligence, No. 5, Clive Street, Calcutta, at noon on Tuesday, the 1st February, 1910.

The spot price of wheat at Karachi on the 15th January was Rs. 34-11-4 per candy of 656 lbs. This is for white wheat on a basis of 30 per cent red wheat, 5 per cent barley and 3 per cent dirt; the price of bags included. The price of Indian grey yarn (20's) at Bombay on the 15th January was Re. 0-7-3 to Re. 0-8-0 per lb. and of Mutia Bhawnagar cotton, January delivery, Rs. 264 per candy of 784 lbs.

The wholesale spot prices of the undermentioned articles in Calcutta on the 19th instant were as under:—

Jute—C. D. M. and Co. (Red) Group	
per 400 lbs.	Rs. 36 8 0
" M. per 400 lbs.	" 33 8 0
Rice—Ballam No. 1 per B. md.	" 3 12 0
Moonghy "	Nil.
Linseed—Bold 4 ¹ / ₂ per B. md.	Nil.
Rapeseed—Yellow, mixed, bold,	
Cawnpore, 4 ¹ / ₂ per B. md.	Rs. 4 15 0 to
	" 5 4 0

The *Financial Chronicle* publishes the following summary of its reports received from correspondents in the American cotton-growing States:—Rain has been general over the Cotton belt throughout the week, but precipitation on the whole moderate. The temperature has been generally lower, and snow has fallen at a few points. The week's plantation deliveries amount to 220,000 bales, against 224,000 bales last week and 383,000 bales last year. The quantity of cotton now on shipboard but not yet cleared amounts to 194,000 bales, of which 44,000 are for Great Britain, 62,000 for Germany, and 56,000 for the rest of the Continent. The same authority makes the quantity of cotton brought into sight since September 1st as follows:—

	This year.	Last year.
Aggregate port receipts	4,899,000	5,938,000
Aggregate not overland	448,000	638,000
Aggregate Southern consumption	858,000	719,000
Excess interior stocks	707,000	795,000
Total in sight to date	6,912,000	8,139,000
Brought into sight during week	309,000	491,000
Northern spinners' takings since September 1st	1,134,000	1,359,000

In their weekly report on the Shanghai piece-goods market, dated the 23rd ultimo, Messrs. Noel, Murray and Co., say:—The firmness in the exchange on India has continued to curtail transactions in Indian yarns, as most holders do not see the force of making any concessions in price on that

account, especially as buyers' ideas are really unwarrantably low. The business done is as follows:—In No. 12's 150 bales Currimbhoy (Mule) at \$103.00, a drop of two and-a-half taels on the last price and 270 bales Fazulbhoy Mills at \$104.75, two and a quarters taels lower, and 30 bales No. 20's Alliance (Chicken and Deer) (Ring) at \$112.50 showing an advance of half a tael. The buying is confined to the River Ports and Szechuen operators, the market closing steady to firm. Clearances are not quite so good and the stock is now accumulating, but not to a dangerous extent.

The following return shows the number of bales of cotton imported and exported at the various ports of the United Kingdom during the week and 51 weeks ended 23rd December, 1909:—

	IMPORTS.		EXPORTS.	
	Week ended 23rd Dec., 1909.	51 Weeks ended 23rd Dec., 1909.	Week ended 23rd Dec., 1909.	51 Weeks ended 23rd Dec., 1909.
	Bales.	Bales.	Bales.	Bales.
American	8,728	3,251,091	3,723	192,713
Brazilian	—	52,085	62	9,181
East Indian	2,222	113,076	1,221	38,461
Egyptian	16,823	537,564	6,884	118,314
Miscellaneous	1,949*	138,471†	928	9,799
Total	29,722	4,092,287	12,818	368,367

* Including 116 bales British West Indian, 43 bales British West African and 597 bales British East African.

† Including 6,400 bales British West Indian, 12,609 bales British West African, 11,488 bales British East African and 326 bales foreign East African.

NOTE.—Cotton "in transit" or "for transshipment under bond," if described as such in the ships' reports, is not included in this return.

Mr. E. F. Crowe, Commercial Attaché to the British Consulate-General in Yokohama, recently informed the Board of Trade that at a meeting of the Japanese Cotton Spinners' Association held on 15th December in Osaka, it was decided that from the 1st May, 1910, for the period of one year an export bounty of Yen 1.50 (Yen=Re. 1.8-6) per bale will be given for each bale of yarn of 20's or under which is exported. Mr. Crowe proceeds:—"The fund wherefrom to pay the bounty and expenses connected therewith will be collected from spinners in proportion to their number of spindles spinning 20's or under, but not counting spindles for yarn for weaving purposes. But in cases where spindles have been sealed and kept idle for more than one month they will not have to contribute to the fund. The present arrangement which will come to an end on May 1st next was to give a bounty of Yen 1.50 per bale to exporters for every bale of yarn (20's and below) exported and a bounty of Yen 2 per bale to millowners who export their yarn while running only 80 per cent of their

spindles. Millowners are, however, provided with the privilege of running their spindles beyond the 80 per cent limit on the special condition that the extra yarn so produced shall be entirely exported. This special provision is intended to meet the ever-changing conditions of the trade, and is said by the spinners to have proved a complete success. It will be remembered that in my letter of the 20th July I referred to the friction that had arisen between the spinners in the West and the four companies in the East (i.e., the Fuji Gas, the Tokio, the Nisshin, and the Shimozuke). The trouble was settled by a compromise whereby the existing arrangement to keep 20 per cent of the spindles idle will come to an end on April 30th next. (N. B.—I always thought the number was 27 per cent, but I am assured now by a leading spinning company that it is 20 per cent). The question of freight rebates which was also a burning one has not yet been settled."

According to the *Mexican Herald* of 29th November, a company working cotton mills at Xia has offered a subsidy to every agriculturist in the district of Ixtlan attempting the culture of tree cotton. In addition, the company offer to take the whole of the product at the highest market price. Twenty-five cents (about 6d.) monthly for each hundred plants set out is offered for 1910.

Lord Strathcona, High Commissioner for Canada, has received a cablegram from the Minister of the Interior at Ottawa stating that the monthly crop bulletin issued by the Dominion Department of Agriculture for December reports an increase in the field crops of Canada for the current year of nearly two and-a-half million acres over 1908. As a result of larger acreage, yield, and prices, the increase of value is estimated at nearly \$100,000,000 over last year. The western wheat crop is valued at \$121,000,000 as against \$72,000,000 in 1908.

The *Corn Trade News* gives the following summary of the world's crop as on the 28th ultimo:—*United States of America*—Big snowfall. Receipts light, strike still hindering movement. Some estimate interior reserves large, others say official crop estimates too large. *Canada*—Receipts been larger. *Argentina*—Weather yesterday rainy, last week fine. Estimates wheat surplus fully maintained. *Australia*—Export movement started, no change harvest indications. *India*—Good rains, claimed wheat crop United Provinces assured. First estimate wheat acreage United Provinces and Punjab, 15,100,000 against 14,500,000 last year. *Russia*—Heavy snowfalls throughout country. Latest crop reports from Odessa favourable, but some interior reports confirm poor start on reduced acreage. Supplies maintained. *Roumania*—Weather unusually mild, seedings good

condition. *Hungary*—Seedings good condition, snow wanted. *France*—Condition seedings generally satisfactory, but excessive rains North cause anxiety. *Germany*—Weather changeable. Crop reports favourable. *Italy*—Weather unsettled, not unfavourable for crops. *Spain*—Crop outlook generally satisfactory, but serious floods reported. *Portugal*—Heavy rains and floods causing much anxiety about seedings. Last crop over-estimated; imports needed. *United Kingdom*—Weather turned mild, but very wet. *North Africa*—Moisture improved crop outlook.

The prices of British corn per quarter of 8 bushels, as received from the inspectors and officers of Excise in the week ended 25th December, 1909, were as follows:—Wheat, 33s. 1d.; barley, 25s. 2d.; and oats, 17s. 4d.

The *South African Commerce and Manufacturers Record* (Cape Town) for November states that the Transvaal Chemical Company, who last season cultivated a considerable area of ground-nuts in the Transvaal, have now concluded their experiments, and have pressed oil, in their newly-erected oil mill, from the crop of nuts, with very satisfactory results. The experiment is considered as entirely successful from a commercial point of view.

In an article in the *Times* of December 28th on the Agricultural Wealth of Argentina, Mr. Lix Klett, Consul-General of Argentina in Rio De Janeiro, says:—After wheat the most important crops are those of linseed, maize, and oats. In 1895 the Argentine Republic had only 387,324 hectares under linseed and 1,244,182 of maize. In 1908 the area under linseed amounted to 1,534,300 hectares; oats, 633,300 hectares; and maize, 3,000,000. The total production of linseed in 1900 was 225,184 tons and 1,100,710 tons in 1908. The maize production was 1,412,600 tons in 1900 and 3,456,000 tons in 1908. The great flocks of sheep in Argentina form an important branch of its cattle industry. The production of wool is centred in the provinces of Buenos Ayres, Entre Rios, Cordoba, Santa Fe, Corrientes, and the National Territories of the south. The export of wool was, in 1900, 101,113 tons and 175,538 tons in 1908, representing a value of £9,374,242. It is mainly placed in French, German, and Belgian markets, though occasionally Lincoln fleeces are sent to England and to the United States. The principal manufacturing establishments in Europe send their agents direct to Argentina to select and buy wool, all sales being private. Amongst the merino wools preference is given to the Rambouillet type, yielding in the washing 44 per cent. The Lincoln breeds easily yield 70 per cent of clean wool. The natural conditions of the extensive prairies of the Southern Territories

offer great facilities for sheep-breeding, and the radius of this industry is gradually extending as the prices of these lands are relatively low.

With reference to the estimated wheat and barley crop of Japan, H. M. Commercial Attaché at Yokohama (Mr. E. F. Crowe) now reports the publication in the Official Gazette of the actual figures for this year's barley crop. The total is given as 21,523,128 koku, as compared with 21,434,966 koku last year, and 19,720,792 koku in an average year; increases of 4 and 9.1 per cent respectively. It is to be noted that the so-called barley crop includes barley, naked barley and bearded wheat, in the proportion of, roughly, 45, 35 and 20 per cent. A koku is equal to 4.9629 bushels.

The area under rice cultivation in the fifteen principal Burma rice producing districts is now reported as 7,549,946 acres, a decrease of 27,148 acres when compared with last month's figures and practically the same as last year's actuals. The percentage estimates of last month have been raised in three districts and have been lowered in one district and the provincial estimate of the crop now stands at 93 per cent of the normal outturn per acre. Reaping operations progress under normal conditions and the crop promises well. The estimate of the surplus available for export remains unchanged at 2½ million tons of cargo rice equivalent to 42 million cwt. of cleaned rice.

The soy bean is beginning to find extended appreciation in Europe. A bulletin has been issued by the Liverpool University Institute of Commercial Research in the Tropics containing an article by Mr. E. S. Edie, M.A., B.Sc., on the subject of the cultivation and uses of soy beans; a bulletin by Mr. C. E. Liardet, on soy beans, has been issued. H. M. Legation at Copenhagen reports that a large factory for the production of soy cake is in course of construction at that city at an estimated cost of about £56,000. The company which is building the factory is closely associated with the East Asiatic Company. It is hoped that the annual turnover of the new company will at first be not less than £220,000, and that 30,000 tons of soy beans will be shipped each year by the East Asiatic Company from Manchuria to Denmark. At present, adds H. M. Legation, oil cake of various kinds, to the value of some £1,400,000, is consumed annually in Denmark.

The total approximate gross earnings of State and Guaranteed Railways from 1st April to the 31st December, 1909, show a gain of Rs. 1,66,88,136 compared with the corresponding figures for 1908 and are less than those of 1907 by Rs. 33,54,431.

The Secretary of State has served the South Indian and Indian Midland Railway Companies with formal notice of his intention to terminate their respective contracts on 31st December, 1910.

Advices from the Malabar districts show that the high prices now current for oleagenous materials have had their effect on the copra market. Shippers sold large quantities of copra for forward delivery early in the season, but the home price has risen greatly and rapidly before the time for shipment arrived. This resulted in the usual failure of the local dealers to deliver against contracts and in the serious embarrassment of the European shippers, who have had in some cases to accept defective copra.

An article in the *Cotton Seed Oil Magazine* records a fresh step in the advance of cotton seed oil into the first rank of edible oils. Six of the leading fish-packing firms in Norway have decided to experiment with it in place of olive oil for the packing of sardines. It is expected that the new departure, if successful, will lead to a large increase in the demand for an oil that India might well supply. The same paper congratulates manufacturers on the purchase of 120,000 lbs. of cotton seed meal and hulls for mules on the Panama Canal work. This is regarded as an official recognition of the value of these products for animals; and such recognition would afford encouragement to Indian crushers in India who might hope to find a market with the Army Department in this country.

The attention of all agents and masters of vessels is invited by the Calcutta Customs authorities to notification No. 5552B, dated the 2nd November, 1909, published at page L599, Part I, of the *Calcutta Gazette* of the 10th November, 1909, issued by the chief Customs authorities under Section 55 of the Sea Customs Act VIII of 1878 prescribing new forms of manifest. Agents and masters will in future print and supply their own requirements. The forms should be printed on strong white paper as at present and they will come into use at once, but for the convenience of firms and masters having existing forms in stock it will be optional to them to continue the use of the present form until the 1st May, 1910. Specimens are now obtainable from the Superintendent, Statistical Department, at the Custom House.

The Karachi correspondent of the *Indian Daily News* reports certain measures of combination being employed by American firms in their selling trade with that port. It is stated that a number of export firms in the United States combine and appoint one shipping manager who, controlling large quantities, obtains from the shipping companies all-

round rebates not enjoyed by individual shippers. The effect of this is said to be that freight from New York to Karachi figures out at about ten per cent as compared with freights from London to Karachi at from fourteen to seventeen per cent. The correspondent adds that German shippers use the same system and effect an equal saving. The lesson is apparently addressed to the British shipper, but it is one that might very well be taken to heart by shippers of Indian yarns to China and the Levant. It cannot be too often repeated that if India is to improve or even to maintain her position in foreign markets, she must carry her trade organisation a stage further than it has reached at present and do as her competitors do. Difficulties there may be. There are difficulties in other countries also. But they are overcome.

An important amalgamation is about to be effected in the South Staffordshire tube trade between Messrs. Accles and Pollock, of the Churchbridge Works, Oldbury, the Oldbury Tube Works Company, the Oldbury, Steel Conduits (Ld.), Paddock Works, Oldbury and Messrs. Merriman (Ld.), Oldbury. The new concern will be known as Accles and Pollock (Ld.) and will have a capital of £40,000, of which £22,500 will be raised in £1 ordinary shares and £17,500 in debenture and preference shares. The industries to be pursued include the manufacture of weldless steel tubes for cycles and for general engineering purposes, and steel conduit tubes and fittings for electric light and power wiring services. Recognizing the possibilities that lie in connexion with aeroplane building and fitting as a new branch of the engineering trades, the amalgamated works are also arranging to specialize in weldless steel tubes and tubular parts for aeroplane manufacture. As at present equipped, the combining concerns employ between 200 and 300 workpeople, and as the amalgamation proceeds this number is likely to be largely increased. The first managing director will be Mr. Thomas Pollock.

The daily prices of opium per chest for the periods mentioned below were as follows:—

For the week ending 15th January, 1910—

In the Calcutta market—

Behar opium—Rs. 2,205; 2,188; 2,260; 2,345; 2,331; 2,295; 2,290.

Benares opium—Rs. 2,200; 2,180; 2,250; 2,335; 2,320; 2,285; 2,280.

The prices in the time bargains for the Bihar opium of the 2nd sale of 1910 were Rs. 2,215; 2,198; 2,270; 2,335; 2,341; 2,305; 2,300.

In the China market—

At Hongkong—(Exchange Rs. 133 per \$100.)

Behar opium—\$1.605; 1.615; 1.625; 1.660 and 1.675 and 1.680; 1.700 and 1.715; 1.740; 1.740.

Benares opium—On the 11th and 14th instant \$1,625 and 1,740 respectively; and on the 12th and 13th instant \$1,660 and 1,675; and 1,700 and 1,715, respectively.

At Shanghai—(Exchange Rs. 177 per 100 taels).

Behar opium—On the 9th and 12th instant 1,230 and 1,260 taels, respectively.

Benares opium—Same as above.

For the week ending 8th January, 1910—

In the Bombay market—

Both on the 2nd and 3rd instant (new, 1908-09) Rs. 1,210; (new, 1907-08) Rs. 1,250 to 1,720; and (old, 1906-07) Rs. 1,325 to 1,780; from the 4th to the 8th instant (new, 1908-09) Rs. 1,775; (new, 1907-08) Rs. 1,800 to 1,875; and (old 1906-07) Rs. 1,900 to 1,935. The latest prices at Hongkong and Shanghai were (new) Rs. 1,796 and 1,913; (old) Rs. 1,902 and 1,949, respectively.

Not more than 15,160 chests of Malwa opium may be exported during the calendar year 1911.

Having regard to the great interest being taken in the development of a competent sugar industry in Formosa by the adoption of the central factory system, we published in our issue of 14th October last some particulars reported by the British Consul at Tainan (Formosa) to the British Government and wrote at the same time soliciting further information from that officer. We print below the gist of his reply:—"Most of the big mills here are situated in the southern half of the island—in fact the island may be divided almost equally into the tea districts of the northern half and the sugar districts of the southern. Whereas the sugarcane takes about 10 months to mature here, in the north it takes 14 months and is not so good. As a consequence, the only mills there are small native buffalo mills manufacturing brown sugar (now fast dying out), and a few 'semi-modern' mills, also making brown sugar, with modern crushing machinery and old-fashioned open boiling pans. During the sugar season 1908-09 in Formosa the total number of old-fashioned (buffalo) mills in operation was 580; semi-modern, 39; and modern 15. The old style mills are those using stone rollers driven by buffaloes; semi-modern mills have modern crushing machinery, but the boiling, etc., is done in the old-fashioned way in open pans. The daily crushing capacity of semi-modern mills was 2,866 tons, and of modern mills, 9,230 tons. The total amount of raw material (cane) used was 2,198,413,221 kin (kin=1,323 lb.). The total amount of sugar produced was as follows: (a) Brown sugar, 84,159,971 kin; (b) centrifugalled sugar (up to Dutch standard 15), 119,086,435 kin; (c) centrifugalled sugar (D. S. 15-20), 3,555,392 kin; (d) molasses, 17,789,893 kin. According to grades, the above-mentioned centrifugalled sugar

up to D. S. 15 (b), was divided as follows:—1st grade, 107,051,835 kin; 2nd grade, 11,602,000 kin; 3rd grade, 184,600 kin; 4th grade, 245,000 kin. Permission to erect 30 new mills with a total daily crushing capacity of 4,450 tons has been given by the Government. Last season's output of roughly 120,000 tons is expected shortly to be increased to about 180,000 tons. The crushing season in Formosa is from December to April, mills working for about 140 days during these months.

We have received a copy of the **Travancore Almanac and Directory for 1910** (Government Press, Trivandrum; price Re. 1-4), which will doubtless prove useful for purposes of reference. In addition to other information, the publication contains a list of planters' estates and planting companies, a trade list, the State notifications in regard to prospecting for minerals, and, the Travancore import tariff.

We have received a copy of a paper on **Glass Making in India** which was read at the 5th Indian Industrial Conference at Lahore. The author is Mr. Alakh Dhari, Secretary of the Upper India Glass Works at Ambala, and it goes with some fulness into the early history of the indigenous industry and reviews the discouraging experience of more recent times. We believe that a detailed analysis of the nature and causes of even one of the failures recorded would, if figures were available, be of practical value.

Applications in respect of the following **new inventions** were filed in the Patent Office, Calcutta, during the week ending 10th January, 1910:—C. F. Jenkins, mechanical engineer, 312, Ouray Building, Washington, America—Improvements in and relating to spirally wound paper and like receptacles. Khan Sahib Mohboobalam, Chuk, No. 126, North Branch of Jhelum Canal—Improvement in water-lift. Mohkam Singh and Sons, harmonium manufacturers, Gujranwala (Punjab)—Camp harmonium. C. Glaser, doctor of chemistry, and G. J. Muller, chemist, both of 22, South Gay Street, Baltimore, America—Process of refining salt and recovering its impurities as by-products. M. Woods, engineer, 309, Pigdon Street, Princes Hill, Carlton, and T. J. Gilbert, dealer, 1, Minnie Street, Brunswick, Victoria, Australia—Improvements in machines for dressing rails. G. H. Swinney, sanitary engineer, foreman plumber to the Government of Burma, Construction Division, P. W. D., Rangoon—Improvements in hydraulically-operated valves for flushing purposes or for the delivery of measured quantities of liquids.

The weather conditions in India during the week ended Tuesday last were marked by the

passage of a disturbance in Northern India which gave nearly general rain in the north-west of the United Provinces, local showers in the submontane Punjab, and a few falls in the rest of the United Provinces and the east central parts of the country. A depression in north-east India gave a few cents of rain in Behar and the adjacent districts. The cold wave associated with it much affected northern India, but decreased in intensity, especially in Baluchistan.

The following charges for power and light have been fixed by the Committee of the **United Provinces Exhibition: Power**.—Rs. 6 per mensem per rated B. H. P. as an all-round rate for power users. Firms using motors above 20 B. H. P. can obtain special reduced rates on application, provided the motors are run up to 5 p. m. only. Exhibitors must provide and instal their own motors, but electrical firms will be approached with a view to providing suitable motors for hire to exhibitors at reasonable rates. **Light**.—Ordinary lighting for buildings erected by the Exhibition Committee will be provided free of charge. Extra lighting required by exhibitors will be charged for at the rate of Rs. 2 per mensem per 64 watt lamp. Exhibitors must supply and instal their own lamps, but, if required, lamps can be provided at cost price by the Exhibition Committee on application. Exhibitors requiring power and special lighting will be charged at the above rates for the full period the Exhibition is open. All electric installations not put up by the Exhibition Committee must conform to the wiring rules about to be issued. The electric supply for power and light purposes will be continuous current at 440 and 220 volts. All lighting and small motors up to 4 B. H. P. will be supplied at 220 volts. Motors above 4 B. H. P. will be supplied at 440 volts.

The leading patents of the **Diesel oil engine** expired recently, and it is a testimony to the success of that engine that a number of firms should now be advertising their willingness to build Diesel engines, whilst several other firms are known to intend entering the market. Of course some at least of the original makers of Diesel engines have made improvements upon the original engine and embodied these improvements in patents which other firms will not be able to touch. The success of the Diesel engine has not been astonishingly great, and, indeed, until recent years was small. The last few years have, however, witnessed a growing extension of favour by engineers towards these engines. Thermally the Diesel engine is probably the most efficient engine in existence, but in England this superior efficiency is offset by the high price of oil fuel. It is, too, an expensive machine, but it scores by requiring neither gas-producers nor boilers. Mechanically it calls for the very highest class of workmanship and, one would imagine, for skilful

attention, although it is worth noting that probably its greatest success has been in India, where skilled mechanics are expensive and not over-abundant. In India, however, it scores on the cost of fuel, and this indeed is the real foundation of its success.

NOTICES.

CALLS FOR TENDERS.

Arsenal Stores.

The Ordnance Officer in charge, Fort William Arsenal, Calcutta, is calling for tenders up to the 18th proximo for the supply of petty stores.

Petty Stores.

The Ordnance Officer in Charge of the Ferozepore Arsenal is calling for tenders up to the 8th proximo for the supply of blankets, brushes, jute and cotton cordage, kerosene, mustard oil, palmyra fibre, paper, wool, tallow, turpentine and other stores.

Coal.

The Chief Engineer of the Bombay Port Trust is calling for tenders up to the 2nd proximo for the supply of about 24,000 tons of English or 28,000 tons of Indian steam coal.

ENQUIRIES.

(For particulars address the Director-General of Commercial Intelligence, 5, Olive Street, Calcutta.

An asterisk (*) preceding an enquiry indicates that bank references are offered.)

Turmeric.

(575)—A correspondent requires the addresses of Calcutta exporters of Bengal turmeric root.

Linseed and Ground-nut Cake.

(576)—A Glasgow firm requires the addresses of Calcutta and Bombay shippers of linseed cake, and of Rangoon shippers of ground-nut cake.

Rusa Oil.

(577)—A firm in Marseilles desires to be furnished with the addresses of exporters of rusa (or rosa) oil.

Sulphur.

(578)—An Italian firm desires to be placed in communication with importers of sulphur in Bengal.

Calico Machinery.

(579)—A Manchester firm of manufacturers desires to appoint an agent in Bengal to further the sale of calico power looms and weaving preparation machinery.

Japanese Cotton Crape.

(580)—A firm in Japan desires the addresses of Calcutta importers of Japanese cotton crape and articles thereof, such as shirts, kimonos, etc.

Concrete.

(581)—A Belfast firm desires the addresses of firms interested in concrete piling for foundation work and reinforced concrete dams for irrigation and hydraulic purposes.

Indian Produce.

(582)—A Liverpool firm desires to be placed in communication with shippers of Indian produce, and to act as buying agents in Liverpool for them.

Harvesting Machinery.

(583)—A British firm desires to be placed in communication with importers of harvesting machinery.

BOOKS OF REFERENCE.

The following publications have been received and may be consulted by any desirous of studying them at the office of the Director-General of Commercial Intelligence, 5, Olive Street, where they will be displayed in the ante-room till Wednesday, 26th January, 1910:—

Parliamentary Publications.

Taxes and Imposts—Return of all Duties, Taxes, and Imposts collected by Imperial Officers in the year ended 31st March 1909, etc.

Foreign and Colonial Publications.

Australia—Monthly Statistical Bulletin of New South Wales, October, 1909. Ceylon Customs Returns, November, 1909. Germany—Monthly Accounts of Trade, November, 1909. State of Minnesota—Bureau of Labour, Industries and Commerce, Bulletin No. 1—Industrial Accidents and Working men's Compensation—Eleventh Biennial Report of the Bureau of Labour, Industries, and Commerce of the—1907-08. China—Returns of Trade and Trade Reports, 1908. Part III—Analysis of Foreign Trade, Volume I—Imports.

Indian Publication.

Prospectus of the Agricultural Research Institute and College, Pusa.

BUSINESS NOTICE.

All correspondence and remittances relating to the supply of the "INDIAN TRADE JOURNAL" should be forwarded to the Superintendent, Government Printing, India, Calcutta, to whom all bills are payable.

Correspondence regarding advertisements in the "INDIAN TRADE JOURNAL" should be addressed to *Reuter's Telegram Co., Ltd.*; but all advertisements, blocks, etc., must be approved by the Director-General of Commercial Intelligence before insertion.

Retail trade advertisements cannot be accepted.

A full index is published as a quarterly supplement and should be filed for reference.

The annual rates of subscription to the "INDIAN TRADE JOURNAL" including quarterly index, are Indian, without postage, Rs. 12; with postage, Rs. 13; Foreign, Rs. 18. Single copies, 4 annas.

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Back numbers, when available, may be had at a cost of Re 1, for any number more than a week old.

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The Indian Trade Journal.

THURSDAY, JANUARY 20, 1910.

INDIAN LINSEED CROP.

Dornbusch's Floating Cargoes Evening List for 31st December, 1909, published the following paragraphs about the Indian Linseed Crop in the current season:—

The first official forecast of the Indian Linseed crop area was cable over on Wednesday, and shows (excluding the "Mixed" crop) a total of 2,250,000 acres compared with 2,412,700 acres last season, 1,830,400 acres in 1907-08 and 3,374,500 acres for the 5 years' average (1906-07). Last season's outturn of pure linseed represented 210,800 tons, which, in the face of a rather smaller acreage, is not likely to be exceeded this coming season. General expectations were that the area would show an increase with a corresponding output. Opinion is expressed, however, that times have gone by for India in any year to exceed a crop of 300,000 tons.

To-day has come to hand, by cable, the preliminary official estimate of this season's linseed crop, which is put at 894,850 tons. Although 200,000 tons smaller than returned last year, this is 300,000 tons in excess of private computations. On the basis of the shipments for the past twelve months (926,000

tons) the coming season's exports (even allowing for the correctness of the official figures) should not be expected to exceed 750,000 tons, from which 100,000 tons will go to non-European markets.

No official estimate of outturn of the linseed crop is made in December and none was contained in the official memorandum ostensibly quoted (See *Indian Trade Journal* of 30th December, p. 353). It is impossible to make any conjecture as to the source of the estimate of 894,850 tons outturn in the present season, unless we suppose that the paragraph in its entirety is intended to relate to the Argentine crop. The figure is quite incomprehensible on any other supposition, and the more so as in the previous paragraph the writer concluded with the statement:—"Opinion is expressed, however, that times have gone by for India in any year to exceed a crop of 300,000 tons." The further assertion that the 894,850 tons reported are 200,000 tons less than was returned last year would bring that year's crop to 1,094,850 tons, which is absurd; while the other figures about exports are equally unaccountable. On the whole, we are disposed to think that the paragraph has simply been printed out of its context.

The substitution of 2,250,000 acres for 2,263,800 acres, as the area at the present time, may possibly be explained by the use of a telegraph code. But the figures of area for the previous year and for the previous five years diverge from those given in the official forecast because it appears, on analysis, that they are based on the revised final estimates for those periods instead of on the estimates made in those periods at the same stage of the crop. In the official memoranda the estimate at one season is always compared with the estimate made at the same season in the previous year or period, because at such seasons certain gaps in the data tend to re-appear in every year. At the same time, there is nothing necessarily misleading in a comparison of the figures in an early forecast with those of the final estimate, if the nature of the comparison is pointed out.

The important matter is the flagrant inaccuracy of the figures of outturn and the ascription of these figures to an official estimate.

—We learn that a leather factory has been started at Kuldja at a total cost for machinery and buildings of 156,000 roubles or about £15,500. The idea appears to be that, as raw leather is exported profitably to Moscow, manufactured leather will give still more profit.

TRADE OF BUSHIRE.

THE unrest in Persia told heavily on the trade of Bushire during the Persian fiscal year ending March 31st, 1909. The piece-goods trade in which India is more particularly interested, suffered specially, and Manchester lost at least £120,000 worth of business on the previous year's figures. India was less unfortunate. The total imports from this country during 1908-09 amounted in value to £294,930 against £355,166 in 1907-08, while in return we imported from Bushire goods to the value of £94,851, being an increase of £10,844 over the previous year's figures. But even the reduced quantity of piece-goods imports proved to be in excess of the demand, and there seems to be ample evidence to show that many wholesale buyers disposed of their purchases at a heavy loss. Of more moment to trade are the facts that importing companies have themselves frequently had goods ordered out and left on their hands by bankrupt buyers, and that the amount of outstanding claims presented for recovery from defaulting Persian traders, during a period of 18 months from the beginning of 1908, totalled more than £20,000. It is not surprising, therefore, to learn that the foundation of credit on which so large a number of petty dealers have kept going for years has been severely shaken during the past two years of unrest. These men, it seems, have continually been driven into forced sales of merchandise in order to meet bills, and there has been little chance of making losses good. The lack of transport on the great caravan route to Shiraz has also been a factor which increased the difficulties of merchants. Extortion on the part of armed tribesmen infesting the route to Shiraz and the frequency of robberies have made the lot of the muleteers hard, many indeed having left this route with their animals in order to find a more peaceable living on the northern caravan routes. As a result merchants in Bushire cannot depend on obtaining regular transport at all seasons, and at all times when procurable the rates of hire have been preposterously high. Under such adverse circumstances trade could hardly be expected to prosper. As a matter of fact there was a heavy falling off all round. During the period under consideration, the total imports at Bushire reached the value of 39,673,238 krans and exports totalled 21,629,811 krans; the actual rate of exchange for the year being about 55 krans to the £1. The figures show a falling off of £330,712 on imports and £104,723 on exports when

compared with the returns of the previous year.

It should, however, be good news to Indian shippers to learn that steps are at last being taken to establish a lighterage company at Bushire. The distance from ship to shore varies from three to nine miles according to whether the inner or outer anchorage is being used, and hitherto the difficulties and delay of steamers caused by the unwillingness of Persian lightermen to work in all weathers, the frequent thefts of goods between ship and shore, and the impossibility of securing the services of an honest landing contractor have tended to stamp Bushire as one of the ports of the world to be avoided whenever possible. The proposed lighterage company, it is expected, will alter this state of things very materially for the better.

Another mile-stone in the improvement of the trade of Bushire is the establishment of a Chamber of Commerce at that port. It would appear that this step is cordially welcomed by the Persian Government, who seem inclined to rely on the Chamber for an unbiased opinion on commercial questions, such as the advisability of prohibiting the export of grain when petitions are received urging that course to be followed. No doubt the new Chamber, though at present it does not seem to hold meetings during the hot weather, will find many ways of helping the trade of Bushire, and of being of material assistance to merchants in this country having transactions with that part of the Persian Gulf.

It would seem from the Persian Customs returns that the imports of tea declined from 16,656 cwts. in 1907-08 to 13,670 cwts. in 1908-09, but there is reason to believe that this seeming deficit has been more than made good by the wholesale smuggling that goes on and is encouraged by the heavy duty of Re. 1-10 per 6½ lbs. The Persian indulges mostly in cheap tea; and as the quality chiefly exported from Calcutta to Bushire costs between 4½ to 6 annas per lb., the duty imposed is not far short of 100 per cent. Moreover, smuggling is largely favoured by the fact that other gulf ports (Koweit and Bahrein) only charge duty at 5 per cent, while Dubai is practically a free port. At all events, it is freely admitted that the extensive smuggling that goes on is detrimental to legitimate trade, as, of course, the smugglers are always able to undersell merchants who import tea in the regular way.

The bulk of trade with Bushire is in cotton goods, mostly British and Indian; and in 1907-08 nearly 600,000 pieces were imported. In 1908-09 this

figure fell to 436,049 as follows, though the figures are only approximate:—

White and Grey Goods—	1907-08.	1908-09.
Mexicans	38,423	16,185
Grey Shirtings	39,362	12,768
White Shirtings	45,595	37,048
White Mulls	33,356	41,058
White Nainsooks	61,000	52,237
Cambrics, Lawns and Drills	7,065	18,539
Coloured Goods—		
Prints (Fast Red, Turkey Red, Lamsas, Discharge, Asteri, fancy, etc.)	186,739	142,809
Dubairs (also classed as prints)	35,927	32,931
Black Twills	23,211	9,687
Red and Purple Twills	47,837	37,308
Ditto Mulls	11,997	6,179
Black Dyed Italian Crimps	4,545	2,670
Crimps	3,592	6,832
Muslins, Lenos, etc.	43,377	8,791
White Gauze	14,158	4,657

This list tells its own story of bad trade. But we believe there is a tendency to make the weaving of nainsooks and mulls looser than previously, and the Persian buyer welcomes the relaxation in cost. In Bushire, as in Persia generally, better commercial conditions will mean better trade, though such conditions can hardly be said to be in sight just now.

—H. M. Consul at Palermo (Mr. R. G. Macbean, M.V.O.) has furnished the following particulars extracted from the Italian Government's Report for 1908 on mining in Sicily:—Prospecting for sulphur was discouraged by the unsatisfactory conditions of the sulphur market, and was generally confined to the neighbourhood of already existing good mines. The number of mines working diminished from 541 in 1907 to 444 in 1908, owing to the continued closing of small mines. The total production, however, increased by 42,654 metric tons to 2,633,924 metric tons (valued at £1,156,888) owing to increased output by the larger mines and improved methods of extraction. There was a reduction in the number of persons employed in the extraction and treatment of the ore from 27,009 in 1907 to 26,124 in 1908, pointing to an increased use of labour-saving methods and machinery. Wages *per contra* increased from an average of 2.12 lire daily per head in 1907 to 2.16 lire in 1908. Exports of sulphur, which had steadily decreased since 1905, showed an increase of 33,122 metric tons in 1908, as compared with the preceding year, the figures being 375,973 tons and 341,951 tons respectively. Stocks amounted to 618,459 metric tons at the end of 1908, an increase of 22,014 tons as compared with 1907. The "Consortio" or compulsory Sicilian Sulphur Combine, continued operations, but without making any progress towards solving the crisis through which the sulphur industry is passing, owing to the persistence of over-production.

CROCI ORECAST.

SESAMUM.

Final General Memorandum on the SESAMUM (til or jinjili) crop of the season 1909-10.

On the average of the five years ending 1907-08, the British Provinces that are dealt with in this memorandum carried about 75 per cent of the reported sesamum crop in British India.

The season has, on the whole, been good. Conditions at sowing time were in most cases favourable, although in some places there was excessive rain. Growth also took place under conditions that were generally suitable; and the reports as to the condition of the crop were encouraging.

The Province of Eastern Bengal and Assam does not furnish a report at this season. The total area reported by the other provinces as under sesamum amounts to 4,681,500 acres as against 4,475,900 acres a year ago, the increase being 205,600 acres or 4.6 per cent. Of this total area 3,631,400 acres are in British territory; and this figure shows an expansion of 281,700 acres or 8.4 per cent on that found at the same season in 1909, and of 12 per cent on the average for the five years ending 1907-08. The total for all reporting tracts however is some 315,000 acres more than in the said five years' period. In the Native States there is a net contraction of 76,000 acres as compared with 1908-09. This arose in the Bombay states and is ascribed mainly to extended cultivation of food grains and cotton, so it need not adversely affect the purchasing power of the country.

The total outturn (excluding Hyderabad) amounts to 435,600 tons or 48,100 tons more than at the same season in the previous year. This represents a net increase of 12.8 per cent; and the disparity between that percentage and the 4.6 per cent increase in area affords an indication of the generally favourable crop conditions of the current season. Comparison of the rates of development in area and in outturn as compared with the average for the five years ended 1907-08 suggests that the yield is exceptionally good seeing that an extension of some 7.2 per cent in acreage is accompanied by an increase of about 36.5 per cent in outturn. British territory estimates for 373,500 tons and Native territory for 62,100 tons.

The following is a summary of the provincial reports. The figures in brackets, following the

name of each province, indicate what percentage of the total area under sesamum in British India is ordinarily cultivated in that province.

United Provinces (21.9%).—The area under sesamum sown *unmixed* is reported to be 481,000 acres compared with 322,000 acres last year—an increase of 49 per cent. The season for sowing was favourable and an unusually large area was placed under the crop. When the second forecast was issued in October last, prospects were very good; but rain and high winds are reported to have somewhat damaged the crop when it was in flower. The total yield of the *unmixed* crop is estimated at 48,700 tons compared with 31,000 tons last year—an increase of 13 per cent. The area and yield of sesamum sown interspersed with other crops and largely retained for home consumption is roughly estimated at 900,000 acres and 90,000 tons respectively, as compared with 1,000,000 acres and 100,000 tons last year.

Central Provinces and Berar (18.1%).—The total area is now reported to be 899,000 acres (797,000 in the Central Provinces and 102,000 in Berar) as compared with 790,000 acres (694,000 in the Central Provinces and 96,000 in Berar) for last year—an increase of nearly 14 per cent. Climatic conditions at sowing time were favourable. Subsequently, timely rainfall interspersed with short breaks afforded ample opportunities for weeding and favoured the growth of the plants. Light showers received at the end of October also benefited the crop. The total yield is estimated at 88,400 tons (76,500 in the Central Provinces and 11,900 in Berar) compared with 59,900 tons (50,600 in the Central Provinces and 9,300 in Berar) for last year—an increase of nearly 48 per cent.

Madras (16.9%).—The total area under sesamum in *raiyatwari* villages up to the end of December is reported to be 497,000 acres, which is about 13 per cent more than the area at the corresponding date of last year. The increase is attributed to timely and sufficient rains. The condition of the crop is reported to be generally fair. The yield is estimated at 42,000 tons as against 37,000 tons reported at this date last year—an increase of nearly 14 per cent. The area and yield reported from villages other than *raiyatwari* are 38,100 acres and 3,900 tons as against 41,500 acres and 3,900 tons reported at this date last year.

The British districts of **Bombay (8.4%)** report a total area of 388,000 acres as compared with 368,000 acres last year—an increase of 5.4 per

cent. The Native States (including Baroda) report 460,000 acres as against 611,500 acres last year—a decrease of nearly 25 per cent. The combined area of British territory and Native States shows a net decline of 13 per cent, which is attributed mainly to the extended cultivation of food-grains and cotton, and partly to incessant rain at sowing time. The crop suffered through deficiency of rain in parts of Gujarat, Deccan, and Karnatak and through heavy rain in parts of Konkan. Elsewhere it has fared fairly well. The total yield is estimated at 108,000 tons (46,800 in British districts and 61,200 in Native States) which is 8.5 per cent above last year's yield (99,500 tons). Besides the above, about 10,300 acres are estimated to have been under sesamum in tracts for which statistics are usually not received. These are expected to yield 1,600 tons.

Bengal (5.7%) now reports the total area under both early and late crops to be 229,300 acres as compared with 186,400 acres last year—an increase of 23 per cent. Moisture was deficient for the early crop. For the late crop, the season has been favourable. Some damage was, however, done by excessive rain and floods in places and by a cyclone in some of the eastern districts. The total yield is estimated at 33,600 tons as against 21,100 tons last year—an increase of 59 per cent.

Panjab (2.3%) reports the actual area sown to be 175,400 acres as compared with 164,700 acres last year—an increase of 6.5 per cent. There was a little too much rain for this crop at the end of the monsoon, and outturns per acre are, on the whole, a little below the average. But taken all round the year's results are satisfactory. The total yield is estimated at 18,500 tons which is some 22 per cent less than last year's yield, but 34 per cent above the quinquennial average.

Sind (1.6%) reports a total area of 65,500 acres (3,800 being in Native States) as compared with 80,500 acres last year—a decrease of 18.6 per cent, attributed mainly to deficient water-supply. The yield is estimated at 6,400 tons against 12,300 tons last year—a decrease of 48 per cent.

Hyderabad reports 586,300 acres as compared with 511,800 acres last year—an increase of 14.5 per cent. The outturn is estimated at 56 per cent of the normal as against 44 per cent for last year—(normal = 120 lbs. per acre.)

FREDERICK NOEL-PATON,
Director-General of Commercial Intelligence.

Estimate of the Sesamum crop of the season 1909-10.

PROVINCE		Area (in acres)				Percentage in which column 2 exceeds (+) or is less than (—) area in	
		Of current year's crop (1909-10)	Of previous year's crop (1908-09)	Average of preceding		Column 3	Column 4
		2	3	4		5	6
1				Five years	Ten years		
United Provinces	Pure	481,000	322,000	319,000	276,000	+49.4	+50.8
	Mixed	900,000	1,000,000	700,000	700,000	—10.0	+28.6
Central Provinces and Berar		899,000	790,000	883,000	907,000	+13.8	+1.8
Madras		497,000	441,000	433,000	465,000	+12.7	+14.8
Bombay (a)		848,000	979,500	974,000	835,000	—13.4	—12.9
Bengal		229,300	186,400	262,500	247,800	+23.0	—12.6
Panjab		175,400	164,700	145,000	157,000	+6.5	+21.0
Sind (a)		65,500	80,500	80,400	99,900	—18.6	—18.5
Hyderabad		586,300	511,800	570,000	478,000	+14.5	+2.9
Total	Pure	3,781,500	3,475,900	3,666,900	3,463,700	+8.8	+3.1
	Mixed	900,000	1,000,000	700,000	700,000	—10.0	+28.6

PROVINCE		Yield (in tons)				Percentage by which column 7 exceeds (+), or is less than (—), yield in	
		Estimated yield of current year, i.e., of area in column 2	Yield of previous year, i.e., of area in column 3	Average of preceding		Column 8	Column 9
		7	8	9		10	11
1				Five years	Ten years		
United Provinces	Pure	48,700	34,000	22,100	23,700	+43.2	+117.4
	Mixed	90,000	100,000	50,000	60,000	—10.0	+80.0
Central Provinces and Berar		88,400	59,900	67,300	65,900	+47.6	+31.4
Madras		42,000	37,000	35,000	38,000	+13.5	+20.0
Bombay (a)		108,000	99,500	93,700	109,000	—8.5	+15.3
Bengal		33,600	21,100	30,200	30,000	+59.2	+11.3
Panjab		18,500	23,700	13,800	14,100	—21.9	+34.1
Sind (a)		6,400	12,300	6,700	5,900	—48.0	—4.5
Hyderabad		56 per cent of normal	44 per cent of normal	...	...	...	...
Total	Pure(b)	345,620	287,500	269,100	286,600	+20.2	+28.4
	Mixed	90,000	100,000	50,000	60,000	—10.0	+80.0

(a) Including Native States

(b) Excluding Hyderabad

NOTE.—(1) The estimates of the "mixed" crop, which refer to sesamum grown in the United Provinces in combination with other crops, are highly conjectural

(2) The estimates for Madras relate to sowings in *raiyatwari* villages up to end of December

TARIFF CHANGES AND CUSTOMS NOTIFICATIONS.

THE Board of Trade Journal, published on the 30th ultimo, in the section relating to Tariff Changes and Customs Regulations, gives particulars about:—

NETHERLANDS.—Withdrawal of Bill for the Increase of the Dutch Customs Duties.—Proposed.

DOMINION OF NEW ZEALAND.—Reduction of Surtax on Tobacco, etc.

DOMINION OF CANADA.—Tariff Changes.

ORANGE RIVER COLONY.—Prohibition of importation of certain Articles.

GREECE.—Prohibition of Importation of Certain Animals and Animal Products from Aivali and Salonica.

SERBIA.—Customs Duty on Wearing Apparel made of, or covered or ornamented with lace or Embroidery.

PERSIA.—Closing of Customs House at Ruhillab.

COLOMBIA.—Customs Classification of Carbide of Calcium.

We give the following particulars of changes interesting to Indian trade:—

NETHERLANDS.

Bill for the increase of Dutch Customs Duties. Withdrawal of.

With reference to the Bill providing for an increase of the Dutch Customs Tariff, the Board of Trade are in receipt, through the Foreign Office, of information to the effect that the Bill has been withdrawn.

DOMINION OF NEW ZEALAND.

Surtax on Tobacco, etc. Reduction of.

In regard to the surtax of 2½ per cent on the amount of duty paid on all goods imported into New Zealand, the Board of Trade have now received a further telegram from H. M. Trade Commissioner in New Zealand stating that the surtax on tobacco, cigars and cigarettes has been reduced to 1 per cent from 24th December last.

EASTERN BENGAL AND ASSAM.

Crop Reports.

(By Telegram.)

Shillong, Jan. 18th.

THE following is a summary of the weather and crop reports of Eastern Bengal and Assam for the week ending 17th instant:—

The weather is seasonable. Rainfall has been light, but well distributed.

The harvesting of winter rice is almost finished, and the transplantation of spring rice is in progress. Sugarcane, mustard and pulses are being harvested.

Fields are being prepared for jute. Hoeing and pruning of tea continues.

The prospects of tea, wheat, tobacco and sugarcane are good; mustard and pulses fair.

The average price of common rice has fallen 4 per cent.

Cattle disease is reported in Kamrup and Darrang.

PRICES OF COMMODITIES.

THE following are the index-number of the prices of forty-five commodities, worked out to the month of November last by Mr. A. Sauerbeck, the average of the eleven years 1867—1877 being 100:—

		Average.	Monthly Numbers.	
1878—1887	= 79	February,	1895	= 60.0
1889—1898	= 66	July,	1896	= 59.2
1899—1908	= 72	July,	1900	= 76.2
		December,	1901	= 68.4
1883	= 82	May,	1907	= 82.4
1896	= 61	November,	1908	= 72.2
1900	= 75	December,	1908	= 72.3
1901	= 70	June,	1909	= 75.1
1902—1903	= 69	July,	1909	= 75.2
1904	= 70	August,	1909	= 74.9
1905	= 72	September,	1909	= 74.7
1906	= 77	October,	1909	= 75.2
1907	= 80	November,	1909	= 75.5
1908	= 73			

There is some improvement in the average index-number, which is owing to better prices for food, while materials have been barely maintained. Wheat and potatoes were firmer, and also pork, bacon, butter and sugar, while beef and mutton ruled rather easier, and coffee and tea showed little change. Iron was lower, but tin higher; other minerals remained unchanged. Cotton and jute ruled somewhat cheaper, but flax and hemp improved, and there was no further fall for wool. Hides were dear, tallow and palm oil sold rather better, but linseed oil declined.

The prices and index-numbers of silver compare thus (60.84d. per ounce being the parity of 1 gold to 15½ silver = 100):—

	Price.	Index-Numbers.
Average, 1889—1898	35½d.	58.3
Average, 1899—1908	27½d.	44.6
Average, 1893	35½d.	58.6
Average, 1902	24½d.	39.6
Lowest, November, 1902	21½d.	35.6
End March, 1905	25½d.	42.4
End December, 1906	32½d.	53.1
End December, 1908	23½d.	38.1
End October, 1909	23½d.	37.9
End November, 1909	23½d.	38.8

—A correspondent states that the question of the introduction of electricity into Lucknow has been under consideration of the Municipality since 1905 when a concession was given to a company to introduce a scheme of tramways and electric lighting. The company was unable to find the necessary capital and after the original term had been extended their concession was finally revoked in August. The Board have since called for tenders for a scheme of supply from Europe, America and India, but in the absence of a thorough survey no satisfactory tender could be made. It has therefore been arranged that an expert shall make out a detailed scheme, and it is hoped that if the replies received from residents are satisfactory it will be possible to introduce electric light and power into Lucknow. The question whether the Board will undertake the management or will give the concession to a company will be considered later.

THE SUGAR POSITION.

Crops and Prospects.

THE advance in sugar has been continuous for some months past, though comparatively slow, says the *Statist* of December 18th. At all events, the article proceeds, it has not been in such spasms as to attract the outsider on the search for some vehicle for speculation—at any rate in this country. The advance really began in July, when the French speculators—who have a traditional affection for sugar—began to run up the price on the anticipation of poor beet crops in France and Germany. Their anticipations were correct, but they were premature, and the speculation was carried too far, so there was the usual natural reaction. But when the crops began to be garnered it became week by week more obvious that there would be a short fall of beet sugar in Europe, and the price began to rise in a natural way in the market. Since the present season opened the price of sugar, measuring on the basis of 88 beetroot f. o. b., has been, in round numbers, 2s. 6d. per cwt. This has not been in consequence of any abnormal or special demand; indeed, if anything, political and other influences have been rather in the direction of checking the demand; although they probably have not done so to any material extent. The ordinary trade demand has been good if normal, and our refiners have had a very good year, with an increasing price for refined sugar rather in advance of raw. At any rate, the refineries have been kept actively at work and have had no difficulty in disposing of their product. It is not this demand, however, that has raised the price of raw sugar, but the growing certainty of a short crop in Europe. The estimates of the European beet crops are given below, from the figures of those recognised authorities, Mr. F. O. Licht and the factory owners. We give both the original estimates and the later revised estimates of these two authorities, and we add, for the sake of comparison, the estimate of Mr. Otto Licht, who is between the other two:—

European Beet Sugar Crop, 1909-10 Estimates.

	Fabricant's estimates.	F. O. Licht's first estimates.
	Tons.	Tons.
Germany	1,948,540	2,150,000
Austria	1,209,000	1,275,000
France	799,200	810,000
Belgium	242,000	260,000
Holland	181,300	220,000
Russia	1,105,200	1,150,000
Other countries	425,670	475,000
Total	5,910,910	6,340,000
Revised totals	5,981,000	6,230,000
Otto Licht's estimates	...	6,084,000

If we take the mean of these estimates and compare with a realised crop in 1908 of 6,517,000 tons, we shall see a probable short fall in European beet sugar this season of about 400,000 tons—a sufficiently serious decrease. The American beet crop, however, is better, and shows an increase of 50,000

tons, though that does not directly affect Europe. But what has material effect on the European situation is the cane sugar crop, and that up to the present time shows evidence of substantial increase. The recognised authorities in the world's cane sugar crops are Messrs. Willett and Gray of New York, and we append an estimate of the world's cane crop compiled from the November returns of that firm. This table shows the product of each of the cane-growing countries as estimated for this year, in comparison with the actual returns of last year. At foot we add the beet crops in order to obtain the total actual for last season and prospective for this season of the world's total supply of new sugar:—

Cane Sugar Crops of the World.

	1909-10. Tons.	1908-09 Tons.
U. S. Louisiana	325,000	355,000
" Texas	18,000	15,000
" Porto Rico	295,000	245,000
" Hawaii	475,000	475,000
Cuba	1,700,000	1,485,000
British W. Indies, Trinidad (exports)	45,000	45,000
British W. Indies, Barbados (exports)	30,000	17,000
British W. Indies, Jamaica (exports)	10,000	45,000
British W. Indies, Antigua and St. Kitts (exports)	25,000	24,000
French W. Indies, Martinique (exports)	35,000	35,000
French W. Indies, Guadeloupe (exports)	40,000	39,000
Danish W. Indies, St. Croix	15,000	14,000
S. Domingo and Haiti	90,000	80,000
Lesser Antilles	6,000	6,000
Mexico	130,000	125,000
C. America, Guatemala	7,500	7,500
" San Salvador	6,500	6,500
" Nicaragua	4,500	4,500
" Costa Rica	2,500	2,500
S. America, Demarara (exports)	115,000	117,176
" Surinam	15,000	14,000
" Venezuela	3,000	3,000
" Peru	150,000	150,000
" Argentina	150,000	162,479
" Brazil	276,000	248,000
Total America	3,969,000	3,680,000
British India (consumed locally)	1,800,000	1,841,800
Java	1,250,000	1,241,885
Formosa and Japan (consumed locally)	130,000	120,000
Philippines (exports)	160,000	150,000
Total Asia	3,340,000	3,353,685
Australia, Queensland	140,000	151,554
" New South Wales	14,000	15,000
" Fiji	70,000	65,000
Total Australia	224,000	231,554
Africa, Egypt	55,000	55,000
" Mauritius	220,000	195,000
" Reunion	45,000	37,000
" Natal (consumed locally)	45,000	35,000
Total Africa	365,000	322,000
Europe, Spain	16,000	20,000
Total cane sugar	7,914,000	7,607,394
United States beet crop	435,000	384,010
European beet crop, F. O. Licht's revised estimate	6,230,000	6,517,000
Total cane and beet sugar	14,579,000	14,508,404

AMERICAN HIDE AND SKIN BUSINESS.

IN its issue of December 29th the *Leather Trades Review* writes:—The prosperity of the European hide and leather industries are so dependent on American conditions that the position on the other side of the Atlantic is always watched with the closest interest. The "little cloud" of depression, "no bigger than a man's hand," is always regarded with a feeling of nervousness, and a drop in the prices of Chicago hides, for instance, sets all the trade papers of France and Germany going with prophecies of cheaper hides and a possible disastrous fall in leather; in fact, to be quite candid about the matter, we do not know that we in Britain are very much better, for the reason that whether we like it or not we have to regard America as the tail which wags the leather trade dog of the world. For this reason then, we have scanned the latest news and the issues of our American exchanges with more than ordinary interest, and have experienced a decided feeling of relief in realising that there seems no chance of any break in the tide of prosperity which seems to have set in in the Land of the Stars and Stripes. Indeed, most of the reports and summaries are cast in a very optimistic vein, whilst, better still, the cold figures of trade returns and reports bear out most of what is stated. For instance, according to a correspondent of the *Liverpool Post*, the importations of hides and skins in the year which ends December 31st will aggregate nearly 100,000,000 dols. and rank second in value in the list of articles or groups of articles imported. The value of hides and skins imported in the ten months ending with October is, in round terms, \$2,000,000 dols., and this average will be maintained in the November and December figures.

These imports of hides and skins for the calendar year will exceed by many millions those of any earlier year. The highest figures in value of importations in any prior year was \$4,000,000 dols. in 1906, the average in the last decade having been but \$7,000,000 dols. The quantity imported this year will exceed 500,000,000 lbs., while on no earlier occasion has the total reached the 400,000,000 line, the highest figure being in 1906, 399,000,000. Thus in quantity and value the importations of 1909 will be approximately 25 per cent in excess of those of the previous highest record. The average monthly importation of hides of cattle in the period since the new Tariff Act went into effect on August 5th has been 24,500,000 lbs. against about 19,000,000 in the seven months immediately preceding that date.

The growth of importations of hides and skins into the United States, an agricultural country, has been a marked feature of the import trade. The value of hides and skins imported in the fiscal year 1890 was, in round terms, 22,000,000 dols.; in 1900, 58,000,000 dols.; and in the calendar year 1909 will, as above indicated, be approximately 100,000,000; while the quantity imported, which in the calendar year 1900 was but 307,000,000 lbs., will in 1909 exceed 500,000,000.

Messrs. Willett and Gray estimated, when they made up their cane sugar list, that the world's total would, with beet, reach 14,680,000 tons, or 180,596 tons more than last year; but the revised and reduced beet totals bring us down to the fact that the world's total sugar this year will not be more than 70,000 tons above the total yield of last year, and of course, the normal increase in the world's consumption is very much greater than that.

We have to fall back, therefore, on the reserves, and these are about normal, but, if anything, lower than last year that is, as far as "visible" supplies are concerned; but the price is now high enough to draw forth the invisible supplies, which are always greater than is supposed. The present range of prices—which will probably be maintained for some time—is attractive enough to bring in sugar to Europe from all parts of the world. And it will come. Moreover, America has such a bountiful supply from her own plantations and from Cuba (an enormous crop), Hawaii, and the Philippines, that she will apparently have rather more than the 3,400,000 tons she requires for her own normal consumption at the normal rate of increase. It is certain that she will not require any from Europe this season, and it is highly probable that she will find it profitable to send some of her possible surplus to Europe. Then if the price rises a little more—say, another 2s. or so—it will have the usual effect of checking the consumption. It has not reached that point yet, and up to the present level of prices the increase in the world's consumption will be normal; but what we have to point out is that if the rise continues the consumption will drop. In any event, therefore, there will be enough sugar for the world's needs this season, and there is no fear of actual scarcity. Nor is there much reason to fear higher prices than the present; indeed, experts in the trade are of opinion that the price has risen high enough on the merits of the situation and prospects, and that any further advance will be speculative and unstable.

—The *Bankers' Magazine* gives the following calculation of the appreciation of 387 representative securities during the past month:—

Aggregate value on November 20th, 1909 . . .	£ 3,695,847,000
Aggregate value on December 16th, 1909 . . .	£ 3,711,462,000
Increase	£ 15,615,000

The chief feature of the month has been the appreciation of English railway stocks. In the year that is nearly over the appreciation of the group of securities is £73,500,000 as compared with an appreciation of £138,000,000 for the preceding year. Among the gains are American railroad shares, £31,000,000; foreign Government securities, £22,000,000; and South African mining shares, about £21,000,000. In British funds the decline is £12,000,000. English railway "prior charge stocks" are a little down and ordinary stocks a little up.

The above figures give one a very wholesale respect for the competition of America in the world's hides and skins markets, and our own in particular. The removal of the 15 per cent duty on imported hides is already having the effect of sensibly increasing the American demand, and will result apparently in establishing a new and advanced standard of values for raw hides, and incidentally tanned leather. The quantity of hides leaving Great Britain for the United States is now enormous, and, judging from our own observations, the demand during 1910 for both domestic and imported hides from the other side will again constitute a further record. It is as well to be under no illusion about the matter, for unless European tanners are on the alert, they will probably be in the same position in the hide market as in the goat skin market. There is no doubt that when the Yankee wants an article of commerce he wants it badly and, furthermore, he takes every available means to see that he gets it; hence we have had for years past alert Americans actually resident in the centres of goat skin production, who always naturally snap up as many of the "plums" as possible, leaving the remainder to buyers in other countries. In fact, in the report above alluded to it is pointed out that one especially interesting feature of this development in the importations of hides and skins is found in the fact that nearly one-third of the value of this large total consists of goat skins. The value of goat skins imported in 1909 will amount to about 30,000,000 dols. Goat skins form, in fact, a larger proportion of the total value of hides and skins imported in the last ten years than does any other single class, and aggregated about 254,000,000 dols. out of a total value of 657,000,000 dols. worth of all hides and skins imported in that period. The total value of hides of cattle imported in the decade ending with 1909 will aggregate about 185,000,000 dols., and the miscellaneous group entitled "all other," 218,000,000 dols.

Latin American countries and the Orient are the chief contributors of the hides and skins imported in 1909. Of the hides of cattle imported, over one half came from Mexico and South America, and of the goat skins imported nearly one-half came from the British East Indies.

A brief survey of the Board of Trade returns also illustrate the fact that America is a very large—the largest, in fact—customer of the British fellmonger. Few people, we fancy, realise to what an extent British sheep pelts and linings cross the Atlantic, but a glance at the official figures will soon show how important the business is.

During the 11 months of 1907-8-9 the values of the total British export of pickled domestic sheep and lamb skins to America ran into £660,849, £323,866, and £489,983 respectively. The most recent figures plainly show the advancing prosperity of the light leather trade, and makes one seriously wonder why this enormous quantity of raw material

should annually leave this country to be turned into leather and leather goods abroad. Of course, too, the imports of pickled Australasian sheep pelts are equally enormous; in fact, the total re-exports of imported pickled stock from this country alone amounted, for the first 11 months of this year to £723,469, against £439,679 for the same period of 1908 have mainly been on American account. It is evident, then, we may expect increased competition from the United States buyers in every direction as regards raw material during the next year. The prospect is not pleasing, but there it is, and it will have to be faced. The one immediate point for satisfaction, however, lies in the fact that with the probable increase in the home demand for leather and leather goods of all kinds during the coming year, it is most unlikely any surplus will be sent to this market, and this, at any rate, bodes well for hide, skin and leather producers in Europe generally.

—According to the *Manchester Guardian* it is said that a cablegram has been received at Bradford from Buenos Ayres stating that on account of the severe drought which prevailed in a portion of the province of Buenos Ayres for some months up to September last the exports of wool from the River Plate during the present season will be less by 22½ per cent than they were during the previous wool-year, which ended on September 30th. The exports from the River Plate for that season amounted to 557,000 bales, of which 107,000 bales were from Uruguay. So if this news were true the falling off in the wool exports from the River Plate would amount to some 125,000 bales. Now it is worth while to reckon out what this means. If we suppose that no wool was recovered from the sheep which have died, it would appear that no fewer than 11,250,000 sheep were destroyed. But as from eight to ten months' wool was upon the sheep, and as the wool would be recovered and exported either as shipe or dead wool, it would probably mean that at least 15,000,000 sheep died in that district of Argentina. It is impossible. Practically only one portion of one province of Argentina has been affected by this drought, whilst Uruguay has had one of the best seasons on record. A traveller who recently returned from Argentina journeyed for more than a thousand miles in the Republic and saw nothing and heard but little about this drought. He saw vast herds of magnificent cattle and flocks of sheep in the pink of condition, and he heard both in Argentina and Chili that in Southern Patagonia and Tierra del Fuego a veritable "sheep boom" was on. Increased supplies of what is known in the trade as Punta Arenas wool may therefore be expected. The circulator of the cablegram to which we have referred, when he put down the decrease in shipments at 125,000 bales, evidently forgot that each bale of River Plate wool contains about 90 fleeces.

BRITISH HIDE TRADE.

At public auctions held in London on December 23rd 85,946 Madras, Bombay and Ceylon were offered (including about 25,000 calf) and 42,125 sold. There was a very moderate attendance of buyers and a limited demand. Sales made were at unchanged rates; sellers refusing to accept lower prices. Good to best Madras realised firm values were sold. Middling and dull tannages partly sold at steady prices, but common and rejection parcels were neglected. Calf skins sold at full prices, a few of prime quality advancing 1d. per lb. Buffalo hides and calf were in short supply, and realised firm values. Bombay mellow tannages were well supported at high quotations; inferior sorts were unchanged. Ceylons sold at previous values. We give the following particulars:—

Weighing about	Light and small 3 to 7 lbs.		Heavy 8 to 9½ lbs.		Ex-heavy 10 to 15 lbs.		Third class.	Fourth class.	CALF.		Buffalo 1 to 7 lbs. firsts.
	d.	d.	d.	d.	d.	d.	d.	d.	Firsts.	Thirds.	d.
MADRAS—											
Good to prime tannage	16½ to 21½		13½ to 15		11½ to 14		14½ to 16	12½ to 12½	23 to 28½	15½ to 19½	11½ to 14½
Common to medium tannage	13½ to 16½		11½ to 13		9½ to 10½		12 to 14½	10½ to 12½	12½ to 22	10 to 15½	9½ to 10½
BOMBAY—											
Good to prime mellow tannage	20 to 27		15½ to 20½		14 to 17		14½ to 16½	11½ to 12½	19 to 23½	15 to 17	...
Fair to good tannage	14 to 17		12½ to 15½		10 to 14		10½ to 14½	9½ to 10½	13 to 18	10 to 15	8 to 10½
Stitched and common tannage	8½ to 10½		7½ to 11½		7½ to 11		7½ to 11	6½ to 8	10 to 12½	7 to 8	6 to 9
Calcutta	14 to 18		12 to 15		10 to 13		8½ to 13	8 to 11	...	...	...
Ceylon	14 to 15½		11½ to 12½		9½ to 11½		8 to 11	8 to 9½	...	...	...

In the Nottingham hide and skin market the following were the prices obtained:—Hides weighing 90 lb. and upwards, sound 6½d., cut 6½d.; 80 lb. to 89 lb., sound 6½d., cut 6½d.; 70 lb. to 79 lb., sound 6½d., cut 6½d.; 60 lb. to 69 lb., sound 6d., cut 5½d.; 50 lb. to 59 lb., sound 6d., cut 5½d.; 49 lb. and under, sound 6d., cut 5½d.; heavy cows, 60 lb. and upwards, sound 5½d., cut 5½d.; light cows, 59 lb. and under, sound 5½d., cut 5½d.; bulls, sound 5½d., cut 5½d.; flawed and chance, 5d.; special hides, 90 lb. and upwards, 6½d.; 80 lb. to 89 lb., 6½d.; 70 lb. to 79 lb., 6½d.; 60 lb. to 69 lb., 6½d. per lb. Horse hides, 21s. 6d., 20s. 10d., 1s. 3d., 15s. 11d. each. Calfskin, weighing above 16 lb., 7½d.; 9 lb. to 16 lb., 9½d.; under 9 lb., 9½d.; flawed and irregular, 8½d., chance, 7½d.; kips, sound, 5½d.; flawed, 5½d. per lb. Wools, ex ex 13s. 6d., ex 13s., Al 12s. 8d., A 11s. 10d., B 8s. 4d., C 7s. 6d., D 6s. 7d., E 5s. 8d. Hogs, ex ex 9s. 9d., ex 9s. 4d., Al 8s. 8d., A 8s. 4d., B 7s. 6d., C 6s. 9d., D 6s. 2d., E 5s. 8d. each. Fat, 2s. 11d. per stone.

EXPORTS OF MANGANESE.

The following statement shows the quantity and value of Manganese Ore exported by sea from each province of British India to countries of final destination in December, 1909:—

Countries of final destination.	BENGAL.		BOMBAY.		MADRAS.		TOTAL.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
December, 1909—								
United Kingdom	Cwt. 35,000	R 32,000	Cwt. 417,010	R 3,14,561	Cwt. 40,000	R 12,000	Cwt. 492,010	R 3,58,561
Belgium	10,000	10,000	170,000	1,41,500	...	...	180,000	1,51,500
Holland	...	...	30,000	22,500	...	...	30,000	22,500
France	40,000	40,000	40,000	36,375	...	...	80,000	76,375
United States of America	...	...	107,300	80,475	126,000	56,700	233,300	1,37,175
TOTAL	85,000	82,000	764,310	5,95,411	166,000	68,700	1,015,510	7,46,111

THE FOREIGN SEA-BORNE TRADE OF CALCUTTA.

WHILE the trade of Calcutta by sea with foreign countries improved in the month of November to some extent only, in the month of December the improvement was marked and in comparison with the same month of 1908, rose in value by 15.9 per cent. The total trade for the month was 11.89 crores in value, being an increase of 163 lakhs. To this imports contributed 122 lakhs, or an advance of 34 per cent; exports are responsible for an increase of 41 lakhs, or only 6.13 per cent. Under imports the improvement was general to both merchandise and treasure. The former rose by 82 lakhs or 25 per cent; treasure advanced by nearly 40 lakhs or by as much as 123.6 per cent. There was an increase in silver of 10 lakhs and under gold of 29 lakhs in value. Practically there were no exports of treasure, and shipments of merchandise increased by under 40 lakhs equivalent to 6 per cent.

Turning to the aggregate foreign trade of the port of Calcutta for the past nine months the total value amounts to 91.94 crores, an increase of 3.58 crores or 4 per cent on the same period of the previous year. There is but little difference between the increased value recorded for imports and that stated for exports. The former was 178 lakhs, an increase of 4.87 per cent, and the latter 180 lakhs, or a trade better by 3.2 per cent. While merchandise contributed 51 lakhs to the greater import trade, treasure accounted for no less than 126 lakhs, of which gold gave 98 lakhs and silver 28 lakhs. The retention of the precious metals in this country has been considerable, for there was a decrease in exports of 32 lakhs (gold 14 and silver 18 lakhs) giving a net increase of 159 lakhs. Exports of merchandise have risen by 2.13 crores, an improvement of 4 per cent only.

Cotton goods have naturally contributed to the expansion in the import trade in the past month. All descriptions shewed a better demand and in the aggregate account for a total value greater by 82 lakhs. Yarns rose by 5 lakhs, grey piece-goods by 64, white by over 5, and coloured by over 3 lakhs. Metals were also in greater request specially under iron and steel and the total value was better by 12 lakhs. Sugar rose in value by nearly 5 lakhs, hardware by 2 lakhs, woollens by one and "all other articles" by nearly 7 lakhs. Against these there was a decline in value of 12 lakhs under railway materials, and of 7 lakhs under machinery. The demand for mineral oil showed also a decline to the extent of 3½ millions gallons, but this was to some extent met by the larger imports from Burma, which rose in the month by over two millions gallons. There was a small increase in the amount of rice received from coast ports.

There was again a great shrinkage in the quantity of raw jute exported. It fell by 500,504 cwts., causing a decrease in value of 56 lakhs. The amount received by rail, river, etc., was also less

in December, though the total quantity brought down this season is still greater than in the previous one. With this exception there were no decreases of importance in the export foreign trade. Grain and pulse rose by six lakhs in value due to shipments of rice continuing larger than in the previous year. There is now no question but that shipments of tea from Chittagong and Calcutta will be on a much larger scale this year. In the past month 3,621,413 lbs. more were shipped, the value rising at the same time by 23 lakhs. Opium has again shewn an appreciable increase, the value advancing by 10 lakhs. Hides and skins were in great request and the value appreciated by 18 lakhs: supplies are not too plentiful out here, and the demand both on the Continent and the States is a very strong one. Other increases are noticeable under indigo by over 2 lakhs, raw cotton 9 lakhs, jute manufactures 6 lakhs, oilseeds 5, and lac 11 lakhs. The quantity of coal sent to foreign countries was 81,917 tons, an increase of 46,785 tons. Of this as much as 31,526 tons were shipped to Australia as a result of the labour strike in that country. So far up to time of writing 52,524 tons have gone forward to the colonies of Australia carried in 10 vessels. Ceylon took 35,317 tons and the Straits 8,950 tons. To Indian ports there was a decrease of 23,811 tons = Bombay receiving 70,369, Karachi 42,713, and Rangoon 37,602 tons.

—The *Shipping Gazette* in the course of an article on the Manchurian soy bean, which since 1908 has suddenly sprung into prominence as an article of great commercial value to various British industries and as a freight-earner for hundreds of steamers, says:—"There is little likelihood of a diminution of the volume of business which, so far as we ourselves are concerned, commenced with an importation in 1908-09 of not far short of half a million tons. Let it be noted here that this quantity represented practically the whole of the supply to the Western Hemisphere. In other words, the seed-crushing industry of the British Isles has had a monopoly of the soy bean, the absence of any duty on the article thus putting our own manufacturers at an enormous initial advantage as compared with those on the Continent, where a heavy duty precludes the possibility of any successful competition. As a matter of fact, shipments of oil crushed from the soy bean have already been made to foreign countries from English ports. There is very little prospect of a removal of the duty in Continental ports, at any rate in the immediate future, and when it is remembered that the expectation regarding the coming season's importation from Manchuria is very largely in excess of that of the last, it will be realised what a good thing to British manufacturers of oil products and stock food is the absence of any handicap in the shape of an import duty, a freedom which is giving them a long start over any possible competitor."

TRADE OF BURMA.

We take the following particulars from the Report on the Administration of Burma for the year 1908-09 just published:—

Extraction and Sale of Timber.

The number of trees girdled rose from 101,000 in 1907-08 to 122,000 in 1908-09. The total quantity of timber extracted was 29 million cubic feet as compared with 26½ million cubic feet in the previous year. The quantity of teak extracted showed an increase of over two million cubic feet. Less was worked by departmental agency in pursuance of the policy of restricting the extraction of teak by Government but, principally as the result of a favourable floating season, forest lessees in the Northern and Southern Circles obtained largely increased outturns. In the Pegu and Tenasserim Circles, while Government ceased operations in many of the forests the lessees to whom they were granted were unable within the year to do more than preparatory work, and the result was a temporary reduction in the output of teak from these Circles. The production of reserved timbers other than teak and of unreserved timbers also increased. The teak market was weak throughout the year. Prices in the European markets remained stationary, but the dullness in the shipbuilding and other industries in which teak is most largely used resulted in a very limited demand. Exports from Burma were little more than half the average of the five preceding years. Indian markets with the exception of Calcutta were fairly satisfactory and prices for the better qualities were higher in consequence of the scarcity of supplies. Timber other than teak was exported to Europe in fairly large quantities, but is hardly yet able to compete with cheaper American and European timbers.

Grant of New Concessions.

The number of applications during the year ending the 31st March, 1909, for prospecting licenses was 69, for mining leases 15, for exploring licenses 7, and for dredging leases 2, and one application for the renewal of an exploring and three applications for the renewal of prospecting licenses were received. Eleven prospecting licenses and three exploring licenses were renewed during the same period. Forty-eight new prospecting licenses, fourteen exploring licenses, and three mining leases were issued. Of a total number of 134 applications dealt with during the year in 68 or just over 50 per cent the object was petroleum or mineral oil. Other minerals sought for were gold, silver, lead, tin and antimony. A mining lease of 640 acres in the Pakokku District was granted to Messrs. Finlay, Fleming and Co, as agents for the Burma Oil Co., Ltd. The mineral to be worked on the area is petroleum. A gold mining lease over an area of nine square miles near Myitson in the Ruby Mines District was issued to the Shweli Gold Dredging and Mining

Syndicate on the 1st November, 1908. The Syndicate suspended work on the concession in August 1908 when the manager proceeded to England to raise capital and nothing further was done during the year of report. A lease to mine for silver and lead in a small area in the Yawngwe State in the Southern Shan States was granted to two Shans for five years. The exploring licenses were principally for silver, lead and tin in the Thaton, Salween, Tavoy and Mergui Districts.

Petroleum.

The yield of petroleum, which in 1907-08 was 149 million gallons valued at 90 lakhs of rupees, increased during the year of report to 173 million gallons valued at 103.69 lakhs. The increase took place in the Yenangyaung oil-fields in the Magwe District, the yield from which rose from 97 to 124 millions of gallons. The Burma Oil Company extracted a much larger quantity of oil than in the previous year, while the Rangoon Oil Company more than doubled their output. The pipe-line of the Burma Oil Company was completed and conveyed large quantities of oil from the mining fields to their refineries near Rangoon. Large storage tanks were built by several Companies in the neighbourhood of Yenangyaung. The revenue from the oil industry increased from 10.96 lakhs in 1907-08 to 17.77 lakhs in the year of report. The exploitation of the oil-fields of Yenangyaung is now proceeding with a rapidity previously unknown. Prospecting and exploring for oil went on throughout the year in the Thayetmyo and Minbu Districts but without any results or even any favourable indications being observed.

Gold.

Three dredgers belonging to the Burma Gold Dredging Co., Ltd., were at work in the Irrawaddy above Myitkyina and one in the Nmaikha during the year. The fourth dredger of a larger and more powerful type than any of her predecessors began work in May, 1908, and a small dredger, to be used for prospecting purposes only, is at present under construction. The quantity of gold won was 7,950 ounces valued at Rs. 4,59,000 as compared with 3,837 ounces worth Rs. 2,23,784 in the previous year. The Company paid a dividend of 2½ per cent during the year.

Rubies.

The only place in the Province where mining for rubies was carried on was in the country round Mogok in the Ruby Mines District. The industry in the Myitkyina District came to a standstill and no revenue was derived thence. The principal mines continued to be worked by the Burma Ruby Mines Company. The European market for rubies suddenly ceased at the time of the financial crisis in the United States in October 1907 and till the end of the year of report there was little or no

revival of demand. The output of the Company was accordingly restricted to the narrowest limits and a corresponding slackening of activity took place among the Native miners who work under license from the Company. The number of trucks of ruby earth washed was 1,122,114, from which were obtained 165,894 carats of rubies valued at Rs. 7,02,335, 16,390 carats of sapphires valued at Rs. 8,898 and 28,910 carats of spinels valued at Rs. 7,579. The total value of the stones obtained was Rs. 7,18,812. In the previous year the output of rubies, sapphires and spinels was valued at Rs. 17,21,977. The income from royalties, which was Rs. 2,97,740 in 1907-08, fell to Rs. 1,20,786 in 1908-09.

Other Minerals.

The quantity of jade and jadeite extracted in the Myitkyina District during the year was 3,567 cwt. valued at Rs. 3,34,989 as compared with 3,590 cwt. valued at Rs. 2,84,973 in 1907-08. A new mine was discovered during the year from which some stone of good quality was extracted. In the unadministered territory to the north of the Myitkyina District are situated **amber mines** from which 49 cwt. of amber valued at Rs. 5,465 were imported as compared with 44 cwt. valued at Rs. 5,770 in the previous year. The **tourmaline mining industry** in the Ruby Mines District and in the Shan State of Mong Mit was practically dormant. Stones valued at over Rs. 4,000 were extracted in the valley of the Nampai stream in Hsipaw State.

Quarry Stones.

The extraction of clay, laterite and limestone in large quantities for use in brick-making, road-making and repairing continued. The development of the quarries of gneissic granite in the Thaton District which began in the previous year was pushed on with vigour, the quantity extracted increasing from 16,000 to 270,500 tons. The stone was extensively used by the Burma Railways Company and for the purposes of the Town Lands Reclamation works in Rangoon. An examination of the quarries by the Geological Department shewed that the granite exists in large quantities and production on a still more extended scale may be expected in the immediate future.

Trans-frontier Trade.

The volume of the overland trade of Burma declined slightly in the year of report in comparison with the previous year. The aggregate value of imports and exports was 517.33 lakhs as compared with 533.90 lakhs in 1907-08. The value of the imports was nearly the same in the two years, 256.27 lakhs in 1908-09 and 256.91 in 1907-08, but the value of the exports fell by 16 lakhs from 277 to 261 lakhs. Trade was dull throughout the year,

having been greatly hampered by a virulent outbreak of plague in Mandalay and by exaggerated rumours of the extent of the outbreak there and elsewhere. All countries on the frontier were affected by these adverse trade conditions except the Northern Shan States and Southern Siam, which show an increase of about 15.16 lakhs and 2.13 lakhs respectively over the figures of the previous year. Taken individually the decrease by the Western China route was 4.81 lakhs, Southern Shan States 12.06 lakhs, Northern Siam 5.65 lakhs and Karenni 11.64 lakhs. The decrease would have been greater but for the opening of additional registering stations making registration more effective.

Western China.

The imports from Western China declined in value from 30.34 to 34.03 lakhs, while exports increased from 48.05 to 48.55 lakhs. The total trade showed a decrease of 5.5 per cent. The decrease of over one lakh in the value of hides was due to the withdrawal of Messrs. Fabricius and Co.'s agency from Bhamo and partly also to the inferior quality of the hides caused by bad packing. Silver declined by five lakhs. The value of European piece-goods exported increased by 4.73 lakhs which more than counterbalanced a fall of 3.26 lakhs in value of the exports of Raw Cotton and Twist and Indian Yarn.

Northern Shan States.

The imports from the Northern Shan States which were valued at 82.25 lakhs in 1907-08 rose to 97.49 lakhs, an increase of 18.53 per cent, while exports were practically stationary. The largest increase is 7 lakhs under the head of other metals which represents the value of the lead ore imported into Burma from Bawdwin by the Burma Mines Company, Ltd. Black tea and husked rice each advanced by over 2 lakhs and silver and teak by over 3 lakhs each. The heavy November rains made the season a very good one for floating teak and the amount extracted was the largest on record. Exports decreased by .09 per cent, but taking into consideration that there was a decrease of 12 lakhs under the heads of railway materials and iron owing to the completion of the Burma Mines Railway, and that the plague in Mandalay caused a decrease of a lakh under the head of silk goods, it is clear that there was a large increase under other heads of export. The articles which showed the largest increases were Twist and European Yarn (1.32 lakhs), really mostly Indian, but erroneously classified as European by the Railway authorities. European piece-goods rose from 16.12 to 20.99 lakhs, Wet Fish (*ngapi*) from 1.54 to 3.88 lakhs and Silver from 10.04 to 13.67 lakhs. In consequence of the outbreak of plague at Bhamo resulting in a diversion of trade to the Kunlon ferry route to China, there was a large increase in European piece-goods, Salt, and Twist and Yarn exported to the Northern Shan

States, and there is reason to believe that a considerable portion of these goods found their way to China.

Southern Shan States.

The trade with Southern Shan States decreased by 7.60 per cent imports and exports showing decreases of 7.92 and 7.37 respectively. The decrease in imports was almost entirely due to the diminished trade in stick lac, the result partly of the unsatisfactory state of the foreign markets. Teak timber showed a falling off of 2.86 lakhs, but there was an increase of 1.77 lakhs in the value of animals imported. The other decreases are due to reclassification and are only apparent. The value of European piece-goods exported rose from 31.82 lakhs in 1907-08 to 34.06 lakhs in 1908-09. The chief articles comprised in the decrease were Jewellery, 1.67 lakhs; Silk manufactured piece-goods, 1.52 lakhs; Wool manufactured, 2.69 lakhs; and Silver, 1.64 lakhs. The decrease in jewellery was due to the abnormally high figures of 1907-08 caused by the visit of the Shan Sawbwas to the Viceroy's Darbar at Mandalay. The decrease in silver was attributed to the decreased import of teak.

Northern Siam.

There was a decrease of 5.65 lakhs or 8.67 per cent in the trade with Northern Siam. Imports decreased by 12.23 per cent chiefly under silver, due probably to an unfavourable rate of exchange and partly to the prevalence of elephant stealing on the Siamese borders which interfered with the timber traffic and caused a corresponding diminution in the quantity of silver imported. There was a falling off in the import of elephants and manufactured silk and a decrease in the value of the teak imported despite an increase of nearly 40 per cent in quantity. In export the decrease was 3.64 per cent, noticeable principally under silk manufactured piece-goods, 1.14 lakhs, and Twist and Yarn, Indian, .89 lakh, which was partially made up by an increase under Twist and Yarn, European, of 1.50 lakhs.

Southern Siam.

Imports are solely responsible for an increase of 16.48 per cent in the total trade with Southern Siam (from 14.73 to 17.16 lakhs). Cattle, elephants and silk manufactured piece-goods were the principal items contributing to the increase. The inappreciable decrease in exports was probably the result of trade fluctuations.

Karenni.

The total value of the trade with Karenni fell from 39.20 lakhs in 1907-08 to 27.56 lakhs in 1908-09, a decrease of 29.69 per cent. Had it not been for the large increase of 1.18 lakhs in the import of elephants via Toungoo and the newly opened station at Leikho the decrease would have been even greater. The quantity of silver exported diminished by 7.24 lakhs, principally as the result of the fall in prices of teak.

TRADE AND INDUSTRIES OF THE MADRAS PRESIDENCY.

Mines and Quarries.

We learn from the Madras Administration Report for 1908-09 that there was a decrease of about 25 per cent in the output of manganese and that the outturn of mica was also rather less than in the preceding year; magnesite on the other hand was far more extensively mined than previously. Graphite was not worked during the year. The general condition of the persons employed in the mines was good. There was one fatal accident during the year.

Manufactures.

The chief industries carried on in concerns not classed as factories were coffee-curing, tile-making, rope-making, tanning of leather, lace-making, tobacco-curing, cotton-spinning and weaving, printing, fish curing, oil-pressing and cotton ginning and pressing. No other industry in the Presidency gave employment to a daily average of more than one thousand hands. The working of the Salem Weaving Factory during the year was satisfactory, the net cost of the establishment having undergone further reduction, this result was due largely to the improvement of the labour supply and the success which attended the introduction of shawl weaving. The operations of the Chrome Tanning Department extended considerably and the increasing sales of its products give evidence of their rising popularity; financially there was, however, a deficit of Rs. 7,000 on the year's work.

Sea-borne Trade.

The Report states that Madras alone of the maritime provinces showed an increasing trade in a year of general depression, the total trade being of a value of Rs. 4,501 lakhs and the percentage of increase being 3, against a decrease of 14 per cent for India as a whole. The trade facilities of the Port of Madras continued to show a rapid improvement and the trade responded with an increase of 3 per cent, the value being Rs. 1,884 lakhs. Outports were reduced in number from 148 to 104, of which 43 were open to foreign trade. The foreign trade done by these ports was of a value of Rs. 1,439 lakhs, of which the only ports which contributed more than 100 lakhs were Cocanada, Negapatam and Tuticorin on the east coast and Cochin and Calicut on the west. The effect of the extension of railway communication up both coasts is showing itself in a large diversion of trade to these ports. The increase was very marked in the case of Cocanada, Tuticorin and Cochin which showed a trade of Rs. 324, Rs. 609 and Rs. 497 lakhs, respectively.

Foreign Trade.

The foreign imports for the year showed a value of Rs. 1,155 lakhs and an increase of 12.58 per cent. The chief articles concerned were yarns and textile fabrics, metals, articles of food and drink, railway plant and rolling stock, oils, and machinery and mill-work. Yarns and textile fabrics accounted for

nearly half the imports with Rs. 475 lakhs; there was a large increase in the imports of these commodities during the year, due largely to speculative buying, which resulted in heavy stocks being held at the close. Metals accounted for Rs. 153 lakhs and showed an increase of 16 per cent, which was due chiefly to the fall in price of copper. Articles of food and drink showed a total trade of Rs. 107 lakhs and a percentage of increase of 30 which was chiefly due to a scarcity of food grains and pulses and a poor sugar crop in the Presidency and Mysore. Railway plant and rolling stock showed a value of Rs. 72 lakhs and a decrease of 19 per cent, large supplies having been received in the previous year. Oils showed a value of Rs. 68 lakhs and an increase of 44 per cent owing to keen competition and the re-entry of Russian oil into the market; the consumption of Burma oil declined. The foreign export trade was valued at Rs. 1,812 lakhs and showed a decline of 2 per cent. The articles chiefly concerned were tanned hides and skins, grain and pulse, raw cotton, seeds, coffee and tea. The trade in tanned hides and skins increased to Rs. 340 lakhs or by 11 per cent. Prices were favourable and there was a continued demand for coloured leather goods for which Madras skins are specially suitable. Exports of grain and pulse, chiefly to Ceylon, totalled Rs. 238 lakhs, a decrease of 20 per cent as compared with the abnormal figure of the previous year, though still well above the average of previous year. Lower prices reduced the exports of raw cotton to Rs. 234 lakhs, or by 31 per cent. Seeds generally showed a total value of Rs. 152 lakhs, or a decrease of 14 per cent. The exports of coffee at Rs. 138 lakhs were much the same as usual. The exports of tea which have been advancing steadily for 20 years reached the figures of Rs. 112 lakhs in the year under review. About 68 per cent of the foreign trade of the Presidency was with the British Empire, the share of the United Kingdom being 46 per cent of the whole. The remaining 32 per cent was principally with France, Belgium, Germany, the United States of America and Japan.

Coasting Trade.

The value of the total coasting trade showed an increase of 7 per cent due to a large increase in the trade with British ports in other provinces. The most distinctive features of the trade were the abnormal import of grain and pulse, especially from Burma, owing to high prices in Madras, and the increased exports of ground-nut seeds, cocoanut and raw cotton.

Shipping.

The total number of vessels entered and cleared during the year fell by 3,684 to 42,525, but the tonnage increased by 727,180 which is an indication of the continued substitution of larger for smaller vessels. The number of steamers entered and cleared was for the first time greater than the number of sailing vessels. There was an increase in the number of vessels, built in the Presidency, but they were all small craft.

THE CULTIVATION OF SOY BEANS:

An Important Consideration.

CONNECTED with the cultivation of the Soy Bean there is an exceedingly important point that may possibly be overlooked during the effort that is now being made to introduce the crop on an industrial scale in India. Soy bean is a leguminous crop and a host of bacteria form nitrogen-fixing nodules on the roots. It is from this power of utilizing atmospheric nitrogen that it derives a great part of its virtue. But the bacteria are not inherent in the seed itself and unless they are present in the soil or introduced the crop will be a comparative failure. It is therefore necessary not only that good seed should be imported and distributed, but that steps should be taken to introduce the requisite bacteria into the soil of the plots where such seed is sown. On this subject we quote the following passage from Soy Beans (Farmers' Bulletin No. 372 of 1909 of the U. S. Department of Agriculture.).

It is especially important to plant seed of good quality. Soy-bean seed unless it is fresh and has been properly stored is very apt to be low in germination. It should therefore be tested for viability before planting time. The planting should be shallow, preferably 1 inch and not to exceed 2 inches in depth. Poor stands result more frequently from too deep planting than from any other cause. A bushel of good seed is sufficient to plant from 2 to 3 acres if in cultivated rows, and hardly enough for 1 acre if sown broadcast.

The cultivation of soy beans is a simple matter. Unless conditions are very unfavourable the seedling plants appear above ground in a week and tillage may then begin. Any good cultivator may be used, and flat cultivation is preferable, as the harvesting can be more easily done than if the rows are hilled or ridged.

Soy beans may be planted through a wide period from early spring till midsummer. Ordinarily they are planted about June 1st. In the lowlands of Tennessee and North Carolina and southward two crops of the early and medium varieties may be secured in a season. In general, early plantings require more time to mature than late plantings, the difference in the same variety often amounting to as much as three weeks.

The Inoculation of Soy Beans.

Like other legumes, soy beans are able to utilize the nitrogen of the air and add it to the soil by means of root nodules. These nodules are caused by certain bacteria; unless they are present soy beans in the usual types of soil will make but a weak growth, and many of the plants will turn yellow and die.

Throughout the south the proper bacteria for soy beans seem to be widely distributed, so that natural inoculation now occurs generally. In isolated localities where this crop has not been grown, however, some difficulty may be expected from lack

of inoculation during the first season at least. Northward and westward greater difficulty in this regard is experienced.

Inoculation of a new field may be secured either by the soil-transfer method or by the use of the pure cultures prepared by the Department of Agriculture. The soil-transfer method consists in scattering soil from an old, well inoculated soy-bean field over the new ground at the rate of 200 to 300 pounds per acre. To facilitate even scattering this should be thoroughly mixed with several times its weight of ordinary soil. The soil may be either drilled or broadcasted. In the latter case it should be done toward evening or on a cloudy day, as bright sunshine is very harmful to the germs. The objections to the soil-transfer method are the labour and cost involved and the serious liability of spreading weeds and dangerous plant diseases. Successful inoculation by this method is, however, practically certain.

The method of inoculation by means of the pure cultures prepared by the United States Department of Agriculture is fully described in Farmers' Bulletin 315. Fresh liquid cultures are sent out in sealed bottles, and for small quantities of seed the culture may be diluted and used directly upon the seed. Directions and material for increasing the culture are supplied if a larger quantity is desired. The advantages of the artificial cultures lie in the greater ease of transportation and application, as well as in the absence of the danger of introducing plant diseases or harmful weeds. This method is frequently unsuccessful with soy beans, due possibly to the oily nature of the seeds.

When growing soy beans or any of the legumes for the first time it is an excellent plan to plant a small experimental plot, inoculating thoroughly by the pure-culture method. If this plot is successful, an abundance of soil will be available for inoculating large fields without danger of introducing weeds or diseases.

The manner in which such cultures are to be obtained and used is explained as follows in the earlier Bulletin referred to above:—

The peculiar value of legumes for maintaining and increasing the fertility of soils is due to certain bacteria which develop nodules upon the roots of leguminous plants and which have the unique power of rendering the free nitrogen of the atmosphere available for plant growth. Without these bacteria, legumes, like other crops, exhaust the soil of its combined nitrogen. In many regions certain types of these important bacteria are abundant in the soil; in other localities they must be imported, either by distributing soil from a field where they are known to be present or by using pure cultures of the proper organisms grown under artificial conditions. The old method of importing the bacteria by distributing soil from fields containing them is not only expensive but there is very great danger of spreading weeds and destructive crop diseases as well as the desirable bacteria. Under modern conditions, therefore, it is wisest to depend chiefly upon

the intelligent manipulation of pure cultures for inoculating leguminous crops.

The Use of Pure Cultures of Nitrogen-Gathering Bacteria.

Recent improvements in the methods of preparing and distributing pure cultures for inoculating leguminous crops have obviated many of the difficulties previously experienced in their use. The directions of handling by the planter have been simplified and adaptations have been made to meet varying conditions of field and plot experiments. The directions accompanying the cultures distributed under the present plan may be summarized as follows:—

For cultures that are to be increased by the planter, in one gallon of clean water, boiled and cooled, is dissolved a small quantity of sugar and the tablet which is supplied with the small bottle of culture. The liquid culture in this small bottle is poured into the gallon of solution and the mixture is allowed to develop for twenty-four hours at a temperature of about 70° F., and is then ready for use. (a) The seed should be thoroughly moistened with this culture, without being soaked, and should then be spread out to dry in a clean, shady place. It is an advantage, though not an absolute necessity, to dry immediately by mixing with the moist seed a small quantity of dry, sifted earth. Planting should follow as soon as practicable, using the same methods as for untreated seed.

It is sometimes desirable to treat the soil—direct instead of treating the seed. The solution is then mixed with enough dry soil (preferably from the field to be inoculated) so that it will just moisten the soil. This treated soil is again mixed thoroughly with a larger quantity of soil—say half a wagon load for an acre. The inoculated soil is then distributed evenly over the prepared ground and should be harrowed in at once to avoid exposure to sunlight.

In special cases the amount of culture supplied is largely increased, and this is to be used immediately instead of waiting twenty-four hours for development. If the quantity of seed to be treated does not exceed 12 to 15 pounds the user has simply to open the bottle at once and pour the contents upon the seed. If more liquid is needed to moisten a larger quantity of seed, water up to 1 gallon may be added, reckoning 1 quart to a bushel of seed.

The Effect of Soil Conditions upon Legume Bacteria.

In the investigation of the results of inoculation the wide range of soils for which cultures have been furnished has brought out the complexity of the subject and developed many special problems. The constitution or character of the soil itself has been found to have an effect upon the growth of nodule bacteria, as well as upon the formation of nodules. Some soils have a chemical composition distinctly unfavourable to the development of the introduced bacteria; other soils are so compact or retentive of

(a) One gallon will treat at least three or four bushels and seed.

moisture as to exclude air and thus be unfavourable to the growth of the bacteria and to nodule formation

The Effect of Inoculation upon the Composition of the Crop.

In some cases where there has been apparent failure to improve the legume crop, farther examination may show a decided gain from inoculation. Even where the lack of nodule formation does not seem to hinder a healthy development of the plants careful comparisons from analyses have shown the greater protein content of those well supplied with nodules. The amount of nitrogen contained in a soy bean crop was found in one case to be 113.55 pounds to the acre for the inoculated plants and 75.98 pounds to the acre for those not inoculated, yet the appearance in the fields was the same. With cowpeas, inoculated and uninoculated, the nitrogen was found to be 139.21 pounds to the acre for the former and 118.45 pounds for the latter. In each case, therefore, the inoculated crop, although apparently not improved was in reality much more valuable for feeding or for green manure than the uninoculated crop.

In addition, it should be noted that with the inoculated plants the gain of nitrogen came largely from the air, while the plants lacking nodules drew upon the combined nitrogen of the soil.

GROWING INFLUENCE OF SOY BEAN OIL.

THE *Oil and Colour Trades Journal* of December 18th writes:—Rather a curious theory has been mooted during the last few days to account for the upward tendency of linseed oil, and it seems worth while to look a little more closely at it. That linseed oil should reach £30 per ton, without any very conspicuous demand for it, in a time of rather uncertain commercial outlook, and in the depth of winter, has puzzled some observers, and they find a reason for it in the interest which crushers are now taking in the Manchurian bean. It seems that a good many mills have sold bean oil forward, and the idea is that they are now so much occupied in producing it that they cannot find time to crush their usual quota of linseed, and that hence linseed oil is to become scarcer while the demand for the bean oil continues. There is, of course, no doubt whatever that the crushing of beans at present prices for cake and oil is a very profitable industry, and that oil mills will take as much work of this kind as they possibly can. But the question arises whether there is a sufficient quantity of Manchurian bean to interfere greatly with the linseed oil industry. Our average supplies of linseed from abroad amount roughly to 400,000 tons; and the imports of beans can only be a small percentage of this quantity. We are, of course, willing to admit that the imports of beans are likely to increase rapidly, and if the information as to extension of cultivation be correct, probably during next year a sufficient quantity will arrive to interfere with the course of prices. But

surely that is not the case at the present moment. If our readers will study the present quotations for cake and oil, whether bean, cottonseed or linseed, as was suggested in the O. and C. T. J. last week, they will be convinced that although the new bean may show good returns, the crushing of linseed and cottonseed is not to be despised as a money-making venture. It seems to us that all the mills throughout the country, if not throughout the world, will be tempted to work double tides and at extreme pressure right through the present season and until either seed and beans get so scarce as to rise considerably in value, or the resulting oils and feeding cakes drop by pounds per ton. We do not grudge the mills their period of prosperity; far from it. They often have to go through times when work as they will, they cannot get more than change for a sovereign with all their efforts. On the contrary, we hope that the period of good times may be lengthened out as long as possible, but a knowledge of human nature leads us to think that the goose which lays such attractive golden eggs will not long remain in a state of perfect health. Looking back over the last three months, we find that the arrivals of linseed averaged only about 100,000 qrs. per month, or at the rate of 1,200,000 qrs. per annum. Since our average supplies are 2,000,000 qrs. per annum, this alone is sufficient account for a comparative shortage of linseed oil, without the theory that crushers are too busy to deal with the seed they can get. Bean oil, of course, comes into more direct competition with cotton oil, and it is now said that crude bean oil is just as good for soap-making as the ordinary refined cotton oil. The struggle between the two oils in the soap-works of the country has begun, but its extent cannot yet be fairly gauged. It seems quite possible that, with a large cotton crop next season and a greatly increased import of bean, a catastrophe may be preparing for seed-crushers, and if this be so they do well to make the most of the present season.

—The Brazilian Government has realised the advisability of moving in the matter of concessions, with a view to retaining the rubber market in future years. Accordingly, it is reported that a scheme has been submitted to the Government offering several thousands of acres to local investors for the purpose of laying out plantations on the methods now being adopted in the Middle East. The soil and climate of the Acre territory—where the land is situated—is said to be eminently adapted to the growth of rubber. Importers will watch this new departure with interest. Whether it will be a success is doubtful, seeing that the planters will be severely handicapped owing to the high price of labour prevailing in the district—a factor which does not affect the Middle East. In any case, the trees planted next year cannot come into bearing before the 600,000 acres already laid down in Malaysia.

PROGRESS OF ELECTRIC SMELTING AND STEEL PRODUCTION.

An engineering correspondent writes as under to the *Times Engineering Supplement* of November 3rd:— Few developments in the electrical industry have been so rapid as that of the electric furnace for the reduction of iron ores and the refining of steel. The possibility of using the electric furnace for such a purpose was foreseen so long ago as 1879 by the late Sir William Siemens, who patented a crucible form of electric furnace and put it into successful laboratory operation. But although electro-thermal processes received many applications during the following 20 years, the development was naturally along such lines as presented difficulties to the more ordinary metallurgical methods, the aluminium industry being a case in point. Thus, it was not until 1899 that Dr. Heroult, whose name is familiar in connexion with the electro-extraction of aluminium, after nine years' experience in producing aluminium alloys in the electric furnace, passed on to the problem of producing ferro-alloys. This work led to the present design of the Heroult electric crucible furnace, which was soon applied to the production of steel at La Praz. France became active in this new sphere, for M. Keller, of the Societe des Etablissements Keller Leleux, and M. Girod, of the Societe Anonyme Electro-Metallurgique Procédes Paul Girod, also took up the matter and proceeded to produce ferro-alloys. About the same time Major Stassano, working along different lines, designed a purely arc furnace, whereas the other furnaces just mentioned effected the heating by resistance as well as by the electric arc, the arc being used merely as a path for the current to flow into the molten metal. About 1901, also, Herr Kjellin built an induction furnace of the type that bears his name. Thus, eight or nine years ago several engineers were working at the subject of the electric refining of iron, and even at the more ambitious task of the electric reduction of iron ores, but their work, generally speaking, was not given very serious consideration. Ordinary metallurgical methods had been so far perfected, and had held the field for so long, that the newer methods did not appear to be of great importance.

With commendable foresight, the Canadian Government, at the end of 1903, appointed a commission to visit Europe to investigate and to report upon the different electro-thermal processes employed in the smelting of iron and the making of steel. This tour was undertaken in 1904, and its result was the publication of a very valuable report given details of the various processes, and an account of a number of trial runs, from both the electrical and the metallurgical point of view. The results were sufficiently promising to induce Dr. Eugene Haanel, Superintendent of Mines for the Canadian Government, to carry out experiments at Sault Ste. Marie, in Ontario, in order to see if electric smelting could be applied with commercial success to Canadian iron ores. These experiments, which are described in a report issued in 1907, were carried out with the

assistance of Dr. Heroult and were eminently successful.

It is well to distinguish clearly between (1) electric reducing of iron ores, and (2) electric refining, or production of steel and ferro-alloys. Electric processes have necessarily to be considered in competition with existing methods. The blast furnace effects the required reduction of the ore in a simple manner. It is wasteful, largely because air is diluted to a large extent with inert nitrogen, which, although it plays no part in the reaction, must be heated in passing through the furnace, and thus remove a good deal of the heat which would otherwise be usefully employed. On the other hand, the necessary materials are usually cheap, because coal is generally abundant where iron ore is found, and limestone, which is required to give a fusible slag, is also often found in the same neighbourhood. Consequently, the need for very efficient working has not been so keenly felt as it might have been under less favourable conditions. Moreover, the tendency at the present time is to render the blast furnace still more efficient by utilizing the waste gases, either for driving large gas-engines or for raising steam.

Electro-thermal methods have the very great advantage that the heat can be easily applied just where it is required, and there is no question that such methods can be employed most successfully from the metallurgical point of view, some form of carbon being used simply as a reducing agent and not for providing heat. The only question is whether the electric energy can be supplied at such a price as to render electric smelting a success commercially. Here the electric method is apt to be at a disadvantage, because the heat as a rule is primarily obtained in either case from coal. Now, if the heat is transformed by steam generating plant into electric energy there is necessarily a very serious loss, for thermodynamic reasons, in the steam-engine, with the result that in commercial working considerably less than 10 per cent of the original heat energy is finally available as electric energy. If generation is by means of water power this source of loss is eliminated, but it does not follow that the cost of electric energy is much less, unless the capital cost of the hydraulic works involved is low. In the blast furnace the heat from the coal is used without any transformation, but, nevertheless, the efficiency is low, and therefore it does not follow that the electrical method is put out of court.

When we come to the question of the production still, ordinary metallurgical methods are at a greater disadvantage. The electric method provides the easiest possible means of heating a charge, in a neutral atmosphere, if desired, and of making ferro-alloys of any composition. In this case the greater part of the energy is used in heating up the charge if cold pig or cold scrap is used. For many purposes there is no reason why the charge should not be melted previously in an ordinary furnace, or taken direct from the blast furnace, in which case the

electric furnace would be used simply for the refining part of the process.

The Canadian Commission came to the conclusion that the electric furnace and blast furnace would be on an equality, as regards cost of operation, if electrical energy were obtainable at about £2 per h. p. year and the price of coke were about 28s. per ton—in other words, if the price of electric energy were very low (though not lower than is found in certain localities) and the price of coke were correspondingly high. This, however, is on the assumption that the expenditure of electric energy is about 2,300 kilowatt hours per short ton of pig produced. Since the report of the Canadian Commission appeared there has been a very considerable advance. The experiments at Sault Ste. Marie showed that a ton of pig could be produced with a consumption of only about 1,700 units and, considering the extreme youth of the electric smelting furnace, this cannot be considered as a final figure.

Apart from the question of the amount of energy required, the electric smelting furnace has certain distinct advantages. Thus, whereas the blast furnace must be large, generally 90ft. in height or more, electric furnaces may be very much smaller, though more of them will be required for an equal output. Consequently, repairs are more easily effected in the electric furnace, and it is not such a serious matter if the charge is not correct, or if the furnace has to be shut down; moreover, regulation of the temperature is more easy.

It is not surprising, therefore, that the electric smelting furnace is receiving serious attention in countries where water power is abundant and fuel is expensive. This is the case, for example, in Canada, where, it appears, 80,000 h.p. is to be applied to electric smelting in the immediate future. In Sweden, also, active steps are being taken in the same direction, and three electric smelting furnaces, are to be installed at Trollhättan, each of 2,500 h. p.

Turning to the production of steel, we find that the energy required per ton varies from 800 to 1,000 kilowatt hours if the charge is cold; on the other hand, if molten metal is used, then the energy required is only about 200 kilowatt hours per ton, or even less. Very rapid progress is being made in this direction. Owing to the easy control, it is not unnatural that the steel so produced should be of superior quality and that on that account, if for no other, steel markets should look into the question. The importance of the subject has been recognised by the Illinois Steel Company at Chicago, where a 750-kw. Heroult crucible furnace has been erected, from which 16 heats a day are expected and a daily output of 240 tons of steel.

There is one unfortunate feature in the development of these electro-thermal methods, namely, the comparative indifference to the subject in this country. Although years ago Ferranti saw possibilities in the induction furnace, the time was then not ripe, and

we have been content, although essentially a steel-making country, to let these developments take place elsewhere. While numerous electric steel furnaces are being put into operation on the Continent, we appear to be content with a single commercial example in this country, and our steel makers have not thought it worth their while to make ferro-alloys by the electric furnace. It is often assumed that the use of water power in France makes all the difference in such a case; but considering the fact that the cost of energy is not a preponderating part of the whole cost, this argument cannot be well supported. Moreover, such alloys would be produced nearer the localities where they are used in this country than is the case in France, so that any difference in cost of energy in the two cases would probably be rendered insignificant. Our supply authorities in the Midlands are well alive to the importance of cheap power, and it only remains for our steel makers to take advantage of it.

NEW REFERENCE BOOKS.

THE FIRST PRINCIPLES OF RAILWAY SIGNALLING.

Including an account of the legislation in the United Kingdom affecting the working of Railways and the provision of signalling and safety appliances. By C. B. BYLES. 7½ x 5, 146 pp. . 3s. net.

Railway Gazette.

PROCEEDINGS OF THE INSTITUTION OF AUTOMOBILE ENGINEERS.

Session 1908-09. Volume III, 8½ x 5½, 571 pp. . 5s. net.

1, Albemarle Street, Wcs

—To persons who may propose to visit Constantinople with a view to transacting business with, or obtaining concessions from, the Turkish Government, an intimation has been received through the British Foreign Office from that Government conveying a warning against unscrupulous persons who, under pretext of acting as intermediaries between them and the Government Departments, merely seek to take advantage of their ignorance of the country and its conditions. As these persons enjoy no credit with the Turkish Government their services are valueless. The Turkish Government accordingly advise all foreigners wishing to transact business with them to communicate direct with the competent Departments, which are always ready to supply any information required, and to accord all necessary facilities. In a later report the Acting British Consul-General at Constantinople (Mr. A. T. Waugh) states that, with a view to excluding undesirable local middlemen from concession business, the Turkish Ministry of Public Works has decided to require from persons making applications for concessions proofs that they possess the financial and technical requirements necessary for the exploitation of the concessions concerned.

IMPORTS OF SUGAR.

Imports of Foreign Sugar (excluding Confectionery and Molasses) into British India in the month of December, 1909, and in the nine months ending 31st December, 1909, compared with the corresponding periods of the previous year. The statement shows, as far as possible, the original sources of all such sugar imported:—

Countries of production of total imports.	Share of each country in the total imports in December 1908.	Share of each country in the total imports in December 1909.	Share in the nine months ending 31st Dec. 1908.	Share in the nine months ending 31st Dec. 1909.	Countries of production of total imports.	Share of each country in the total imports in December 1908.	Share of each country in the total imports in December 1909.	Share in the nine months ending 31st Dec. 1908.	Share in the nine months ending 31st Dec. 1909.
	Cwt.	Cwt.	Cwt.	Cwt.		Cwt.	Cwt.	Cwt.	Cwt.
Russia	1,004	...	20,042	22,100	Philippines . .	...	...	5,000	...
Denmark	...	...	340	...	China	704	...	5,747	2,552
Germany	300	228	2,229	50,846	Japan	...	...	...	36
Holland	32	26	366	620	Natal	...	...	2	...
Belgium	64	96	816	1,240	Mauritius	249,501	209,279	1,771,299	1,600,740
France	126	54	418	221	West Indies . . .	8	9	83	83
Spain	...	...	1	6	South America . .	9	133	347	503
Italy	21	...	27	...	Australia	...	...	105	7
Austria-Hungary .	191,059	41,124	1,225,520	578,991	From non-producing countries—Origin unknown	3	8	437	433
Straits Settlements .	111	232	612	1,535					
Java	469,866	529,824	5,141,407	6,445,772	TOTAL	912,808	781,013	8,174,793	8,705,690

Quantity of Beet and Cane Sugar imported by sea from Foreign countries into each province of British India in the month of December, 1909, compared with the corresponding period of the year 1908:—

PROVINCES.	Beet Sugar.		Cane Sugar.		TOTAL.	
	1908.	1909.	1908.	1909.	1908.	1909.
	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
Bengal	21,317	6,104	286,166	341,176	307,483	347,280
Eastern Bengal and Assam	1	...	1,503	2,263	1,504	2,263
Bombay	20,262	12,854	187,490	217,929	207,752	230,783
Sind	147,280	17,633	151,432	113,761	238,712	131,394
Madras	3,601	4,835	23,551	14,921	27,152	19,756
Burma	147	105	70,058	49,432	70,205	49,537
TOTAL	192,608	41,531	720,200	739,482	912,808	781,013

IMPORTS OF COTTON YARN.

Quantity of Cotton Yarn No. 31 and higher counts, imported by sea from other countries into each province of British India in the month of December, 1909:—

	Bengal.	Eastern Bengal and Assam.	Bombay.	Sind.	Madras.	Burma.	TOTAL.
	lb	lb	lb	lb	lb	lb	lb
Mule and water, Nos. 31 to 40 . . .	340,500	...	139,014	...	127,600	...	607,114
" " " 41 to 50	51,000	...	40,247	...	60,150	...	151,397
" " " above No. 50	125,095	...	134,301	...	109,725	...	369,121
Orange, red and other colours, Nos. 31 to 40.	577,907	...	135,550	95,017	218,498	32,600	1,059,572
Orange, red and other colours, Nos. 41 to 50.	...	...	10,900	...	100	34,190	45,190
Orange, red and other colours, above No. 50.	4,400	...	4,300	...	35,000	8,550	52,250
TOTAL	1,098,902	...	464,312	95,017	551,073	75,340	2,234,644

SPINNING AND WEAVING RETURNS.

The following statistics of cotton spinning and weaving in Indian mills in November, 1909, compared with the corresponding period of 1907 and 1908, are published by the Commercial Intelligence Department:—

No. 1.—Abstract Statement of the Quantity (in pounds) of Yarn Spun.

	MONTH OF NOVEMBER			EIGHT MONTHS, APRIL TO NOVEMBER		
	1907	1908	1909	1907	1908	1909
British India.						
Bombay	35,547,374	38,157,096	31,055,255	306,229,191	305,928,034	294,066,666
Madras	3,048,855	3,246,941	3,616,512	24,889,613	25,785,099	27,885,367
Bengal	4,111,385	2,318,353	2,323,661	27,274,050	25,477,889	21,637,213
United Provinces of Agra and Oudh (also Ajmer-Merwara)	3,043,114	3,215,198	3,211,469	24,012,096	25,040,002	26,304,017
Panjab	1,007,398	966,281	829,609	8,417,467	8,748,660	6,754,456
Central Provinces and Berar	2,088,510	2,326,392	2,115,676	18,370,713	19,214,943	20,797,559
TOTAL	48,846,636	50,230,261	43,152,182	409,193,130	410,194,627	397,445,278
Foreign Territory.						
Native States of Indore, Mysore, Baroda, Nandgaon, Bhavnagar, Hyderabad, Wadhwan, Quilon, (a) Kishengarh, Ujjain and Pondicherry (b)	1,851,905	2,220,040	2,366,529	16,297,099	18,366,836	22,986,477
GRAND TOTAL	50,698,541	52,450,301	45,518,711	425,490,229	428,561,463	420,431,755

(a) Mill closed since October, 1909.

(b) Including the production of one mill only from April, 1909.

No. 2.—Abstract Statement of the Quantity of Woven Goods Produced.

[N.B.—The weight in pounds represents the weight of all woven goods; the measure in yards represents the equivalent of the weight of the grey and coloured piece-goods.]

	MONTH OF NOVEMBER			EIGHT MONTHS, APRIL TO NOVEMBER		
	1907	1908	1909	1907	1908	1909
British India.						
Bombay	13,866,422 pounds	15,407,473	16,875,837	104,490,187	103,012,932	127,008,287
	60,027,860 yards	65,452,685	70,735,292	456,882,787	451,281,008	549,072,657
	55,701 dozens	67,164	71,136	471,835	398,298	426,048
Madras	615,726 pounds	542,56	592,930	5,177,812	4,868,119	5,177,893
	2,040,972 yards	1,760,615	1,764,795	16,938,206	15,940,118	15,842,737
	1,233 dozens	1,530	1,311	9,763	7,620	10,567
Bengal	325,796 pounds	212,084	262,647	1,209,109	1,866,096	1,812,334
	1,067,630 yards	2,389,635	1,364,812	4,879,644	9,982,991	9,016,040
United Provinces of Agra and Oudh (also Ajmer-Merwara)	646,575 pounds	708,176	761,188	5,405,623	6,285,236	7,566,614
	2,459,744 yards	2,436,221	2,794,324	21,380,049	24,027,158	27,948,804
	2,183 dozens	3,175	3,214	30,137	21,625	36,226
Panjab	36,020 pounds	35,533	12,778	292,458	319,958	270,676
	97,064 yards	94,713	31,087	802,880	801,580	658,941
	46 dozens	234	32	983	3,370	2,075
Central Provinces and Berar	624,216 pounds	754,242	1,147,431	5,175,239	5,783,901	6,853,088
	2,563,905 yards	3,051,692	4,245,971	21,184,126	23,127,331	26,278,547
	338 dozens	684	765	5,901	3,453	4,219
TOTAL	16,114,755 pounds	17,661,364	19,652,811	121,750,428	122,139,152	228,688,942
	68,257,175 yards	75,188,561	80,936,281	522,067,692	523,160,186	628,817,726
	59,501 dozens	72,787	76,458	518,619	434,366	479,126
Foreign Territory.						
Native States of Indore, Mysore, Baroda, Nandgaon, Bhavnagar, Hyderabad, Wadhwan, and Pondicherry (a)	684,132 pounds	775,263	1,231,880	4,947,504	5,339,176	8,268,187
	2,634,186 yards	3,002,410	4,588,031	18,954,762	20,142,748	32,900,354
GRAND TOTAL	16,798,887 pounds	18,435,627	20,884,691	126,697,932	127,478,328	236,957,129
	70,891,361 yards	78,190,971	85,524,312	541,022,454	548,302,934	661,718,080
	59,501 dozens	72,787	76,458	518,619	434,366	479,126

(a) Including the production of one mill only from April, 1909.

WEEKLY TRADE MOVEMENTS.

For the week ending 15th January, 1910.

COTTON GOODS.

Twist and Yarn.

Foreign—	Calcutta lbs.	448,210
Imports by sea into	Bombay "	220,038
	Madras "	116,400
Indian—	Calcutta "	166,400
Exports by sea from	Bombay "	6,877,600
	Madras "	...

Grey Piece Goods.

Imports by sea from	Calcutta yds.	24,379,385
Foreign ports into	Bombay "	3,435,154
	Karachi "	316,831
	Madras "	925,328
	Rangoon "	210,753

White Piece Goods.

Imports by sea from	Calcutta yds.	5,613,964
Foreign ports into	Bombay "	5,317,801
	Karachi "	2,235,749
	Madras "	512,138
	Rangoon "	435,710

Other Piece Goods.

Imports by sea from	Calcutta yds.	3,039,751
Foreign ports into	Bombay "	6,668,887
	Karachi "	1,544,003
	Madras "	2,746,210
	Rangoon "	619,161

Piece Goods.

(Indian and Foreign.)

Despatches by rail from	Calcutta cwt.	256
	Bombay "	6,235
	Karachi "	14,703
	Madras "	3,793

Cotton, Raw.

Imports into Bombay	By sea cwt.	469
	Coastwise "	42,995
	By rail "	360,813
Imports into Karachi	By rail "	79,525
Imports into Calcutta by rail and river	"	* 11,723

* Incomplete.

JUTE.

Arrivals by all routes in	Calcutta cwt.	* 535,439
Exports by sea from	Gunny bags No.	9,299,890
	Jute cloth yds.	29,484,700
	Chittagong—Jute cwt.	351,550

COTTON SEEDS.

Exports by sea from Bombay	cwt.	346,541
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OIL SEEDS.

Linseed.

Imports into	Calcutta by rail and river cwt.	* 4,893
	Bombay By sea "	22
	Coastwise "	78
	By rail "	4,366
	Karachi by rail "	...
Exports by sea from	Calcutta "	4,390
	Bombay "	2,498
	Karachi "	...

Rape and Mustard Seed.

Imports into	Calcutta by rail and river cwt.	* 21,975
	Bombay By sea "	...
	Coastwise "	6
	By rail "	11,730
	Karachi by rail "	184,282
Exports by sea from	Calcutta "	27,211
	Bombay "	27,613
	Karachi "	157,584

RICE.

Arrivals by all routes in	Calcutta cwt.	* 134,868
	Calcutta "	181,423
	Chittagong "	80,344
Exports by sea from	Bombay "	7,436
	Karachi "	10,151
	Madras "	...
	Rangoon "	114,419

TEA.

Arrivals by all routes in	Calcutta lbs.	* 3,606,475
Exports by sea from	Calcutta "	3,880,471
	Chittagong "	...

WHEAT.

Imports into	Calcutta by rail and river cwt.	* 50,759
	Karachi by rail "	219,611
	Bombay By sea "	4
	Coastwise "	10,880
	By rail "	41,348
Exports by sea from	Calcutta "	118
	Bombay "	1,262
	Karachi "	220,736

EXPORTS—RUNNING TOTALS INCLUDING FIGURES RECORDED ABOVE.

	FROM APRIL		FROM JANUARY					
	1908.	1909.	1909.	1910.	1909.	1910.	1909.	1910.
	Wheat.		Linseed.		Rape and Mustard Seed.		Cotton Seed.	
Calcutta . . . Cwt.	45,937	3,376,645	48,156	10,439	7,687	39,273	Not reported.	
Bombay . . . "	77,549	2,638,051	16,607	25,994	6,030	59,330	682,551	1,137,296
Karachi . . . "	3,696,500	15,692,982	...	...	281,673	256,581	Not reported.	

KEROSENE OIL, WEEK ENDING 15th JANUARY, 1910.

Imports by sea into—	FROM			
	Russia.	America.	All other foreign countries.	TOTAL.
	galls.	galls.	galls.	galls.
Calcutta	...	...	508,041	508,041
Bombay	...	7,510	540,816	548,326
Karachi	...	...	...	...
Madras	...	...	...	...
Exports by sea from Burma to				
		Bengal	...	940,200
		E. B. & Assam	...	304,000
		Bombay	...	753,500
		Sind	...	...
		Madras	...	205,500
		Indian Ports, Non-Br.	...	...
		Foreign Ports	...	...

IMPORTS OF SUGAR, WEEK ENDING 15th JANUARY, 1910.

Country of Shipment.	REFINED SUGAR IMPORTED INTO						
	Calcutta.	Chittagong.	Bombay.	Karachi.	Madras.	Rangoon.	TOTAL.
	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.
United Kingdom	26	...	34	45	19	18	142
Germany	...	...	...	...	...	...	...
Austria-Hungary	...	...	13,440	...	...	...	13,440
Other European Countries	...	...	...	...	...	...	...
Java	59,098	...	1,794	22	...	...	60,914
Mauritius	4,579	...	81,621	3,275	...	...	92,475
Other Non-European Countries	...	...	333	...	...	3,019	3,352
Total refined							170,323
Total unrefined							...
Grand Total							170,323

RESULTS OF AUCTION TEA SALES IN CALCUTTA.

DISTRICTS.	SEASON 1909-10.				SEASON 1908-09.			
	Sold in sale of 14th January.		Sold to 14th January		Sold in sale of 15th January.		Sold to 15th January.	
	Packages.	Average price per lb.	Packages.	Average price per lb.	Packages.	Average price per lb.	Packages.	Average price per lb.
Assam	7,087	7 2-7	167,496	7 4-5	6,969	6 4-7	176,231	6 8
Cachar	6,332	5 11-8	147,190	5 10-2	4,710	4 11-3	128,483	4 11-8
Sylhet	4,238	5 11-3	99,648	5 9-8	3,359	4 10-4	101,596	5 0
Darjeeling	778	8 6-1	61,595	10 0-5	794	8 0-6	62,820	8 7-9
Dooars	4,173	7 3-9	187,048	6 10-8	5,103	6 2-6	180,569	6 0-4
Tera	420	6 2	17,524	6 3-3	909	4 7-5	24,999	5 1-6
Chittagong	406	5 9	7,319	5 10-6	117	4 1-2	7,270	4 11-4
Chota-Nagpore	...	...	1,678	6 7	56	3 6-5	1,703	5 3-4
Kumaon and Kangra	...	...	3,288	5 8-1	...	...	2,048	5 8-3
Madras	...	...	110	5 11-7	...	...	154	5 3-1
Dehra Dun	249	6 0	356	5 11-2	...	...	...	...
Nepal	91	6 2	608	6 2	204	3 6	756	4 10
TOTAL	23,774	6 8	693,860	6 10-6	21,321	5 8-7	686,629	6 0-5

(The above do not include second-hand Tea, damaged Tea and Dust from those concerns which sell only that grade on this market.)

Season 1909-10. Average price of 40,588 packages Dust* sold to 14th January

" 1908-09. " 39,308 " " " 15th

* On account of gardens which sell only that grade on this market.

A NEW RUSSIAN OIL FIELD.

CONSIDERABLE attention has been directed during the past few months to the petroleum deposits in the Maikop district of the Kuban Administration in South Russia.

The Maikop oil field is situated on the northern slopes of the Caucasus, about midway between the seaport of Touapse on the Black Sea and the town of Maikop. The distance from Touapse is about 50 miles, the road followed being one of more than ordinary excellence for Russia, owing to its having been constructed for strategic purposes. The oil field lies across the main road, the line of intersection being at the village of Hadijensky, which was the scene of one of the hardest fought battles in the conquest of the Northern Caucasus. Roughly extending in a north-west-south-easterly direction, the oil indications and outcrops occur over a distance of about 25 versts, or, say, 16 miles. The width of the outcrops become greater to the south-east, and it is in that direction that most of the drilling has been done up to the present. So far as limits can yet be assigned to the field, the river Pshecha appears to define the south-eastern extension. But, as the country is everywhere covered with dense oak forest, investigations into the geological aspect of the petroliferous series are much handicapped.

The thickness of the oil series is such as to indicate that the district will take a prominent place among the world's oil fields. As yet surprisingly little drilling has been carried out, and it is evident that through either incredulity, ignorance, or excessive caution local plot owners are preferring to wait while others prove the field and pay for the honour of being the first. Hitherto operations have been confined to shallow hand-drilled holes put down to elucidate the geology of the area, and to a few small steam-drilled wells. One of these, to the surprise of all concerned, struck a rich oil issue at less than 300 ft., and began to flow at the rate of about 5,000 tons a day. The fountain was so unexpected that many thousands of tons flowed to waste down the rivers before the well was plugged, as was only done many days after the gusher had caught fire and had converted the thickly wooded hillside into a raging furnace. Now, three months after the well first broke loose, a steady stream of oil is issuing between the columns of the casing and is being collected in open storages roughly made by damming up the valley in several places.

—The management of the Japan-British Exhibition to be held in London in May next has decided to adhere in the main to that classification of exhibits which was observed in the Franco-British Exhibition. A copy of the schedule of classification has been received and will be shown to persons interested on application at this office.

NOTICE.

The undermentioned publications can be purchased from the Statistical Department of the Custom House.

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H. F. HOWARD,
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23rd September, 1909.

THE "GALVO" FILTER AND WATER STERILISER ANTI-SPLASH.

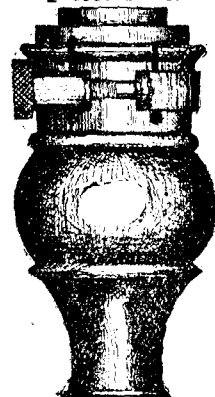
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I have passed through the "Galvo Filter" distilled water containing pure cultivations of the microbes of Typhoid Fever and Asiatic Cholera, and the filtered water was then tested by the ordinary methods of bacteriology, but in no instance did microbial growths make their appearance. The filtered water was free from microbes.

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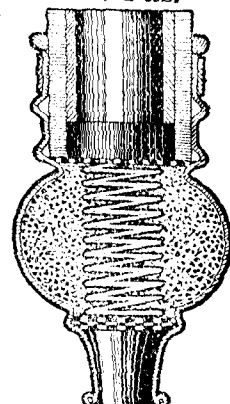
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Bacteriologist and Consulting Chemist,
Author of "A Manual of Bacteriology," &c.

To fit $\frac{3}{4}$ inch Taps
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PUBLISHED WEEKLY.



REGISTERED.

The Indian Trade Journal.

*Issued by the Commercial Intelligence Department,
India.*

VOL. XVI. No. 200.]

CALCUTTA, THURSDAY, JANUARY 27, 1910.

[ANNAS 4.]

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NOTES.

MONEY MARKET.

Wednesday Evening.

PRESIDENCY BANK RATES	Calcutta	6 per cent. (Dec. 9).
	Bombay	6 per cent. (Nov. 25).
	Madras	7 per cent. (Jan. 4).
EXCHANGE	On demand	1-4 $\frac{3}{4}$
	Telegraphic	1-4 $\frac{1}{8}$
	Transfers	
	3 months	1-4 $\frac{1}{4}$
	6 months	1-4 $\frac{3}{8}$
GOVERNMENT PAPER (3 $\frac{1}{2}$ per cent.) Rs. 94.		

The spot price of wheat at Karachi on the 22nd January was Rs. 34-8-0 per candy of 656 lbs. This is for white wheat on a basis of 30 per cent red wheat, 5 per cent barley and 3 per cent dirt; the price of bags included. The price of Indian grey yarn (20's) at Bombay on the 25th January was Re. 0-7-3 to Re. 0-8-0 per lb. and of Mutia Bhawnagar cotton, January delivery, Rs. 259 per candy of 784 lbs.

The wholesale spot prices of the undermentioned articles in Calcutta on the 26th instant were as under:—

Jute—C. D. M. and Co. (Red) Group	Nominal.
per 400 lbs.	
" M. per 400 lbs.	Rs. 82 8 0
Rice—Ballam No. 1 per B. md.	" 8 14 0
Moonghy "	Nil.
Linseed—Bold 4 $\frac{1}{2}$ per B. md.	Nil.
Rapeseed—Yellow, mixed, bold,	
Cawnpore, 4 $\frac{1}{2}$ per B. md.	Nil.

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CUMBALLA HILL, BOMBAY.

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(ESTABLISHED 1871.)

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F.O.B. MARSEILLES OR LONDON AND C.I.F. PRICES QUOTED ON APPLICATION.

Telegrams:—ASPHALES, LONDON. Code:—LIEBERS.

The total approximate gross earnings of State and Guaranteed railways from 1st April to the 8th January 1910 show a gain of Rs. 1,77,78,203 compared with the corresponding figures for 1909-10 and are less than those of 1908-09 by Rs. 34,85,135.

A Bombay correspondent states that in view of the high prices of cotton, it is proposed to move at the next meeting of the Bombay Mill Owners' Association to close the Bombay cotton mills for two days in the week.

In their weekly report on the Shanghai piece-goods market, dated the 30th ultimo, Messrs. Noel, Murray & Co. say:—The market for Indian yarn is unchanged, buyers and sellers maintaining their attitude towards one another, nothing having occurred to induce either to give way. Orders from the country are not very pressing and are easily satisfied with what the dealers have in hand. The only transactions reported are 29 bales *Tricumdass* (Mule) No. 16's at \$110.00 to a Kiukiang buyer and 600 bales E. D. Sassoon Mills *Drum and Bell* at \$113.00, an advance on the last prices of one tael per bale.

In its issue of January 5th, the *Manchester Guardian* says:—The International Federation of Cotton Spinners has had an interesting communication from its Secretary, Mr. Arno Schmidt, who is at present in India successfully endeavouring to bring the Indian cotton spinners into the Federation. Recent estimates suggest that the Indian cotton crop should yield an increase of about 1,500,000 bales over last year's, and though the Indian bale is only about four-fifths the weight of the American, such an increase should have a considerable effect on the cotton trade. We do not care much for this short-staple Indian cotton in Lancashire, and according to the latest returns of the International Federation our consumption last season was less than 70,000 bales; but Japanese and Continental spinners use it very largely. The price of cotton used in Lancashire is, however, affected by the supply of Indian cotton, which relieves the pressure of demand upon the lower qualities of American. Mr. Schmidt finds in India a "unanimous" opinion that more cotton can be produced there than America produces now, and it may be remembered that in the early days of the British Cotton-Growing Association similar opinions were expressed. Indian cotton-growing, however, is rather too big a matter for the Association, with its restricted funds, to undertake, and the Indian Government is quite capable of an enlightened policy. A very important question that has not yet been fully answered relates to the possibilities of improvement in staple, for, though it is certain that good cotton can be grown in some parts of India, it is not so certain that the general quality can be

greatly improved. Mr. Schmidt is studying this question, and will presently give to the trade his information. In India we do at least deal with big quantities, and a vast population might be available.

We have received a copy of a Note on **Combodia cotton in India** by Mr. P. Venkayya, Superintendent of Farms, Munagala Estate, in which he endeavours to illustrate the advantages of growing this long-stapled cotton in India both to the cultivator and the manufacturer. He states that the advantage and importance of Combodia cotton is that it is practically a hardy annual, and that it is sown exactly at the same time when all the country cottons are sown, and also ripens just within the same period like the rest of the Indian cottons; that it requires no irrigation and no special treatment; that it will also grow and flourish practically in any soil in this country on which the ordinary country cottons will grow and flourish, and that it also fetches a fairly higher price than any country cotton. At the same time Mr. Venkayya claims that it also solves the problem of long-stapled cotton for the manufacturer. It should be noted that in May 1908 a sample of Combodia cotton submitted by Mr. Venkayya was very favourably reported on by the Bombay Chamber of Commerce, who valued the cotton, properly ginned and packed in bales, at about Rs. 270 per candy.

The following return shows the number of bales of cotton imported and exported at the various ports of the United Kingdom during the week and 52 weeks ended 30th December, 1909:—

	IMPORTS.		EXPORTS.	
	Week ended 30th Dec., 1909.	52 weeks ended 30th Dec., 1909.	Week ended 30th Dec., 1909.	52 weeks ended 30th Dec., 1909.
	Bales.	Bales.	Bales.	Bales.
American	78,126	3,329,325	2,811	198,516
Brazilian	4,161	56,246	272	9,453
East Indian	1,901	115,107	81	36,413
Egyptian	22,028	559,608	3,544	121,858
Miscellaneous	1,893*	140,456†	158	9,957
Total	108,114	4,200,742	6,866	378,197

* Including 40 bales British West Indian, 106 British West African and 214 bales British East African.

† Including 6,358 bales British West Indian, 12,715 bales British West African, 11,702 bales British East African and 326 bales foreign East African.

NOTE.—Cotton "in transit" or "for transshipment under bond," if described as such in the ships' reports, is not included in this return.

The prices of British corn per quarter of 8 bushels, as received from the inspectors and officers of Excise in the week ended 1st January, 1910, were as follows:—Wheat, 33s. 3d.; barley, 25s. 1d.; and oats, 17s. 4d.

The Imperial Trade Correspondent at Perth (Mr. J. F. Conigrave) has forwarded the following estimate, by the Government Statistician, of the wheat crop results in Australia for 1909-10, together with the figures of the actual yield in the previous season:—

	1908-09 (Actual yield).		
	Wheat.	Oats.	Barley.
Area . . . acres	285,011	59,461	7,308
Yield . . . bushels	2,460,823	739,303	74,433
Average yield per acre . . . "	8.63	12.43	10.19

	1909-10 (Estimated yield).		
	Wheat.	Oats.	Barley.
Area . . . acres	446,124	70,798	9,908
Yield . . . bushels	5,878,529	1,283,071	125,928
Average yield per acre . . . "	13.18	18.12	12.71

In addition to these cereal crops, the hay harvest is likely to yield 168,399 tons, an increase of 17,467 tons on that of last year.

Respecting grain crop prospects in Russia, H. M. Consul-General at Odessa (Mr. C. S. Smith) has furnished the following particulars of the condition of the winter crops in Russia at the beginning of winter:—Over the Black Earth Zone, where the best and the most grain grows, there was a drought of about three months' duration which was most unfavourable for the sowing and germination of the winter crops. About the end of October good rains fell over large areas, especially in Bessarabia, Kherson, Ekaterinoslav, Kiev, Podolia, Poltava, Kharkov, Voronezh, Kursk, and the Don Territory, so that, where already sown, the drooping plants were revived to some extent and fields which had been despaired of partly recovered. In other parts the abnormal lateness of the sowings was partly remedied by favourable weather. Outside the Black Earth Zone sowings were as a rule at the normal time, and the winter crops had sufficient moisture and are reported to be very successful. In many Governments mischief by caterpillars, wireworms, or Hessian flies is reported, but the amount cannot yet be estimated. The general state of the winter crops appears to be unsatisfactory in Ekaterinoslav, Kharkov, Poltava, Don Territory, Kursk, Tula, Voronezh, Tambov, Penza, Simbirsk, Saratov, Samara, Astrakan, Orenburg, Viatka, and Perm, where only part of the lands of the large owners are more or less satisfactory and nearly all the lands of small farmers are quite

unsatisfactory. The condition is good in the Baltic, Pskov, Novgorod, Tver, Yaroslav, Smolensk, Mogilev, Minsk, Vilna, Kovno, Grodno, Volhynia, and Taurida Provinces. Elsewhere the condition is on the whole satisfactory.

Lord Strathcona, High Commissioner for Canada, on the 4th instant received the following bulletin compiled by the Census and Statistics Office at Ottawa, giving final estimates of production and value of the **Canadian field crops**, etc., dated December 27th. These estimates are based on the reports of a large staff of correspondents in every province of the Dominion. From the North-West Provinces, in addition to the regular correspondents, the office received reports from over one thousand postmasters:—An area of 30,065,556 acres of field crops has yielded a harvest which, computed at local market prices, has a value of \$532,992,100, as compared with \$432,534,000 from 27,505,663 acres last year. The principal grain crops of the country are wheat, oats, and barley, which this year aggregate in area 18,617,900 acres and in value \$263,710,000, against 16,297,100 acres and \$209,070,000 in 1908. Hay and clover from 8,210,300 acres have a value of \$132,287,700 against 8,210,900 acres and \$121,884,000 in 1908. Rye, peas, buckwheat, mixed grains and flax grown on 1,487,311 acres have a value of \$26,707,000, as compared with 1,525,700 acres and \$23,041,000 in 1908. The hoed and cultivated crops of beans, potatoes, turnips, and other roots, corn and sugar beets grown on 1,449,745 acres have a value of \$84,852,500, as compared with 1,471,913 acres and \$78,535,000 last year. Fall wheat, with a yield of 24.31 bushels per acre, shows a value of \$23.93 per acre, as against 24.40 bushels, and \$21.10 in 1908. Spring wheat, with 21.25 bushels, shows \$17.70, against 16 bushels and \$12.84 in 1908. The averages for both crops are 21.51 bushels and \$18.23 per acre, against 17 bushels and \$13.80 per acre in 1908. The total value of the wheat harvest in the North-West Provinces is \$121,560,000 and in the rest of the Dominion \$19,760,000, as compared with \$72,424,000 and \$18,804,000 last year. The condition of the new crop of fall wheat this year was 93.53 of a standard, as compared with 75 per cent. last year. In Alberta there is an increase of 21 per cent. fall wheat seeding, and in Ontario an increase of nine per cent. over the area shown last year.

The *Corn Trade News* gives the following summary of the world's crop as on the 4th instant:—**United States of America**—Winter wheat reports generally favourable, but Kansas State Bureau estimates condition 81 per cent against 95 last year. Reports of interior supplies conflicting. **Canada**—Some estimates give interior supplies light. **Argentina**—Official estimates wheat crop liberal, but not believed; some unofficial surplus estimates low, and latter receive some confirmation from firmness of

market and scanty offers. Official estimate linseed 4,750,000 qrs., against 5,750,000 in 1908; oats 4,550,000 qrs. against 6,100,000. Our cables give weather fine, others have mentioned rains delaying threshings, etc. *Australia*—Crop movement slow, but liberal chartering confirms good crop. *New Zealand*—Harvest prospects maintained. *India*—Crop conditions good, official estimates wheat acreage shows 3 per cent increase. Interior reserves last wheat crop estimated one-third total harvested. *Russia*—Weather turned mild again, especially in southern regions where frost needed check growth. Bad roads hinder arrivals, markets firm. *Roumania*—Weather mild, favourable; crops must be fed off some parts, maize meets good demand. *Hungary*—Weather mild, spring-like; crops favourable, but drier seasonable weather wanted. *Germany*—Weather mild, crops all right, but present mildness causes some anxiety about future. Native wheat plentiful but much inferior quality. *France*—Weather finer, complaints of crops fewer, markets firm. *Italy*—Crop reports favourable, weather mild, rainy. Wheat supplies plentiful. *Spain*—Colder weather wanted check growth of crop, market firm. *United Kingdom*—Weather mild but drier; reports of new crop fair.

Writing on January 4th, the *Manchester Guardian* says:—The market for standard copper has been steadily gaining strength during the past week, and on Friday the manufacturers of tubes, sheets, etc. announced an advance of $\frac{1}{4}$ d. per lb. and £2 per ton, which had been delayed from Tuesday, when it was really due in view of the actual price of the raw metal. The upward movement in copper has now lasted about a month, having begun on December 6th, and the gain, almost without any set-back, totals £3 10s. per ton. It appears to be associated mainly with two things, viz., the attempt to regulate the output, and the progress of negotiations with respect to the "merger" or combination of copper interests in America. There have been perhaps other subsidiary helps to the market, as, for instance, the extraordinary strength of the tin market, which has risen within the same period by £10 per ton, and also the better feeling in the iron and steel markets, where advances of 2s. to 3s. on pig-iron and 5s. to 7s. 6d. on steel have taken place. At present the actual business in manufactured copper and brass has not been promising, although a good speculative business in warrants has been done. There is, however, a hopeful feeling with regard to the new year, and it is as yet impossible to say whether this is wholly sentimental. At present the output of copper is greater than the consumptive demand, and until this position is reversed it should not be possible to raise prices very much.

The following figures represent the quantity and the value of gold and silver imported from, and exported to, foreign countries, into and from British India during the month of December, 1909:—The

total imports of gold were 932,260 ozs. valued at Rs. 5,63,71,550; of these 254,087 ozs. priced at Rs. 1,62,32,082 represented bullion, 674,174 ozs. worth Rs. 3,99,06,774 represented sovereigns and other British gold coin, and 3,999 ozs. valued at Rs. 2,32,694 represented other coined gold. The exports of gold totalled 53,916 ozs.* in quantity and Rs. 30,72,604 in value, and of these 52,848 ozs. valued at Rs. 30,09,902 represented bullion, 1 oz. worth Rs. 45 represented sovereigns and other British gold coin, and 1,067 ozs.* priced at Rs. 62,657 represented other coined gold. The aggregate imports of silver were 10,055,705 ozs. priced at Rs. 1,62,05,997; of these 9,907,589 ozs. valued at Rs. 1,58,12,568 represented bar, 146,865 ozs. worth Rs. 3,91,641 represented Government of India rupees and 1,251 ozs. valued at Rs. 1,788 represented other coin. The total exports of silver were 3,224,505 ozs.* valued at Rs. 57,19,499; of these 7,666 ozs.* worth Rs. 27,680 represented bullion, 646,876 ozs.* priced at Rs. 17,25,043 represented Government of India rupees, 2,192,527 ozs. valued at Rs. 33,06,651 represented British dollars, and 377,436 ozs. worth Rs. 6,60,125 represented other coin. During the month the net imports of gold amounted to Rs. 533 lakhs, and of silver amounted to 104.87 lakhs of rupees. The figures marked with an asterisk * are defective, the weight of certain postal parcels not being declared by the Post Office.

Messrs. Wenz, of Rheims; who furnish important cable news to the wool trade, in their latest circular write as follows:—"The increase in the wool production this year in Australia will hardly compensate for the decrease at the River Plate, so that there need be no fear that an over production might exercise an influence in the consuming centres." Messrs. Wenz possess a great advantage in expressing an opinion about exports from the River Plate, as they have agents in both Argentina and Uruguay who can supply them with first-hand information. Messrs. Wenz have not ventured an opinion up to the present as to what the Australian increase is likely to be whilst Messrs. Dalgety think it will amount to 87,000 bales. Every mail we receive brings more advices which indicate that the exports of wool from the Commonwealth during the present wool-year will exceed those of its predecessor by not less than 200,000 bales. Now as a River Plate bale is about twice as heavy as an Australian bale it follows that if Messrs. Wenz adopt Messrs. Dalgety's estimate the decrease in the exports from Argentina and Uruguay this season will be about 45,000 bales, but if they accept our estimate then the falling off in the size of the River Plate clip this wool-year will be about 100,000 bales. For ourselves we shall believe in a large decrease in these South American exports when it has actually occurred.

In a letter to the *Times* of January 7th, a correspondent says:—The attempt made a few weeks

back, by some landowners, farmers, and business men in the neighbourhood of Sleaford to raise capital for the first beet sugar factory in England has been a failure. Only about £20,000 was obtained by public subscription out of the £126,000 wanted, and, though the German contractors for the plant subsequently offered to take £10,000 of their payment in shares, whilst a firm of sugar importers in the eastern counties offered to apply for another 10,000, and other considerable sums could also have been obtained, it was found impossible to place the balance of about £60,000 before it became necessary to return subscriptions.

The daily prices of opium per chest for the periods mentioned below were as follows:—

For the week ending 22nd January, 1910—

In the Calcutta market—

Behar opium—Rs. 2,210; 2,205; 2,195; 2,160; 2,176; 2,195; 2,195.

Benares opium—Rs. 2,195; 2,190; 2,180; 2,150; 2,160; 2,180; 2,180.

The prices in the time bargains for the Behar opium of the 2nd sale of 1910 were Rs. 2,215; 2,210; 2,200; 2,165; 2,181; 2,200; 2,200.

In the China market—

At Hongkong—(Exchange Rs. 133 to 133½ per \$100.)

Behar opium—\$1,710; 1,710 and 1,725; 1,710; 1,710; 1,690 and 1,700; 1,700; 1,700.

Benares opium—On the 17th, 18th and 20th instant \$1,725; 1,710; and 1,690 respectively.

At Shanghai—(Exchange—No quotations received.)

Behar opium—No quotations received.

Benares opium—No quotations received.

For the week ending 15th January, 1910.—

In the Bombay market—

Both on the 9th and 10th instant (new, 1909-10) Rs. 1,775; (new, 1908-09) Rs. 1,800 to 1,875; and (old, 1907-08) Rs. 1,900 to 1,935; from the 11th to the 15th instant (new, 1909-10) Rs. 1,775; (new, 1908-09) Rs. 1,400 to 1,902; and (old, 1907-08) Rs. 1,975 to 2,025. The latest prices at Hongkong and Shanghai were (new) Rs. 1,796 and 2,092; (old) Rs. 1,902 and 2,127 respectively.

The Post Office has issued a notice announcing a reduction in the rates of postage on parcels sent by post from India to Canada. The postage on such parcels sent *via Gibraltar* is now Rs. 1-4-0 for a weight not over 3 lbs., Rs. 2-8-0 for a weight exceeding 3 lbs. but not exceeding 7 lbs., and Rs. 3-12-0 for a weight exceeding 7 lbs. but not exceeding 11 lbs. In the case of parcels marked by the senders for transmission by the overland route, the new rates of postage for the three weights in question are Rs. 2-0-0, Rs. 3-4-0, and Rs. 4-0-0 respectively.

Applications in respect of the following new inventions were filed in the Patent Office, Calcutta,

during the week ending 17th January 1910:—Noble's Explosives Co., Ltd., Glasgow—Improved explosive composition. A. V. Linley, manufacturer, W. H. Owensmith, works manager, and J. Edwards, tinsman, all of Bourne Works, 73 to 75, Great Lister Street, Birmingham—An improved burner for petroleum and the like. L. Lumiere, manufacturer, 262, Cours Gambetta, Lyons, France—Improvements in diaphragms for acoustical instruments. R. Scherl, engineer, and P. Frohlich, of Zollnerstr 37, Dresden, Germany—Improvements in or relating to gyroscopic mechanism. F. G. C. Rincker, engineer, Linneensparkweg 2, Watergraafsmeer, near Amsterdam, and L. Wolter, chemist, Kerkstraat 35, Amsterdam—Improved method of producing gas from tar, oil or the like in gas producer plant. J. N. Bailey, engineer, 34, Harriet Street, Stretford, Lancashire, England—Improvements in and relating to the prevention of leakage in pneumatic tyres and other articles containing gas or fluid under restraint. Clancy Metals Process Co., No. 170, Broadway, New York—Treatment of precious metalliferous ores. W. H. Hoyle, cotton spinner, 86, Chorley New Road, Bolton, England, and T. Barker, consulting engineer, 352, Church Road, Smithills, Bolton—Improvements in winding, doubling, gassing and such like frames and in appliances to be used therewith. Badische Anilin und Soda Fabrik, Ludwigshafen-on-Rhine, Germany—Improvements in the absorption of oxides of nitrogen. W. Fisher, engineer, North Tawton, Devonshire, England—Improvements in and relating to rotary engines. F. Cotton, engineer, Hornsby, New South Wales, Australia—An improved method of and means for burning fuel for firing steam boilers. R. A. Fessenden, engineer, Braut Rock, Massachusetts, United States of America—Improvements in methods of utilising radiant energy. H. Diamant, physician, 2, Church Court, Clements Lane, London, England—Process of and apparatus for obtaining on a screen luminous projections visible in full light. S. J. Earl, of 265, Strand, London, England—Improvements in and connected with compounds for treating the surfaces of and making roads, paths, and the like. W. W. Farnsworth, Seranton, Mississippi, America—Cotton picking machines. F. Herbert, consulting engineer and foundry expert, 853, South Seventh Street, Coshooton, Ohio, America—Pipe foundry plants. W. M. Still, manufacturer, and A. G. Adamson, engineer, both of 24 Charles Street, Hatton Garden, London—Improvements in the manufacture of incandescent mantles. O. Sensenbrenner, manufacturer, No. 73 Arminiusstrasse, Dusseldorf-Oberkassel (Germany)—Improvements in combined evaporating and condensing apparatus for ice-making machines. P. L. Robertson, manufacturer, No. 76, Main Street, West, Hamilton, Ontario, Canada—Improvements in manufacture of screws. H. J. W. Oates, mining engineer, Umari, Rawah State, Central India—Improvements in automatically disengaging clips for attaching articles to a moving rope.

We hear that a **branch of the Imperial Bank of Persia** is being opened at **Mohammerah**.

The **weather conditions** in India during the week ended Tuesday last were marked by the recovery of the temperature from the effects of the recent cold wave. The weather was dry over the whole of the Peninsula.

Mr. Milligan, Deputy Director of Agriculture, Punjab, has issued a report on the working of the **new reaping machine** which has been introduced into the Punjab canal colonies, and it is satisfactory to learn that the new pattern "cornside" has, after a thorough test, been quite successful and "has removed", to use Mr. Milligan's words, "the last remaining drawback to reaping by machinery. We learn from the report that out of 48 machines (old and new) 43 were successfully worked during last year. Figures are given as regards the working of 31 machines and these indicate that the results were very satisfactory. Two features of the introduction of the machines into the Punjab are mentioned by Mr. Milligan; the first was that the machines were almost entirely taken up by Sikhs, and the second was the co-operative purchase of several of the machines.

In the *Indian Trade Journal* of January 25th last year (p. 74) we referred to a new wheat winnower made to the specification of the Director of Agriculture, Punjab. Mr. Milligan now reports on the result of the trials of the "**Raja**" winnowing machine, which was built for the Punjab Agricultural Department by a Glasgow firm for the rough separation of the mixture of short straw (*bhoosa*) and grain as it comes from the threshing-floor after being trodden out by bullocks. This machine is considered by the Deputy Director of Agriculture as the best he has seen for the purpose, but by no means the best grain cleaning and dressing machine available. The machine (which costs about Rs. 150) requires four men to work it, and is capable of dealing with about 18 cwt. mixed grain and straw per hour. Mr. Milligan states that a design for a machine to work with coarser and longer straw is being completed.

With effect from the 1st proximo the following **regulations** will be enforced in **Ceylon** in connection with the **import of tea seed**:—No tea seed shall be imported into Ceylon from any place in India, except at the port of Colombo. All tea seed imported into Ceylon from any place in India shall be subject to a process of disinfection, unless accompanied by a certificate from a Scientific Officer either of the Indian Tea Association or of the Imperial Department of Agriculture to the effect that it is the product of a district which is not infected with the leaf disease called "**Blister Blight**" (*Exobasidium vexans*). Tea seed imported from

any place in India unaccompanied by such a certificate shall not be admitted into Ceylon unless packed in bags. The process of disinfection will be carried out at the risk of the consignee.

The Government of Bombay has had under consideration the question of instituting an **industrial survey** of the **Bombay Presidency**, and has examined measures recently initiated in other provinces in India for studying the industrial position and possibilities of those areas. The first industry selected for survey was the handloom industry of the Presidency, and Mr. P. N. Mehta, recent holder of the Government of India's Scholarship for the study of the textile industry in England, was selected for it. The Government has now decided to institute a survey of the **leather industry** of the Presidency. No expert with sufficient knowledge of this industry being available in the Presidency, the Governor in Council has selected Mr. Guthrie, who, besides having studied the chemistry of tanning at Leeds, had seven years' experience of all branches of the leather industry in India. Mr. Guthrie will be employed for a term of six months from the beginning of January, 1910. He is asked to report on several points, and in particular the following are to be fully dealt with:—(1) Supply of **hides and skins**, and conditions in which they reach the tanner. (2) **Tanning processes** at present practised, both in large establishments and at small works. (3) Disposal of leather by tanners. (4) Manufacture of leather goods. (5) Economic condition of workers at all stages of the various processes.

The Commissioners of the Port of Calcutta have published the **Administration Report of the Deputy Traffic Manager** for the twelve months ended 31st March, 1909. It is excellently arranged and gives a most interesting summary of the work done in the **Kidderpore Docks**. The statistics indicate an encouraging increase in traffic in the face of several unfavourable conditions. The number of vessels entered and cleared was 906, which is three more than in the record year of 1906-07 and 29 more than in 1907-08. The average tonnage of the vessels was 4,323 tons and the totals 3,916,683. The total export tonnage shipped in the Docks was 4,658,380 tons, which, with 543,363 tons imports landed on quay, makes a grand total of 5,201,743 tons. The statement regarding the number of days in which each berth was occupied really averages something like 251. This, though greater than in 1907-08, is less than in 1906-07; and it is explained that the latter discrepancy arose from large arrivals of such easily handled cargoes as rice and sugar. An interesting statement is that which names the foreign ports for which vessels sailed from Kidderpore. Among ports of ultimate destination London holds first place with 129 vessels. The United Kingdom figures at 188, Northern Europe at 124, the

United States at 102, South America at 7, and Australia at 47. A similar statement shows the ports to which coal was shipped and a total of 2,971,174 tons, which is 22,000 tons greater than in the previous year but 29,000 less than in 1906-07. The report contains some useful curve-charts and a number of illustrations which diversify the array of figures with which it is packed.

Writing on December 15th, a correspondent in Persia states that the **road from Shiraz to Bushire** had been **completely closed** since the 10th December by a **band of robbers** who established themselves on the Sine Safid Pass, between Dashtarjin and Khaneh Zinian. On the 12th they sent in a message to Dashtarjin to the effect that if the caravans collected there, said to amount to 400 mules, did not come out and be robbed, they would be raided in Dashtarjin, but up to the time of writing they had not carried out their threat. The post which left Bushire on December 2nd was then at Dashtarjin, and that of December 6th after an unsuccessful attempt to reach that place returned to Kazeroon. Two robberies of British goods were reported in the second week of December.

NOTICES.

CALLS FOR TENDERS.

Coal.

The Director of the Royal Indian Marine, Bombay, is calling for tenders up to the 15th proximo for the supply of 10,000 tons of Indian steam coal for Bombay, 7,000 tons for Calcutta, 9,000 tons for Rangoon, 2,000 tons for Karachi, 900 tons for Colombo and 400 tons for Madras.

Arsenal Stores.

The Ordnance Officer in charge, Rawalpindi Arsenal, is calling for tenders up to the 8th proximo for petty stores such as blankets, brushes, buckets, cordage, timber and wool.

Grain and Bran.

The Divisional Contract Officer, Mhow, is calling for tenders up to the 4th proximo for the supply of grain and bran.

Standing Timber.

The Extra Deputy Conservator of Forests, Sib-sagar Division, is calling for tenders for the purchase of 1,985 trees that have been marked for felling.

Podophyllum.

The Assistant Conservator of Forests, Hazara Division, is calling for tenders up to the 15th

proximo for the purchase of the whole or part of this season's crop of podophyllum emodi, estimated at about 34 maunds.

ENQUIRIES.

(For particulars address the **Director-General of Commercial Intelligence**, 5, Olive Street, Calcutta.

An asterisk (*) preceding an enquiry indicates that bank references are offered.)

Paper and Stationery.

(584)—A London firm desires to be placed in communication with importers of paper and stationery.

Hand-loom.

(585)—A correspondent requires the addresses of Calcutta firms in a position to supply fly-shuttle hand-loom.

Butter and Ghee Substitutes.

(586)—A joint-stock company in England owners of the rights in a process for the manufacture of vegetable butter, is prepared to discuss with a firm of position in India the question of equipping a factory to manufacture stearines and substitutes for ghee and butter.

BOOKS OF REFERENCE.

The following publications have been received and may be consulted by any desirous of studying them at the Office of the Director-General of Commercial Intelligence, 5, Clive Street, where they will be displayed in the ante-room till Wednesday, the 2nd February, 1910:—

Parliamentary Publications.

Agricultural Statistics, 1908, Vol. XLIII—Part IV—Colonial and Foreign Statistics. Canada and the West Indies—Royal Commission on Trade Relations between—Minutes of Evidence taken in Canada, and Appendices. United Kingdom—Accounts relating to Trade and Navigation, December, 1909.

Foreign and Colonial Publications.

Australia—Monthly Statistical Bulletin of New South Wales, November 1909. Canada—Weekly Trade Report, dated 27th December, 1909—Laboratory of the Inland Revenue Department, Bulletin No. 191—Bran, Shorts, Chop-feed—Bulletin No. 192—Copper in Vegetables. France—Chabrieres, Morel and Co.'s Review of the Silk Market in 1909. Germany—Auswärtiger Handel im Jahre 1908, Band 196. Heft I, II, Band 198, Heft I to IV.

Indian Publications.

Department of Agriculture, Eastern Bengal and Assam—Report on the Operations of—for the year ending the 30th June 1909.

BUSINESS NOTICE.

All correspondence and remittances relating to the supply of the "INDIAN TRADE JOURNAL" should be forwarded to the Superintendent, Government Printing, India, Calcutta, to whom all bills are payable.

Correspondence regarding advertisements in the "INDIAN TRADE JOURNAL" should be addressed to Reuter's Telegram Co., Ltd.; but all advertisements, blocks, etc., must be approved by the Director-General of Commercial Intelligence before insertion.

Retail trade advertisements cannot be accepted.

A full index is published as a quarterly supplement and should be filed for reference.

The annual rates of subscription to the "INDIAN TRADE JOURNAL" including quarterly index, are Indian, without postage, Rs. 12; with postage, Rs. 13; Foreign, Rs. 18. Single copies, 4 annas.

Subscribers and advertisers in the United Kingdom may remit either through a bank or by money order. For the purpose of postal remittances, one penny should be taken as the equivalent of one anna, and 1s. 4d. as the equivalent of one rupee.

Back numbers, when available, may be had at a cost of Re 1, for any number more than a week old.

The Indian agents of the "INDIAN TRADE JOURNAL" are:—Messrs. Thacker, Spink & Co., and Newman & Co., Calcutta; D. B. Taraporevala, Sons & Co., Bombay; Higginbotham & Co., G. A. Natesan & Co., and Kalyanarama Iyer & Co., Madras; Thacker, Spink & Co., Simla; Rai Sahib M. Gulab Singh & Sons, Lahore; and A. M. & J. Ferguson, Ceylon.

The Indian Trade Journal.

THURSDAY, JANUARY 27, 1910.

MANUFACTURE OF TANNIN EXTRACTS.

In our issue of January 13th we drew attention (a) to the large quantities of tanning materials that are exported from India, (b) to the large extent to which waste materials enter into the constitution of these substances, (c) to the difficulty now being felt in some parts of India in transporting such waste profitably over the greater distances to which tanners have now to range for their materials, and (d) to the fact that an opening for the manufacture of tannin extracts in this country might be regarded as indicated by the conditions stated. We pointed out that such an industry would address itself not only to tanners in this country but to buyers abroad and would have the advantage of not putting all its eggs in the basket either of the internal or of the foreign market. The names of the considerable tanneries in India are obtainable from Indian directories. This Department has now prepared a list of the principal tanneries in those

countries to which India ships the largest quantities of tanning materials. This list will be shown to persons interested who may call at this office. It is probable that a reference to the firms named would elicit useful information as to the extent and nature of the demand likely to be found abroad. We would remind our readers at the same time that the Department has received the names of certain firms that make machinery and appliances for the preparation of tannin extracts. We may add that a firm in India which has already some years' practical experience in the preparation of such extracts has intimated its readiness to negotiate with other firms of position with a view to co-operation.

SUGAR MANUFACTURE IN INDIA.

ONE of the leading makers of sugar machinery in Glasgow has published a pamphlet devoted to the Cane Sugar Industry in India. It describes the process at present practised in this country and makes the following comments:—

"This process of manufacture, from the time the canes enter the mill until the white sugars are removed from the washing pot, is associated with enormous waste of sugar. Although the crushing done by these small mills may be good—excellent results are obtained by small mills of this stamp when the manipulation of every cane is carefully superintended, laboratory mills, for example, always giving results not obtainable on a larger scale—directly the supervision is relaxed, directly the watchful eye of the owner of the cane is removed from the mill, the extraction is almost sure to become very bad. Data on the subject of extraction are few and conflicting as regards India, but it is very doubtful, judging by similar work carried out elsewhere, whether 55 per cent of juice is not too high a figure to assign to the average extraction by these mills with average cane. This means, taking the total juice present as 88 per cent of the cane, that nearly 40 per cent of the juice is not extracted of which 80 per cent is recoverable by modern milling. In other words, a third of the extractable sugar of the cane is lost in the East Indian small mills.

"The above only represents the loss by milling. Further and important preventable losses occur in the boiling process. It is well known that the higher the temperature of a sugar solution and the longer the time to which it is exposed to it, the greater the destruction of crystallizable sugar. By

the time the syrup has come to the necessary density, its temperature will be not less than 250° F., and at this temperature much injury is done to the sugar. Again, the "skimings" from the clarification contain a certain amount of sugar, which is lost in this process. When the refining operation takes place, the loss from the reboiling and washing becomes enormous. No matter how carefully the operation is conducted, no matter how often the molasses and washings are reboiled—and in open boiling a limit in this direction is soon reached—there is inevitable loss, not the less because there are no data as to its extent. While there is no direct evidence as to the above losses, this question can, however, be approached from another point of view. Reliable data exist that as much as 20 to 25 tons of canes are taken to yield a ton of white sugar. Taking the sugar content of the cane at the relatively low figure of 12 per cent, this means that 2·7 tons of sugar in the cane only give one ton of white sugar—in other words, that only 37 tons of white sugar are made from 100 tons of sugar in the cane. A modern fully equipped factory would obtain 65 tons, apart from second sugar products!

"There is no possibility of doubt that the bulk of the sugar manufacture of India is conducted in a manner that spells enormous losses of sugar—losses which would not occur were the manufacture conducted on modern lines. There is great difficulty, however, in dealing with the subject, due to the small, and in some instances, isolated character of the holdings. To advocate for the cane grower, who grinds but a ton or two of canes a day, a plant of modern machinery would be absurd.

"The remedy for this condition of things, which is universally recognized as correct throughout the sugar world, is the establishment of the large central factory system, based on the amalgamation of growing interests and the centralization of manufacture. In this system all the manufacturing benefits of a large complete modern factory are obtained at a cheap cost of production, while growers receive a proportionately high value for their canes. At present much of the crude sugar produced by the native process is refined. It would be much better to deal with the cane direct than with a product the character of which has been so prejudicially affected by crude manufacture."

It is to be regretted that the writer did not expose at the same time the losses that arise from chemical decomposition of the sugar in the cane

during the long interval between cutting and crushing in this country. It has come to be assumed by many persons interested in the subject that there is no hope of bringing about a more centralised system of cane cultivation in India, and that the losses arising from sparse cultivation are therefore inevitable and need not be discussed. But if these losses be in themselves sufficient to place the industry in this country at a fatal disadvantage, it would seem desirable that they should be stated and emphasised. It may ultimately be found impossible to get over the difficulties inherent in the system of cultivation, but similar difficulties have been got over in Formosa, and it is not desirable to blink the urgency of the need for an effort to overcome them in India.

TARIFF CHANGES AND CUSTOMS NOTIFICATIONS.

THE Board of Trade Journal, published on the 6th instant, in the section relating to Tariff Changes and Customs Regulations, gives particulars about:—

CAPE OF GOOD HOPE.—Proposed Excise Duties on Spirits, etc.

DOMINION OF CANADA.—Dumping Duty on certain Galvanised Plate, and Black Plate.

COMMONWEALTH OF AUSTRALIA.—Customs Decisions. Revised Customs Regulations.

STRAITS SETTLEMENTS.—Amendment of Petroleum Ordinance, 1908, and date of operation thereof. Imposition of Duty on Petroleum.

RUSSIA.—Foreign Goods in Russian Far East. Duty-free admission rescinded. Exemption of certain Chinese Goods.

GERMANY.—Continuation of Most-Favoured-Nation Treatment to the United Kingdom.

SWITZERLAND.—Customs Decisions.

FRANCE.—Admission of Sirloins of Beef apart from the Animals from which they are cut. Duty-free Imports of Olive Oil from Tunis.

MONTENEGRO.—Regulations concerning the Free Port at Antivari.

We give the following particulars of changes interesting to Indian trade:—

STRAITS SETTLEMENTS.

Petroleum Ordinance, 1908: Amendment of: and date of operation thereof.

The Straits Settlements Government Gazette Extraordinary for 26th November contains the text of an Ordinance (No. 18 of 1909) to amend the law relating to the carriage and storage of petroleum and other inflammable oils and liquids in the Colony of the Straits Settlements. The present Ordinance brings into operation the provisions of the Petroleum Ordinance of 1908 on the 26th November 1909 (for which see pp. 566-7 of the Board of Trade Journal of 17th December 1908). It also provides, *inter alia*,

that no petroleum contained on board any vessel in properly constructed bunkers or receptacles, and used solely as the propelling power of such vessel, shall be deemed to have been imported or exported contrary to the provisions of the Petroleum Ordinance. All petroleum which, on being examined and tested, according to prescribed rules, is found to have a flashing point higher than 150° F. is exempted from the provisions to the Petroleum Ordinance.

Duty on Petroleum : Imposition of.

The same issue of the *Gazette* contains the text of further Ordinance (No. 19 of 1909), dated 26th November, 1909, which provides for the imposition and collection of a duty on petroleum and other inflammable oils and liquids in the Straits Settlements. Under this Ordinance, all petroleum taken out of any vessel in which it has been imported must, unless intended for transshipment only, be forthwith taken direct from such vessel to a dutiable petroleum store; and no such petroleum may be removed therefrom without a permit issued by the Port Officer in prescribed form. All petroleum removed from a dutiable petroleum store, otherwise than for export, is to be subject to a duty of 5 cents per gallon. No permit will be issued for the removal for export of dutiable petroleum in less quantities than 3 cases, or 24 gallons, at one time. The word "petroleum" includes the liquids commonly known by the names of rock oil, Rangoon oil, Burma oil, kerosine, paraffin oil, petrol, gasoline, benzol, benzoline, benzine, naphtha, or any like inflammable liquid whether a natural product or one that is made from petroleum, coal, schist, shale or any other bituminous substance, or from any products thereof, but does not include any liquid or substance which has a flashing point higher than 150° F., as ascertained in accordance with the provisions of the "Petroleum Ordinance, 1908."

EASTERN BENGAL AND ASSAM.

Crop Reports.

(By Telegram.)

Shillong, Jan. 25th.

The following is a summary of the weather and crop reports of Eastern Bengal and Assam for the week ending 24th instant :—

The weather is dry. There has been no rain except light showers on and near the hills.

The reaping of winter rice continues, and transplantation of spring rice is in progress.

The harvesting of mustard and sugarcane is going on; that of pulses is nearly finished.

Fields are being prepared for jute.

The prospects of tea, wheat, tobacco and sugarcane are good; mustard and pulses fair.

The average price of common rice has fallen by one per cent.

Cattle disease is reported in Dacca, Rajshahi, Darrang and Sibsagar.

CHAMBERS OF COMMERCE.

BENGAL.

THE details below are taken from the abstract of the proceedings of the Bengal Chamber of Commerce for the month of December, 1909 :—

Payment of Money-orders.

Reference was made in the Abstract for October to a case in which the payment of a money-order was delayed for eight months. The delay entailed a loss to the remitter of Rs. 50 for interest. The remitter was an employé on a tea estate in the Doorgas; and the Indian Tea Association drew the attention of the Director-General of the Post Office to the case. The Association asked that the remitter might be compensated for the loss which he had incurred; and the Committee of the Chamber supported this request in a representation which they made to the Director-General. On the 22nd December the Director-General replied to the effect that the Post Office could not accept liability in such a case. The Post Office is expressly exempted by law from responsibility for delay unless such is due to fraud, or wilful act, or default, on the part of a postal official. In the case in point no postal servant was guilty of fraud or wilful act or neglect. The delay was due to the failure of the remitter to bring to notice the fact that he had received no acknowledgment from the payee, and to an error of judgment on the part of a postal servant. In such circumstances the Director-General was debarred from admitting any pecuniary liability. In remarking upon the case generally, he pointed out that, of every thousand articles entrusted to the Post Office, nine hundred and ninety-seven are correctly dealt with. This is not a record to be ashamed of, considering the nature of the agency which the department often has to employ in small places.

It did not appear to the Committee that they could usefully move further in the matter, in view of this explanation.

Calcutta Court of Small Causes.

The Judges of the Small Cause Court have recently consulted the Committee with reference to certain proposed new rules of practice for the Court. These rules had been drafted for submission to the High Court. Apart from a few amendments, which have suggested themselves in the course of the ten years during which the existing rules have been in operation, no important alterations are included. But the principal object in view is to bring into force the provisions of the new Code of Civil Procedure, in place of the corresponding provisions of the old Code which were, by reference, made a part of the old rules. The Committee approved of the rules generally, subject to certain suggestions in regard to particular clauses. But they remarked that the incorporation of the provisions of the Civil Procedure Code by reference has the effect to some extent of making the rules complicated and difficult to follow, and possibly of rendering them not too easy of comprehension, at least to suitors in person.

It would be much more convenient and satisfactory if the substance of the applied sections of the Code could be put in the form of substantive rules applicable to the Small Cause Court only. The Committee recognised that this might be a task which the Court would not be prepared to undertake at present, but they were of opinion that the suggestion was worthy of consideration.

Measurement of Jute.

In accordance with arrangements which have been in force for many years, the bulk of the jute exported from Calcutta is measured at the press houses by the Licensed Measurers' Department of the Chamber on behalf of the Steamship Companies. From the point of view of the steamship owner, this system has some disadvantages, as it makes no allowance for the expansion which always takes place between the time when the bales leave the press house and when they are placed on the deck of the steamer. The question of changing the system has been under discussion of late, and the Liners' Conference has proposed that all jute should be measured and weighed alongside: that is to say, at the docks for vessels loading there, and on the deck of vessels loading in the stream. The attention of the Committee was drawn to this proposal by the Licensed Measurers' Department, and they have considered it in conjunction with the following clause of the Tonnage Schedule, namely :—"2. That measurement be taken at the place of shipment, i.e., exporting wharf, jetty, or press house where adjacent to place of shipment at measuring Superintendent's discretion, but only whilst the bales are actually being removed in course of shipment." This clause forms part of rule 1 of the Tonnage Schedule, which rule was adopted by the Chamber at a special general meeting held on the 4th October 1883. The conditions under which vessels are handled in the port have so changed since 1883, that it is not easy now to determine the precise meaning of the clause. But it is held by some jute shippers and balers to mean that measurement must take place at the press houses. The shippers and balers contend that, if measurement alongside is to be substituted for measurement at the press houses, the tonnage schedule must be so modified as to provide for the ton of jute to be 54 cubic feet instead of 52 cubic feet. This argument is supported by Chamber ruling No. 21, dated 8th March 1883, which is as follows :—"A captain is not bound to measure alongside unless such measurement has been specially stipulated for, and then the ton is to be taken at 54 cubic feet per ton of five bales."

The Committee have examined the question thus raised, and have submitted it to the Calcutta Baled Jute Association for consideration. On receiving the views of the Association they will come to conclusions as to the action to be taken in regard to it. Should any modification of the Tonnage Schedule be thought to be necessary, such can only be determined by two special general meetings of the Members of the Chamber.

Calcutta Custom House.

On the 23rd December, the Calcutta Import Trade Association approached the Committee, with reference to the modification of importers' declarations of values by the Appraisement Department of the Custom House. The Association pointed out that in October 1907 they had addressed the Collector of Customs on this subject, and that afterwards matters had worked smoothly. Recently, however, complaints had again been made, and importers had stated that they were being harassed in their business by threats of fines and objections to their declarations and values. A case had been brought to notice in which the importers had declined to alter their valuations, and had suggested that the goods should be taken over by the Customs. The result was that the goods were passed at the original valuations. Such cases showed that the action of the Customs was arbitrary and unjustifiable. In many instances, where valuations were required to be increased, no official intimation was given to the importer, but only a verbal message sent through the latter's sircar. A further source of annoyance was the way in which private business was disclosed by the Customs broker taking samples of goods round the bazar, in order to arrive at the market value. The Association protested most strongly against this practice. They also asked the Committee to represent to the Collector the desirability of a check being placed upon such arbitrary proceedings on the part of the Appraisement Department.

The Committee have the question under consideration, and are taking such action as is possible.

Industrial and Agricultural Exhibition, Allahabad, 1910.

Mr. C. R. Ramsay Murray, I.C.S., the Secretary of the United Provinces Agricultural and Industrial Exhibition, was present at the meeting of the Committee held on the 7th December. He explained the objects and scope of this Exhibition, which is to be opened at Allahabad in December next. The principal object is to encourage the agriculture, and the arts and industries, of the United Provinces of Agra and Oudh. The Local Government have decided to contribute three courts—Agriculture, Forestry and Education—at a cost of Rs. 2½ lakhs. The total expenditure is expected to exceed Rs. 7 lakhs, of which Rs. 1½ lakhs were subscribed at the inaugural meeting. The Exhibition is essentially non-official in character. But the Government have agreed to contribute to the extent indicated, and have also lent the services of several officers. In addition to the three courts mentioned, there is to be a fine and applied arts court, a textile court, a wood, stone and metal court, a general industries court, a ladies' court, and an amusement court. Mr. Murray invited the co-operation of the Chamber as far as possible. He explained that manufactured goods from Europe were not required, but any goods manufactured in any part of India would be exhibited. He also explained that a picturesque site

had been selected for the Exhibition, on an open plain by the banks of the Jumna, between the Fort and the City of Allahabad. It comprises an area of about a hundred acres, with a possibility of further extension.

Indian Railway Traffic Statistics.

In the local official Gazettes there are published monthly abstracts of the principal commodities carried by the railways traversing the province. These abstracts give the traffic returns for the particular month, together with those for the corresponding month of the previous year. They are not, however, usually published until three months after the close of the month to which they relate. The Railway Board have recently suggested that their publication should be discontinued, as they are too late to be of service to the public. The Director-General of Commercial Intelligence has brought this proposal to the notice of the Committee, and has invited their views upon it. He has also pointed out that statistics of the annual traffic in the commodities carried by each railway are published in the Railway Administration Report. This volume usually appears during the first week in June, that is to say, about five months after the close of the year to which the statistics relate. The Railway Board had enquired if the particulars given in it would sufficiently serve the purposes of the commercial community.

The question thus raised is still before the Committee, who have consulted the Calcutta Wheat and Seed Trade Association with reference to it.

Export of Jute Goods to Australia.

Attention has been recently drawn to certain regulations, which have been introduced in Australia, to prevent the importation of plague. It was originally required that every shipment of gunnies was to be accompanied by a certificate, from a Government medical officer, to the effect that no case of plague had occurred within two months on the premises in which the Jute goods to be exported had been made, packed or stored. The impracticability of this rule was pointed out by shippers and importers, and it was subsequently modified so as to provide for a mill doctor's certificate to the same effect. The latter was to be presented by shippers at the port of Calcutta to a medical officer, who would be appointed by the Chamber of Commerce at Calcutta, and who would be required to issue a general certificate to each shipper embodying the certificate of the mill doctor. Members of the Chamber enquired of the Committee as to whether any official communication regarding this proposal had reached them. The Committee replied in the negative; but they stated that shippers had brought the matter to the notice of the Jute Fabrics Shippers' Association and the Indian Jute Mills' Association. Both these bodies were of opinion that the issue of such certificates as those contemplated was impracticable. With this view the Committee were in agreement, although they did not think there was need for them to take action until the proposals had assumed a more definite shape.

THE COTTON TRADE IN 1909.

ACCORDING to Mr. William Tattersall the past year has been one of the worst periods in the staple industry of Lancashire ever experienced. Both spinners and manufacturers have lost a good deal of money and the depression appears to have become more pronounced month by month, the situation at the close being anything but encouraging. Our shipments of yarn and cloth compare fairly favourably with 1908, but, owing to the increased powers of production compared with four or five years ago, the output of the machinery has been too large for the requirements of buyers. Then another adverse feature has been the abnormal prices in the raw material, values during the last month or two being on a higher basis than for several years back.

Raw Cotton.

On January 4th the price of middling American cotton in Liverpool was 5-07d. During the first few weeks values did not change very much, but towards the close of the month a slight hardening tendency set in, the rate on the 30th being 5-26d. February and March brought rather easier rates, the quotation on March 23rd being 4-93d., this being the lowest price of the year. About the middle of April values were raised and the higher prices continued, the rate on April 30th being 5-53d. Values were well maintained, and by May 28th the rate was 5-88d. June brought still higher prices, the quotation on the 30th being 6-22d. The upward movement continued in July, and that month went out at 6-73d. Small fluctuations occurred during August, the rate on the 31st being 6-85d. The crop for the season turned out to be a record one, the figure being 13,828,000 bales. Prices continued to go against buyers, and on September 30th the rate was 7-36d. Prices were well maintained during October, the rate at the close being 7-89d. Small fluctuations occurred during November, that month going out at 7-65d. Still higher rates prevailed during December, the highest point of the year being reached on December 11th, the rate on that date being 8-26d., and on the 15th the price was 8-01d. The quotation on the 23rd had again reached 8-26d. The outlook for supplies of American cotton this season are very poor. Messrs. Neill Bros., of London, have estimated the yield at 11,000,000 to 11,250,000 bales. During the last few weeks very bullish reports have been circulated, and the United States Government has issued a forecast of 10,088,000 bales. There is some fear of a shortage in 1910, but short time amongst spinners means a reduced consumption. Egyptian cotton has also considerably advanced in price during the year. The rate for fully good fair brown on January 4th in Liverpool was 8-7½d. There was not much change during the first six months of the year, the rate on June 30th being 8½d. A marked upward movement has occurred during the last few months, and the quotation on December 23rd was 13½d. The output of Egyptian cotton last season was 6,755,000 cantars. The

prospects for this year are very unsatisfactory, the official estimate of the Alexandria Produce Association being 5,250,000 to 5,500,000 cantars.

Yarn.

It has been a poor 12 months for spinners of all classes of yarn, and a dragging demand has been experienced throughout. At the beginning producers of American descriptions were doing badly, and although a little improvement showed itself early on, the position gradually got worse, and the Employers' Federation decided to obtain the opinion of their members as to organizing short time. As a result of a ballot on the question the mills began running only 40 hours a week at the beginning of July, and this policy of curtailed production has continued throughout the remainder of the year and will go on until the end of February. The margin in standard counts has been very poor indeed, and, according to an analysis of the trading results of 82 companies for the twelve months ending November 30th, the average loss works out at nearly 8 per cent on the share capital employed. Although machinery has not been working at full stretch supplies have been plentiful. Buyers have had matters all their own way, and have only purchased small lots to meet immediate requirements. Producers of fine qualities made from Egyptian and Sea Island cotton in Bolton and South Lancashire met with a fair trade up to about three months ago, but since then the prospects have taken a distinct turn for the worse, chiefly owing to the decidedly higher rates in the raw material. Order lists in special qualities of the finer numbers are fairly extensive at the moment, but these are running down, and although no concerted action has so far been taken with regard to short time running, individual firms are being forced to curtail the output. Spinners of qualities suitable for shipment abroad have met with a lean trade. Our shipments for the eleven months ending November 30th amount to 199,900,800 lbs. against 199,725,400 lbs. in the same period of 1908. The margin of profit, however, has been very poor, and a most dragging demand has been experienced during the last couple of months.

Cloth.

Manufacturers of piece-goods have experienced a year of unremunerative trade. Both yarn and produce cloth has meant no profit at all, and the off-take by our markets abroad has not been sufficient to clear the full production of the looms. Our shipments for the eleven months ending November 30th amount to 5,239,456,000 yards against 5,144,040,100 yards in the corresponding period of 1908. The increase in the number of looms compared with four years ago has undoubtedly affected the situation, and business throughout has been very unfavourable. India has taken less freely than in 1908. China has done rather better, but the shipments to Shanghai in 1908 were rather small. The minor outlets, both East and West, have sent forward a fairly healthy consumptive demand. No figures are available as to the trading results of weaving concerns,

but this department has lost money, and it is one of the surprises of the market that more cases of financial difficulties have not arisen.

COPPER AND TIN IN 1909.

Copper.

REVIEWING the copper and tin trade in 1909 Messrs. Bolling and Lowe, 2 Lawrence Pountney Hill, London, say:—1909 in the copper market has been a remarkable year by reason of the enormous speculative dealing for the rise, which has resulted in an exceedingly steady market, notwithstanding the constant deterioration apparent in the statistical position. High-water mark in prices was touched last January at £64 3s. 9d., and low-water mark was reached in March at £54 10s. The prices during the greater part of the year moved between £58 and £52, and it was round about this range that the bulk of the huge speculative commitments was opened up. These operations were based upon a belief in, or a fore-knowledge of, an impending consolidation of leading interests in North America, headed by the Amalgamated Copper Company, and those at the back of the operations have kept continuously to their holdings through good report and evil. The negotiations, which have been very protracted, resulted in a basis of agreement being reached, but the plans formulated for carrying it into effect have been disturbed by the now historic declaration that the Standard Oil Company is an illegal corporation, and pending the discovery of some means of evading the law, as at present interpreted, the proposed copper merger, following the lines of the oil trust, has been postponed. There is no doubt that in some form or other the consolidation will take effect, in which case the interest concerned will control probably 50 per cent of the North American output of copper, the chief parties to it being the Amalgamated Guggenheim and Cole-Ryan Groups. Already as a result of the negotiations and of the better feeling existing between all United States copper producers, steps are being taken to curtail production by 10 per cent, and this, if put into effect, should wipe out the overplus of output seen in 1909. Given an organization strong enough to regulate North American production, the adjustment of prices to a level satisfactory to the dominating interests becomes a comparatively simple matter, although it is one which under the circumstances of to-day is calculated to be of more value to outsiders than to those within the pale. It is hoped, however, that when the projected American consolidation comes into being, it will be merely a matter of time and diplomacy for a working arrangement to be made, including all the more important producers in the world. This is the hoped-for goal, but its attainment may be a long way off yet, though meantime the copper market is kept well in hand.

Tin.

Tin reached its lowest point, £123 15s. for cash, in February, and its highest, £153 10s. during

December, the last few weeks of the year seeing a remarkable development of strength owing to American consumers sweeping the boards in the East and buying in London as well, in order to cover requirements in connection with heavy sales of tinplates made by the United States Steel Corporation for January-June delivery. The movement took the market completely by surprise, and hurried repurchases to cover short sales contributed to the strength. There are encouraging factors, however, apart from the influence indicated, production, for example, being almost stationary, while trade demands naturally tend to increase. Throughout the greater part of the year the tin market was comparatively featureless.

THE ENORMOUS AMERICAN CROPS OF 1909.

We take the following particulars from the *Scientific American* of December 18th:—About a month ago, the preliminary estimates of this year's crops were published by the Bureau of Statistics. While not establishing a record, the figures were considerably in excess of those of last year, and were not far from the record established in 1906. However, figures above a thousand mean nothing to the average man, and no conception of this enormous production can be obtained unless he actually sees the entire crop. We have estimated the size of these crops, and our front-page illustration this week shows what a stupendous heap they would make if the more important crops were piled up in Madison Square alongside the Metropolitan Tower. To be sure, Madison Square and many blocks surrounding it would be completely lost under the mass of cereals and potatoes.

The corn, which is the bulkiest of the products shown, is represented as contained in huge bags piled up in pillars so as to represent mammoth corn-cobs, and though the piles reach up to a height of 1,780 feet, this year's production of corn would make twelve of these pillars. Next to the corn we have the production of oats, amounting to a huge total of close to a billion bushels. The huge bag containing this quantity of oats would reach up to more than double the height of the Metropolitan Tower. The wheat, which comes next in order, would require a bag almost as large which, even when laid on its side, would overtop the tallest structures in New York. If this wheat was distributed among the inhabitants of this country, every one, man, woman, and child, would receive over eight bushels for his share of the crop. If this quantity were taken to a flour mill, it would be converted into one and two-thirds barrels of flour, and out of this quantity of flour a baker could make nearly five hundred loaves of standard five cent size. In other words, we grow enough wheat in this country to supply every individual with a loaf and a half of bread per day. This is slightly more than the average supply per capita for the last forty years.

Comparing our crops with other countries, we find that the United States leads the world in the production of corn, oats, and wheat. Last year we did not equal European Russia's oats production, but this year's estimate is 176,000,000 bushels more than that of last year; and while the figures for the 1909 crop in Russia are not as yet available, it seems improbable that they will equal our own figures for this year. When it comes to barley, we must take second place, acceding first place to Russia. Russia also leads the world in the production of rye. We stand fourth in the production of potatoes, with Germany, Russia, and Australia ahead of us.

While we may flatter ourselves on our production of corn, oats, and wheat, the figures show that we do not make the best use of our acreage. The United Kingdom seems to be able to produce more wheat from an acre of land than any other country. For the years 1898 to 1907 it has produced 32.6 bushels per acre, as against 13.9 in this country and 9.3 in Russia, which makes the poorest showing of the large wheat-growing countries. Germany leads in the yield of oats with 49.3 bushels per acre against 29.8 in this country. However, it seems very natural that the country having the largest tract under cultivation should have a poorer yield than those countries in which farming operations are carried on on a smaller scale and more particular attention can be given to the treatment of the land, so as to obtain the maximum product.

The crop estimate published in November was a preliminary estimate, and the final statistics for the year will be published while this issue of the *Scientific American* is on the press. The November figures are given below, showing a large increase over last year's figures in nearly every crop:—

Crop.	PRODUCTION (000 OMITTED).		
	1909 Preliminary.	1908.	Average, five years, 1903-1907.
Corn . . . bushels.	2,767,316	2,668,651	2,587,877
Winter wheat . . .	432,920	437,908	412,719
Spring wheat . . .	291,848	225,694	237,791
Total wheat . . .	724,768	664,002	650,510
Oats . . .	983,618	897,156	870,251
Barley . . .	164,836	166,756	148,155
Rye . . .	31,066	31,851	30,006
Buckwheat . . .	16,692	15,874	14,554
Flaxseed . . .	25,767	35,805	26,121
Rice . . .	...	21,890	...
Potatoes . . .	367,473	278,985	289,400
Hay . . . tons.	64,166	70,798	69,671
Tobacco . . . pounds.	895,185	718,061	698,004

The above crops, which represent approximately 70 per cent of the value of all farm products, are this year in the aggregate about 2 per cent greater than in 1908, and 9 per cent greater than the average of the preceding five years.

RUBBER PRODUCTION IN ANGOLA.

The following information is from the report by H. M. Consul at Loanda (Mr. H. G. Mackie) on the trade of Angola in 1908, which will shortly be issued:—

Careful investigations regarding wild rubber have been conducted by a Government botanist in the regions lying between the rivers Cutato and Cutchi and the Cubango and Cului on the plateau of Benguella. Among the numerous latex-yielding plants collected, the most promising rubber plant is said to be a shrub (*carpodinus gracilis*) growing in shady places on a soil with no rocks or stones, but having a deep layer of sand free from stagnant water. This shrub furnishes a rubber of good quality, which is extracted by the natives by beating the rhizomas (horizontal trunks) between two pieces of wood—one having a flat surface and the other shaped like a mallet. The bark is thus separated from the wood and reduced to fragments held together by the rubber tissues, the globules of caoutchouc coagulating as soon as they come in contact with the air, and thus none of the latex is lost. As soon as the bark that contains the rubber is peeled off, the native continues the beating operation until the whole is reduced to a spongy elastic mass, known in the trade as a "manta" or sheet. The "manta" at this stage consists of the rubber threads binding the broken bark that has been reduced to dust. It is now worked in cold water and again beaten. Repeating this working and beating process, the native is able to prepare a physically almost pure rubber, by means, however, of great labour. For this last reason it does not always pay him to clean the rubber too much. After this working and beating process the spongy mass turns into a flaccid rubber sheet of less than half an inch in thickness and sometimes as much as 4 feet square. This rubber sheet is now steeped in boiling water for some five minutes, when it becomes quite plastic, and in this state is shaped by hand into its characteristic sausage-like form of about 10 inches in length. Although the water is pressed out as much as possible during the modelling operation, the rubber still contains 30 per cent of moisture, which must, of course, be evaporated if the rubber is to be preserved from damage. The drying of the rubber has to be attended to by the buyer. The native frequently collects big loads of stems and rhizomas in the cold and dry season far away from his village. These loads are brought in and stored for weeks before the rubber is extracted. If there is much dry material to work, it is immersed overnight to render the bark more malleable and less adhesive to the wood.

The rubber in question is classified as second class rubber in Angola, as it is usually badly cleaned, i.e., full of particles of bark. A first class product could be obtained from this plant in Angola if the natives would take the trouble to cleanse the rubber more than they do.

One-fifth of the ground traversed by the Government botanist between the Cubango and Quemo,

an affluent of the Cuando, is covered by this plant, from 16 deg. south latitude to the Congo Basin; it thrives better, however, in some localities than in others.

The root rubber industry, entailing a great amount of manual labour, is essentially a black man's industry, but the methods of extracting and preparing the rubber leave much to be desired. The employment of machinery would, no doubt, help to solve the problem, but the lack of means of communication is at present the chief obstacle to the attainment of a higher standard. Moreover, the country is not yet occupied, and the natives are much too uncivilized at present to admit of much improvement. Rubber is gathered over a vast expanse of country by the natives, who carry it on their heads to the up-country stores, where they barter it for other goods. These stores are situated in the populous centres and follow up the trade, the merchants moving from one district to another as circumstances may require. In 1903 a European bought 26,500 lbs. of rubber in the populous valley of the Cuando, an affluent of the Kuito; soon afterwards three Portuguese factories started business on that river. The produce is likewise brought in by Boer wagons, the Portuguese traders using these conveyances for penetrating into the unoccupied regions for hundreds of miles.

In a previous report reference was made to an asclepiaceae rubber, of which samples were sent from Angola to the Commercial Intelligence Branch of the Board of Trade, with a view to inducing manufacturers in the United Kingdom to quote for machines and implements for extracting the product. A British rubber company has recently embarked upon this enterprise, and the necessary machines are now on their way out to Africa. The rubber grows on the Burro-burro plain of the mainland of Benguella, which the railway is about to cross. The percentage of rubber is very low, being only some 2½ per cent, but with the mechanical process about to be applied better and more rapid results will doubtless be obtained. The British firm is also sending out rubber cleaning plant for erection on the coast that should extract about 45 per cent of dirt and bark from the native rubber, which has up to now been paying freight and export duty.

In the forest belt of the Loanda district endeavours are being made, on the initiative of the Government, to cultivate Para, Panama and Lagos silk rubber trees, and in 1907 and 1908 seeds and plants were imported for purposes of distribution. An experimental station, under the direction of a botanist from Kew Gardens, has been established at N'Dalla Tando, a station on the Loanda-Malange Railway, for the purpose of rearing and distributing such economical plants as are likely to thrive and become useful for the general development of agriculture in Angola. Various other agricultural experimental stations have been set up in various parts of the colony, and a laboratory has been established at Loanda in which researches can be made.

With regard to cultivated rubber, it may generally be said that, while there are indications pointing to a handsome return in the future, the industry is still in an experimental stage of development. Mainly owing to the small yields of the present system of tapping the *manihot glaziovii*, only poor results have been attained by planters on a small scale, who have not been able each to produce more than a few pounds of rubber for shipment to markets where many tons could be easily disposed of. The better yielding species such as the Para, Central American and Lagos silk rubbers have still to attain a sufficient age to permit of their being tapped.

SHIPBUILDING IN 1909.

We quote from the *Times Financial and Commercial Supplement* the following note upon British shipbuilding in 1909. It will be read with interest, not only for the reasons stated in the article, but because activity in shipbuilding affords an indication of expert expectation regarding the trade to be served by the vessels:—

So many industries depend more or less—and some entirely—on shipbuilding that when shipbuilding is dull the general industrial situation must be somewhat depressed. Therefore, satisfaction has been expressed at the constant repetition of recent reports that more and more orders were being placed with the shipbuilders. In consequence of these reports it is probable that many people are looking for a large increase in the year's output of new ships. In our annual review of the industry, which will be published next Friday, we shall go in more detail into the matter, but meanwhile some broad facts may be stated. In the first place, what is called the revival in shipbuilding did not begin until late in the year, and the proceeds of the contracts which marked that revival will not be in evidence until 1910 and 1911. In the second place, the figures now being compiled of the past year's operations do not show the actual improvement in the industry. This being so, the totals instead of being disappointing should be all the more encouraging when they show an actual increase on 1908. The total amount of new tonnage put into the water in 1909 seems to have been over 1,180,000 tons, which is about 105,000 tons in excess of last year. This will surprise those who know how extremely inactive most of the yards were in the first half, if not more of the year, while it may seem small to those who have been judging from the new contracts reported from time to time during the past six months, and who forget that a long time must elapse between the ordering and the launching of a steamer. One explanation of the increase is that a number of the vessels ordered in 1907 and 1908, in anticipation of a revival of trade, were kept back in builders' hands, and that, in fact, a considerable portion of the output of 1909 really represented the work of 1908.

Present Position.

Of course that fact would not be an agreeable feature to contemplate without the knowledge that

the new work booked in 1909 considerably exceeds the work turned out in that year—in other words, that the shipbuilders as a whole, though there are exceptions unfortunately, have more work before them now than they had a year ago. Then during the past year the work has been very unevenly distributed. For example, the Clyde alone had an increase of 40,000 tons in liners, cargo steamers, and the miscellaneous craft turned out on that river of varied industry; but all the other districts of Scotland showed decreases. This leaves but a small increase of over 70,000 tons for all the rest of the kingdom, including not only the tramp-building rivers of the north, but also the Government dock-yards. And certainly this is not much spread over so large an area and concerning so many districts. But it is on the right side; and a year ago a very different prospect seemed in view. Then it is known that a considerable amount of obsolete craft has been sold during the year to ship-breakers and withdrawn finally from trade. Something of this sort, of course, happens every year, but this year the number of vessels broken up has been abnormal, and it would have been larger had the price of old iron not been so low. The price of steel ship-plates dropped during the year by 10s. per ton—from £6 7s. 6d. to £5 17s. 6d. per ton, but recovered half the loss and closed for the year nominally 5s. per ton dearer than at the beginning. But as most of, if not all, the builders are under contract for the material for the vessels they have contracted to build, the rise is nominal only. And it is quite openly stated in the trade that many contracts were accepted by builders below the estimated cost of construction in order to keep their yards open, their plant in operation, and their men employed. To what extent the practice has obtained during the past year, there is, of course, no means of estimating, but it has probably not been much during the last few months, when the demand for new ships seemed reviving. There is little prospect at present of cheaper shipbuilding material, with dearer pig iron and dearer coal.

—The *Ceylon Government Gazette* of 3rd December, 1909, contains a Notification dated 30th November whereby the following rule is substituted for Rule 8 of the rules for the regulation of the importation of petroleum under Section 10 of Ordinance No. 6 of 1887:—No petroleum shall be handed and removed until it has been reported by the testing officer not dangerous, except upon such conditions and to such places as the Collector of Customs may prescribe. It is provided that the requirements of these rules with regard to the testing of petroleum shall not apply to petroleum imported from British India at Trincomalee in quantities not exceeding 24 tins at a time, if the Assistant Collector at the port is satisfied by a certificate from the Chief Officer of Customs at the port of shipment or his Deputy that such petroleum forms part of a consignment which has passed the test prescribed by law in British India.

CULTIVATION OF LAC.

Cost and Yield.

THE *Agricultural Journal of India* for July, 1909, contained a very interesting article by Mr. Maxwell-Lefroy, the Imperial Entomologist, upon the *Cultivation of Lac*. It indicates that the scheme is being steadily prosecuted and we quote below a useful passage upon the cost and yield.

We cannot estimate the actual cost of commencing cultivation because the initial cost of seed-lac varies very much, as does the cost of labour. At Pusa, we commenced by buying twenty-five bundles of seed-lac for Rs. 25; we inoculated 118 trees, mostly small ones, and the work of pruning and inoculating cost Rs. 12-7-6. In the following October we inoculated 150 trees, of which fifty were large and fifty medium in size; in June we inoculated 353 trees and a quarter of an acre of arhar (*Cajanus indicus*) at a total cost to date of Rs. 72; against this is to be put the sale of lac scraped after inoculation, amounting to Rs. 55. After this the profit and loss account is useless as a large part of the lac is distributed over scattered factories in Bihar from which returns are not available. The approximate yield from this area has been ten maunds, selling now at Rs. 200 and giving a profit of Rs. 155 on the total crop plus over a thousand trees inoculated and a quarter of an acre of arhar.

The following is a very reasonable estimate of the expenses, etc., for a cultivator owning twenty-five trees, allowing lac to be selling at Rs. 20 per maund, the present approximate price, the lowest for eight years:—

First year.

	Rs.	A.	P.
Pruning twenty trees, one coolie, three days, at 0-2-6 per day	0	7	6
Seed-lac, 25 bundles at 4 annas each	6	4	0
Inoculating trees	0	15	0
Scraping lac	0	10	0
Knife	1	0	0
TOTAL	8	4	6

Second year.

Dressing the trees, one coolie, 2 days	0	5	0
Inoculating	0	10	0
Scraping lac	0	10	0
Miscellaneous	0	7	0
TOTAL	2	0	0

Lac obtained from seed purchased	9	seers
Lac obtained in first year	1	maund
Lac obtained in second year	1	maund
TOTAL	11	maunds

At Rs. 20 per maund Rs. 24-8-0.
The net profit is Rs. 14-2-6 and his annual profit Rs. 8.

This is an extremely conservative estimate, as a yield of only two seers per tree is very small. A large tree will yield up to ten seers and more if

properly inoculated, and we have based our figures on the constant use of the lac for seed; if he cuts the bulk of his lac obtained in May before the emergence of the larvae, not using it for seed, he should get a yield per tree of Re. 1 at least. We have also included in our estimate the labour as a charge. Where the cultivator does this himself, as he should do, the actual money return is more, and practically, after buying the initial seed-lac and the knife, there are no expenses and only a few days labour twice a year.

The methods of cultivation are dealt with in the paper which should be read *in extenso*. It closes with a general statement of the proposition and this we think will interest our readers.

The extension of Lac as an Agricultural Product.

The object of this article is to point out the possibilities of lac as an adjunct to the cultivation of crops and we may briefly indicate the steps to be taken in any locality to introduce lac and commence cultivation. There are at present three methods of obtaining lac:—

(1) It is collected from certain trees which bear natural lac whenever the tree has a crop, a little being left on to serve as seed.

(2) It is systematically inoculated and collected from trees once a year, the trees being worked on the system described above for ber.

(3) It is cultivated on annual plants which bear only one crop and are then taken off. Arhar or tur is the most important example.

Where lac is found on pipal, banyan, siris, etc., it can be increased by spreading it to all the trees of that kind, by inoculating the trees, without previous pruning, from lac-bearing trees of the same kind. There is a very large field for extension of lac in this way and the only necessary thing is to ascertain for each locality what is the proper season for the inoculation, i.e. the time at which the young emerge. Furthermore, a sufficient supply of lac to serve as seed should be left on when the crop is harvested to quickly cover the tree again. Trees which yield lac in this way include pipal, banyan, gular, pakur, babul, kikar or khair, siris, asan, and others of less importance. As the trees that bear lac like this vary immensely in different parts of India, one can only suggest that in every case, where lac is found on trees not pruned, that it should be spread to all the trees of that kind if possible.

The most important cultivated lac is that grown on the system described above on kusum (*schleichera trijuga*), dhak or palas (*Butea frondosa*), ber (*Zizyphus jujuba*), babul (*Acacia arabica*), khair or kikar (*Acacia catechu*), and other trees. The trees used must be small enough to be pruned and handled and any lac-bearing tree that will stand this treatment will be suitable to this kind of cultivation. When any of these or other lac-bearing trees occur in waste lands, on bunds, along roads, scattered in the fields, along canal banks, by rivers and in nullahs,

the lac suitable to that plant should be obtained and inoculated.

If only a few trees can be inoculated as a commencement, a start will be made. As a rule, lac will be found on enquiry to occur sporadically here and there and one has only to ascertain when the young emerge and then to utilise all the available lac for inoculation.

The field there is for extending lac cultivation in this way in India is immense and while it does not interfere with the yield of fuel from such trees or with the grazing of the land they are on, it makes an otherwise unproductive tree a source of profit, at a very small expenditure of labour twice a year. Lac cultivation on these lines was commenced in Behar in 1907. Lac is now being cultivated on otherwise unproductive trees in a number of factories and the entire outturn of seed is utilised in extending it; it is only at the beginning now, and we could advantageously use a hundred times the amount of available seed. This might apply to almost any agricultural tract in India, not necessarily with ber lac but with the trees and lacs locally procurable.

In this article, we desire only to draw attention to the advantages of lac cultivation in agricultural areas and, for so diversified a country as India, one article would not suffice to indicate the detailed steps to be taken in every district. The important points are to ascertain the available trees, whether lac occurs on them locally, the nearest source of lac, the season at which the young emerge (swarm). One must then prune or, if the tree grows too big, simply inoculate. When ber, kusum or dhak occur, then there is little difficulty; equally if figs occur. Mother-lac, if cut at the right time before the first young are out, will travel for some distance. We have sent it for 24 hours by rail and the original lac, from the descendants of which the present Behar lac is being obtained, came from a long distance by road and rail.

Lac of all sorts suffers from pests and enemies, and a few simple precautions may be taken. When the young insects are on the trees, ants come to them, not to feed on them, but on the sweet excretion they give forth. It is said that the young insects suffer from these ants but it has never been proved that they do. As a rule, ants do no harm, but they may be kept off by strewing ashes round the foot of the trees or by painting a ring of tar or grease round the trunk of the tree low down. A much more serious enemy is the caterpillar which feeds in the lac incrustation. There are several species (*Eublemma* and *Hypatima*) which are found in lac on the tree and which continue to feed on the stick-lac after it is cut and brought in. There are others (*Ephestia*, etc.) which attack the dried stick-lac after it is harvested. These are worst in the May-October crop, and occur far less in the cold weather crop. For that reason with ber, the trees inoculated in May are few, since there is no practical cure. There is one important point: as soon as the lac is cut or has been used for inoculation, scrape and wash it, otherwise the caterpillars will

eat and spoil it. If stick-lac must be kept, then fumigation is the only remedy. But, it is always best to sell the lac as "seed lac," i.e., lac from which the dye has been removed by washing and which is in the form of small fragments. Lac-dye is now-a-days of so small value that we do not advise its separation, unless there is a special demand for it. If large quantities of lac are being handled, extract it and sell it as dye or manure. But for a small home-industry, as we advocate lac cultivation, the lac-dye may be washed out.

Lac cultivation in the way we advocate here is being carried out at Pusa now and can be seen there. Instruction in pruning, inoculation, scraping, is given twice yearly when the work is being done on the estate. Those who wish to can come and learn or can send someone to learn. For those too far off, we shall be glad to give any help or information in our power, and as trained men are available in some Provinces, those desirous of assistance or information should apply to the Agricultural Department of their Province. A limited amount of assistance can be given from Pusa with trained men. At the present price, lac is a remunerative industry, the present prices are the lowest for eight years and as there is a steady demand and a limited source of supply, the price will remain at least where it is and probably advance. There is room for a very large cultivation of lac as a valuable crop in the agricultural areas of India; both where waste lands and trees are abundant and where there is a large population on densely cultivated areas as in Behar. The estimated value of the lac annually produced is near six crores of rupees and there is room for a very large extension of cultivation before the market will be lowered by over production.

The cost of growing lac in this way is so small, as compared with the cost of doing it in forest lands, that even at the present low prices, it is worth while for the agriculturist to whom it is only a minor industry; if the crop fails, the total loss is a few days labour; if the price is low, as it is now, his expenses have been so small that he can still get a profit and the cultivation can go on independently of the fluctuating markets.

—A new solder for aluminium is being put on the market. Its melting point being about 300° C., or far under that of aluminium; it is claimed that it can be used without damage to the metal. It is further claimed that its composition is such as to destroy any oxide that may be formed, and that joints made with it are not subject to electrolytic action. Two tubes shown at a recent demonstration had been united by means of the solder and immersed in water for several months, apparently without deterioration of the joint. A couple of aluminium strips joined end to end by the solder, on repeated bending broke close to, but not at, the actual point of union. The inventors are prepared to supply free samples of the solder to engineers who are interested in it.

• JUTE EXPERIMENTS AT PUSA.

In the Report on the Operations of the Department of Agriculture of Eastern Bengal and Assam for the year ending June 30th, 1909, particulars are given of certain experiments with jute at Pusa. We quote the following paragraph.

The study of the races of jute, outlined in previous reports, has been continued, during the past year, in collaboration, as before, with Mr. Burkill, the Reporter on Economic Products to the Government of India; and a final stage has now been reached as far as classification is concerned. Hitherto we had arranged the hundred races, with which we commenced, under about 33 heads, but the work of the period under review has enabled us to reduce the number to less than 20, including two new races kindly sent from Formosa by Mr. Ando of the Imperial Japanese Agricultural Department. We have now, as a basis for future work, about 15 types, which appear to be quite fixed, as far as the cultural characteristics with which we have been dealing are concerned. The field work has throughout been carried on in conjunction with observations in the laboratory. The latter work, which becomes increasingly important as the investigation proceeds, involves a laborious chemical and microscopic examination of the respective fibres produced from the various types of plants. While showing a great general similarity between these types it has indicated differences which, though only small, would, if permanent, point to the possibility of producing an improved type by direct plant-to-plant selection. This is one of the lines on which work is now proceeding. Another is the production of hybrid races by cross breeding between two pure types. Preliminary experiments in this direction were commenced last year, and the first generation of hybrid plants is now maturing. As evidence is accumulating that the jute flower is normally self-fertilized, the investigation of the effect of hybridization becomes more important.

Deterioration of Baled Jute.

In July 1907, the author, in collaboration with Messrs. Cross and Bevan of London, commenced an investigation into the deterioration, known as "heart damage," which sometimes takes place in baled jute, and a preliminary report on the subject has been presented to the Secretary of State for India by Messrs. Cross and Bevan.

The report commences with a technical description of the typical characteristics of "heart damage." It then goes on to discuss the condition on its arrival in London of jute treated and baled in India by the Fibre Expert to the Government of Eastern Bengal and Assam, and finally concludes with some recommendations for the further pursuance of the investigation.

The salient points of the report may be summed up as follows:—

(a) The chief physical characteristic of typical heart damage in jute is an entire loss of tensile strength, the fibre becoming so brittle as to be capable of being rubbed into a powder.

(b) This radical change is accompanied by a great diminution in the cellulose content of the fibre—cellulose being the constituent which makes for durability—and by an extraordinary increase in the proportion of the fibre substance which dissolves in water or in simple chemical reagents.

(c) In the bailing experiments, six *kutcha* (3½ maunds) bales were made up so as to contain 25 per cent, 30 per cent moisture. To one bale only water was added and to another water containing a little sugar, the latter being regarded as likely to assist in setting up fermentation or putrefaction changes. The remaining bales were treated with antiseptics. On arrival in London, no serious damage had been sustained by any of the fibre which was, about January 1908, sold in the open market for £23-10-0 per ton. While trade experts who were present at the opening of the bales in London consider that their small size must be taken into account in applying the results to the fibre under conditions of the ordinary bale, the experiments are held to justify tentatively the following conclusions among others:—

(1) That the presence of nearly 30 per cent. of water in clean baled jute causes no evident damage to the fibre, even after many weeks.

(2) The presence of easily fermentable matter associated with excessive moisture is not necessarily harmful. It should be remarked that these conclusions apply only to the conditions under which the bales were made up:—No mention, for instance, is made in the report of the possible effect of the presence of earth or sand, a point which is now being investigated.

Messrs. Cross and Bevan's recommendations for further work, which include experiments on a large scale with antiseptics, are to be regarded as rather premature, pending the complete investigation of the problem.

—The annual report just issued by the Hamburg Chamber of Commerce states that though trade is certainly showing signs of improvement, it cannot be called brisk. The revival so far is rather to be inferred from the more confident feeling now prevailing than from actual demand, and there is not yet sufficient confidence to bring about any great increase in the amount of capital available for new undertakings. The new Imperial taxes come in for severe criticism, and it is asserted they will have a very adverse influence on the development of German industry. The report of the Berlin Chamber of Commerce in reviewing the past year states that it may be divided into two halves, the first of which showed few signs of recovery from the depression of the previous year, though there was unmistakable evidence early in the latter half that the revival had set in, and the improvement has continued. In view of the fact that, speaking generally, there was comparatively little over-production even during the depression, and that stocks all round are fairly low at present, it is considered that the outlook for 1910 is distinctly encouraging.

ENAMELLING ON WOOD.

The following paper was read at a recent meeting of the Niagara Falls Master House Painters' Association, by Mr. F. Trelford:—I have been requested to give my views as to the best method to be adopted to obtain a good job of enamelling. I am working on the theory that the work to be done is on new lumber. We are to assume that climatic conditions are such as not to require the resorting to artificial means to obtain the proper temperature necessary to get the best results from the application of the several coats to be applied. The woodwork to be treated, we are to understand, is clean from a woodworker's view point. This is the first and prime essential, as woodwork improperly dressed or being adorned with what we facetiously call whiskers, would defy the best efforts of the skilled mechanic as the better the job he would do would only tend to emphasise the poorly dressed lumber. Now for the treatment proper.

First.—Remove all superfluous hardware such as escutcheons, sash locks and lifts, and if the hinges are of such a metal as to demand them being left in the natural metal, cover them with thin paper pasted on carefully. This is easily removed when the work is completed, and how often have we seen what was otherwise a nice piece of work utterly ruined by a careless or incompetent workman daubing everything in sight. Having carefully overlooked the work and thoroughly dusted it down, give the entire surface a coat of white shellac, preferably made by yourself, using pure gum shellac and grain alcohol. The grain alcohol is, in my opinion, much better than the wood alcohol, though it is more expensive. My reason for using the shellac over the entire surface is two-fold. First, that all knots and sap may be killed; and, secondly, that the shellac acts as a spirit varnish and effectually prevents sinking of subsequent coats, at the same time making the groundwork uniform in absorption for the priming coat. After a thorough and careful sandpapering and dusting, the work is ready for the first or priming coat.

In enamelling it is necessary to study backwards, taking the finish coat for our starting point. The finish coat being of a nature subject to expansion and contraction, will convey to the thoughtful painter the fact that the preceding coats must be adapted to its requirements. For a primer, therefore, I would use a good first-class lead as a base, mixed with, say, two-thirds of raw linseed oil and one-third turpentine. For a drier I should use litharge as being, in the writer's opinion, more dependable than many of the so-called japans, and, unlike the latter, absolutely free from discolouration in its effects.

It must be borne in mind that it is not the quantity of paint that one can put on that makes the finished job, but the manner in which it is applied. It is just as essential that the primer be applied properly as the finished coat, so brush it out well, using cross brushing and leaving it off afterwards.

After the priming is done, and thoroughly hard, which should be in about a week, it should be well sandpapered down and all nail holes, cracks, and other imperfections stopped with putty made from white lead and paris white. Care must be taken in this, as a great deal depends on the way puttying is done to make the depressions level and true. Re-sandpaper all over, dust down, and give a second coat, which should be white lead for a base, but reverse the quantities of oil and turpentine, using now two-thirds of turpentine and not more than one-third of oil, with litharge driers to harden and bind the same. Let it stand again and thoroughly clean down and sandpaper, and give a third coat of white lead, egg, shell gloss. When this is dry, rub down with damp pumice stone and water, which will remove all corderoy left from applying the coats so far. Now apply two coats of zinc white flat, using camel's hair brushes and flowing very briskly, working from centre of panel outward, using very little on mouldings, for here is where you can get in trouble, as a run simply cannot be patched up. Rub down the last coat of zinc with curled hair. Thoroughly dust down, and, if possible, have the floor washed. Take a good quality of damar varnish for your enamel coat. Mix overnight with turpentine some zinc to the consistency of thick cream. Leave this in an open vessel (a shallow one preferred), and by morning the spirit of a great percentage of it will have evaporated, and the result will be to take off the flattening effect of the turpentine. In the morning add your damar varnish, using just enough zinc to colour the same. Flow on freely but carefully, avoiding runs and working very quickly on doors and other parts of room where the continuity of the work is broken. To prevent runs the writer has found the use of a slicker advisable where there is much moulding or dentals in the work. A second coat similar to the first coat of this, but with rather less zinc in it, should be applied, when, if care has been taken, you will have a room that will be a credit to yourself and to the craft.

—The British Iron Trade Association has issued a pamphlet giving statistics of the make of pig-iron in Great Britain for the half-year ended June 30th, as collected and compiled from manufacturers' returns. The total production of pig-iron in the United Kingdom for the first six months of 1909 was 4,715,679 tons, which compares with a production of 4,653,989 tons in the previous half-year, thus showing an increase of 61,690 tons in the first half of 1909. The output of pig-iron for the half-year was 4,715,679 tons, an increase of 61,690 tons. The most notable increases in 1909, as compared with the previous half-year, are recorded in South Staffordshire (39,000 tons), Scotland (30,000 tons), Lancashire (23,000 tons), Durham and South Staffordshire (15,000 tons each), while the largest decreases were in Lincolnshire (33,000 tons), Cleveland (22,000 tons), and South Wales (17,000 tons).

EXPORTS OF WHEAT AND FLOUR.

Statement showing the exports of wheat and wheat flour from British India to Foreign Countries in each of the nine months, April to December of the years 1904 to 1909.

	1904		1905		1906		1907		1908		1909	
	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.
BENGAL—												
April . . .	613,129		169,368		9,014		12,855		3,360		272,044	
May . . .	1,205,318		663,696		16,398		30,881		6,506		1,026,554	
June . . .	1,477,348		631,938		29,860		42,065		5,019		748,294	
July . . .	771,105		371,322		72,099		39,656		5,924		324,373	
August . . .	738,830		52,489		10,967		16,770		6,610		264,333	
September . . .	605,516		39,210		13,722		10,020		4,719		13,956	
October . . .	601,563		112,865		12,545		10,256		9,432		4,985	
November . . .	1,072,242		141,709		8,843		8,998		4,591		6,077	
December . . .	628,404		179,542		5,930		3,153		5,817		6,819	
TOTAL		7,713,485		2,362,139		180,378		184,654		51,978		2,667,465
BOMBAY—												
April . . .	523,551		646,148		88,333		68,828		20,921		168,321	
May . . .	1,149,239		881,105		167,451		166,153		42,477		716,519	
June . . .	577,691		534,526		148,807		167,294		59,088		751,301	
July . . .	384,209		333,117		180,630		276,581		45,559		465,304	
August . . .	363,445		306,811		61,663		104,744		38,365		251,753	
September . . .	572,222		349,378		72,300		107,104		68,259		64,433	
October . . .	612,310		341,005		163,977		143,734		72,798		97,054	
November . . .	938,795		304,367		110,542		111,818		70,846		100,746	
December . . .	796,275		299,770		91,367		49,513		50,948		49,614	
TOTAL		5,917,697		3,996,227		1,085,070		1,195,769		469,291		2,665,045
SIND—												
April . . .	1,321,955		718,621		439,238		1,395,557		20,968		17,306	
May . . .	1,379,457		1,542,890		1,145,804		1,341,517		14,573		212,803	
June . . .	2,753,545		3,305,233		2,724,825		1,851,899		117,881		3,268,113	
July . . .	3,180,587		2,501,383		3,178,056		2,886,485		490,141		4,831,931	
August . . .	2,934,607		1,889,121		1,764,921		2,879,693		247,313		3,044,522	
September . . .	2,658,385		502,309		665,183		2,775,133		467,967		416,967	
October . . .	2,335,563		569,923		1,372,291		2,429,341		686,313		757,944	
November . . .	3,397,137		1,002,671		956,909		1,061,105		220,400		698,865	
December . . .	3,163,243		662,303		800,202		343,783		15,321		630,334	
TOTAL		23,124,479		12,694,544		13,047,129		16,964,513		2,280,877		13,878,785
OTHER PROVINCES—												
April . . .	513		110,370		136		212		90		...	
May . . .	...		13,185		30		1		...		2,112	
June . . .	715		4,056		37		225		3		...	
July . . .	1,095		7,649		4		...		7		2,007	
August . . .	369		268		...		6		...		2,004	
September . . .	542		6		...		1		6		4	
October . . .	421		63		7		5		...		...	
November . . .	870		...		2,001		...		...		...	
December . . .	1,057		17		1,190		...		2		...	
TOTAL		5,582		135,914		3,405		450		108		6,127
TOTAL—												
April . . .	2,459,148		1,644,507		536,721		1,477,452		45,339		457,671	
May . . .	3,734,104		3,101,176		1,329,683		1,548,552		63,556		1,957,988	
June . . .	4,809,299		4,475,753		2,903,229		2,061,483		181,991		4,767,708	
July . . .	4,336,996		3,213,471		3,430,789		3,202,722		541,661		5,623,615	
August . . .	4,037,151		2,248,689		1,837,551		3,001,213		232,288		3,562,612	
September . . .	3,636,665		890,993		751,205		2,892,258		540,951		495,360	
October . . .	3,549,857		1,023,856		1,548,820		2,589,336		768,543		859,983	
November . . .	5,409,044		1,448,747		1,079,245		1,181,921		295,837		805,688	
December . . .	4,588,979		1,141,632		898,689		396,449		72,088		636,767	
GRAND TOTAL		36,761,243		19,188,824		14,315,982		18,345,386		2,802,254		19,217,392

N.B.—The figures of wheat flour included in this statement are taken as representing 70 per cent of wheat used in its manufacture.

FOOD-GRAINS AND SALT.

Retail Prices of certain Food-grains and Salt at selected stations for the second half of December, 1909. (Prices are stated in annas and pies per ser of 2.06 lbs.)

	Rice, common	Wheat	Barley	Jawar	Bajra	Ragi	Gram	Salt
	a. p.	a. p.	a. p.	a. p.	a. p.	a. p.	a. p.	a. p.
BURMA—								
Rangoon . . .	1 6	...	...	...	...	...	...	1 2
Toungoo . . .	1 3	...	...	...	...	...	...	1 2
EASTERN BENGAL AND ASSAM—								
Rangpur . . .	1 7	2 1	...	...	...	...	...	0 11
Backerganj . . .	1 8	...	...	...	...	...	...	0 11
BENGAL—								
Calcutta . . .	1 10	1 9	...	...	...	...	...	0 10
Patna . . .	1 2	1 5	0 10	...	...	...	...	0 10
UNITED PROVINCES—								
Cawnpore . . .	...	1 8	0 11	0 11	1 0	...	0 11	0 9
Fyzabad . . .	...	1 8	0 11	0 11	1 0	...	1 2	0 10
Meerut . . .	...	1 6	0 10	0 11	1 0	...	0 11	0 9
PANJAB—								
Delhi . . .	...	1 6	0 10	0 11	1 0	...	1 0	0 9
Amritsar . . .	...	1 4	0 9	0 10	1 0	...	0 10	0 7
Rawalpindi . . .	...	1 5	0 10	1 0	1 1	...	0 11	0 7
SIND—								
Karachi . . .	...	1 10	...	1 2	1 3	...	1 4	0 7
BOMBAY—								
Belgaum . . .	...	1 9	...	1 1	1 0	...	...	0 9
Ahmadnagar . . .	...	1 10	...	1 0	1 0	...	...	0 11
Bombay . . .	...	2 6	...	1 5	1 5	...	...	0 11
Ahmadabad . . .	...	1 8	...	1 1	1 3	...	...	0 7
CENTRAL PROVINCES—								
Jubbulpore . . .	...	1 8	...	0 11	...	...	1 1	0 11
Nagpur . . .	1 4	1 8	...	1 2	...	...	1 3	1 0
Raipur . . .	1 3	1 8	...	...	...	...	1 2	1 0
MADRAS—								
Bellary . . .	1 10	...	...	1 2	...	1 1	...	0 10
Madras . . .	2 3	...	...	...	...	1 3	...	0 7
Salem . . .	2 2	...	...	1 5	1 7	1 2	...	1 0

—Chemical tests of soy bean oil, in comparison with samples of pure raw linseed oil from an American crusher, showed the following results:—Iodine number of the linseed oil, 189; iodine number of average sample of soy bean oil, 130; saponification value of the linseed oil, 194; saponification value of the crude bean oil, 188. It is well known that the higher the iodine number the better is the drying quality of the oil. The above would show soy bean oil to be inferior to linseed oil in this respect. It would, however, be nearly equivalent to poppyseed oil, which is said to have an iodine number of 134 to 137, and may, therefore, be set down as a slow drying oil. Soy bean oil is a limpid liquid that would hardly be mistaken for cotton-seed oil, as it lacks the lard fat odour of the latter, though resembling it in many other respects. Neither could it be mistaken for linseed oil, owing to the difference in odour. It is very similar in specific gravity to refined cotton seed oil and the heavier grades of poppy seed oil, having a gravity of .9245 and weighing 7 lbs. 11 ozs. to the U. S. gallon of 231 cubic inches. Linseed oil has an average specific gravity of .932 and a weight per gallon of 7 lbs. 12 ozs. or a trifle over. It is reported, however, that a well-

known paint chemist, to whom a sample of oil was submitted, consisting of 75 per cent linseed and 25 per cent soy bean oil, reported the mixture to be a strictly pure linseed oil with a low iodine value. A mixture of equal parts pure raw linseed oil and soy bean oil has shown an iodine value of 161, and when tested for drying was only three hours slower than pure linseed oil—the time required being 108 hours. Mixed with a drying pigment (pure white lead ground in linseed oil) and 5 per cent of drying Japan, the soy bean oil dried within 30 minutes of a similar paint mixed with linseed oil in place of the soy bean oil—but the paint film from the soy bean oil was less tenacious than the linseed oil paint film. Tests have shown that soy bean oil cannot be used alone as a paint oil, because it would require so much drier to make the paint harden that the paint would perish within a short time. These tests indicate that the extreme limit in which soy bean oil may be used in connection with linseed oil, for paints with a white lead base to obtain fair results, is 25 per cent by volume. With inert pigments, such as mineral or earth paints, it does not yield as satisfactory results, and when the above limit is exceeded it goes dead, especially in damp weather.

LAND TRADE OF BRITISH INDIA.

Total Value of Imports from, and Exports to, each country in the seven months, April to October of each year.

NAME OF COUNTRY	IMPORTS			EXPORTS			TOTAL		
	1907	1908	1909	1907	1908	1909	1907	1908	1909
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
LUS BELA—									
Sind and British Baluchistan . . .	4,92,983	3,38,189	3,62,012	1,07,447	1,51,933	1,55,347	6,00,430	4,90,122	5,17,359
KHELAT—									
Sind and British Baluchistan . . .	4,36,383	5,78,071	2,36,088	2,48,247	3,71,033	2,82,109	6,84,630	9,49,104	5,19,097
PERSIA—									
Sind and British Baluchistan . . .	1,82,554	1,01,402	2,13,638	2,32,842	2,49,685	3,64,972	4,15,396	3,51,087	5,78,610
AFGHANISTAN—									
Northern and Eastern (including Kabul and Ghazni)—									
North-West Frontier Province . . .	11,03,771	11,36,292	13,57,336	56,50,311	52,14,849	52,07,605	67,54,083	63,51,141	65,64,941
Southern and Western (including Kandahar and Herat)—									
Sind and British Baluchistan . . .	37,48,904	29,26,186	36,10,219	33,17,839	35,25,016	32,95,117	70,66,741	64,51,202	69,05,336
North-West Frontier Province . . .	62,444	1,15,678	53,177	1,68,685	3,03,300	3,30,306	2,31,129	4,18,978	3,83,483
Panjab . . .	443	2,784	2,033	...	17,357	11,366	448	20,141	13,389
TOTAL . . .	49,15,565	41,80,940	50,22,755	91,36,835	90,60,522	88,44,394	1,40,52,400	1,32,41,462	1,38,67,149
TIRAH—									
North-West Frontier Province . . .	3,14,792	2,87,541	2,59,824	3,45,928	3,25,317	2,82,122	6,59,820	6,12,858	5,41,946
DIR, SWAT, AND BAJAUR—									
North-West Frontier Province . . .	29,81,876	27,43,724	27,22,737	42,43,993	37,83,418	38,17,769	72,25,869	65,27,142	65,40,506
BUNER—									
North-West Frontier Province . . .	62,855	86,755	1,21,259	64,460	1,31,058	1,65,431	1,27,315	2,17,813	2,86,690
WAZIRISTAN (a)—									
North-West Frontier Province . . .	...	1,52,680	1,54,811	...	46,376	1,80,574	...	1,99,056	3,35,385
KURRAM VALLEY (b)—									
North-West Frontier Province . . .	...	95,777	1,47,348	...	5,78,391	5,26,764	...	6,74,168	6,74,112
LADAKH—									
Panjab . . .	2,47,387	1,21,981	1,20,855	1,58,587	1,43,697	81,382	4,05,974	2,65,678	2,02,237
TIBET—									
Panjab . . .	25,637	32,151	38,435	30,064	28,837	60,232	55,701	60,988	98,667
United Provinces of Agra and Oudh . . .	4,90,445	4,90,130	5,24,566	4,62,757	4,17,317	3,37,658	9,53,202	9,07,447	8,62,224
Bengal . . .	9,61,009	8,66,657	4,19,077	6,72,054	8,74,972	4,30,622	16,33,063	17,41,629	8,49,649
TOTAL . . .	14,77,091	13,88,938	9,82,028	11,64,875	13,21,126	8,23,512	26,41,966	27,10,064	18,10,540
NEPAL—									
United Provinces of Agra and Oudh . . .	42,05,498	40,90,125	50,05,063	15,77,555	14,27,624	12,85,217	57,83,053	55,17,749	62,90,280
Bengal . . .	99,26,373	1,28,57,630	77,45,496	48,74,463	63,51,806	53,13,600	1,48,00,836	1,92,09,436	1,30,59,096
TOTAL . . .	1,41,31,871	1,69,47,755	1,27,50,559	64,52,018	77,79,430	65,98,817	2,05,83,889	2,47,27,185	1,93,49,376

(a) Registration commenced from April 1908

(b) Registration commenced from May 1908

LAND TRADE OF BRITISH INDIA—continued.

Total Value of Imports from, and Exports to, each country in the seven months, April to October
of each year—continued.

NAME OF COUNTRY	IMPORTS			EXPORTS			TOTAL		
	1907	1908	1909	1907	1908	1909	1907	1908	1909
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
SIKKIM—									
Bengal	3,58,770	4,81,821	4,39,806	4,68,893	4,86,955	6,09,217	8,57,663	9,68,776	10,49,023
BHUTAN—									
Bengal	6,112	6,292	3,371	7,489	9,612	2,818	13,601	15,904	6,197
Eastern Bengal and Assam	35,345	27,313	21,717	60,751	53,723	54,104	96,096	81,036	75,821
TOTAL	41,457	33,605	25,093	68,249	63,335	56,922	1,09,697	96,940	82,018
TOWANG—									
Eastern Bengal and Assam	5,046	1,104	51	...	...	...	5,046	1,104	52
NAGA AND MISHMI HILLS—									
Eastern Bengal and Assam	56,895	46,066	24,253	3,287	1,314	1,065	60,182	47,380	25,918
DUFFLA AND AKA HILLS—									
Eastern Bengal and Assam	38,599	4,603	6,156	...	...	201	38,599	4,603	6,357
WESTERN CHINA—									
Burma	16,12,170	16,25,455	13,66,037	23,15,800	23,17,465	18,33,971	39,27,970	39,42,921	32,02,028
NORTH SIAM—									
Burma	15,95,334	13,62,106	18,14,411	11,20,946	12,52,463	15,41,247	27,16,280	26,14,569	33,58,668
SOUTH SIAM—									
Burma	2,68,223	3,10,499	4,02,790	2,73,606	3,02,328	4,52,256	5,41,889	6,12,827	8,55,046
N. SHAN STATES—									
Burma	38,20,913	43,54,760	56,71,273	46,11,014	46,29,527	41,31,222	84,31,927	89,84,287	98,05,565
S. SHAN STATES—									
Burma	30,56,759	31,46,513	31,25,479	45,59,843	52,22,670	51,00,993	76,16,602	83,69,283	82,26,472
KARENNEE—									
Burma	13,81,609	9,23,682	13,74,578	11,97,111	5,37,636	8,51,889	25,78,150	14,61,318	22,26,467
GRAND TOTAL	3,75,08,532	3,93,14,067	3,73,44,765	3,67,73,162	3,87,55,686	3,67,15,846	7,42,81,694	7,80,69,747	7,40,60,611
Share of each Province in the total trade—									
Sind and British Baluchistan	48,60,622	39,43,818	41,22,857	39,06,375	42,97,667	40,97,545	87,67,197	82,41,515	85,20,402
North-West Frontier Province	45,25,738	46,18,447	48,16,492	1,04,72,477	1,03,82,709	1,05,10,571	1,19,98,215	1,50,01,156	1,53,27,063
Panjab	2,73,472	1,56,916	1,61,313	1,88,651	1,89,891	1,52,980	4,62,123	3,46,807	3,14,233
United Provinces of Agra and Oudh	46,95,941	45,80,255	55,29,029	20,40,312	18,44,941	16,22,873	67,36,215	64,25,196	71,52,504
Bengal	1,12,82,164	1,44,12,400	86,07,708	60,22,899	77,23,345	63,56,257	1,73,05,163	2,19,35,745	1,49,63,965
Eastern Bengal and Assam	1,35,885	79,086	52,178	64,038	55,037	55,970	1,99,923	1,34,123	1,08,148
Burma	1,17,34,108	1,17,23,115	1,37,54,588	1,40,78,110	1,42,62,090	1,39,19,648	2,58,12,818	2,59,85,205	2,76,74,236
GRAND TOTAL	3,75,08,532	3,93,14,067	3,73,44,765	3,67,73,162	3,87,55,686	3,67,15,846	7,42,81,694	7,80,69,747	7,40,60,611

WEEKLY TRADE MOVEMENTS.

For the week ending 22nd January, 1910.

COTTON GOODS.

Twist and Yarn.

Foreign—	{ Calcutta lbs.	. . .	418,406
Imports by sea into	{ Bombay "	. . .	110,943
	{ Madras "	. . .	213,965
Indian—	{ Calcutta "	. . .	177,660
Exports by sea from	{ Bombay "	. . .	4,363,965
	{ Madras "	. . .	12,000

Grey Piece Goods.

Imports by sea from	{ Calcutta yds.	17,207,280
	{ Bombay "	3,722,089
Foreign ports into	{ Karachi "	155,841
	{ Madras "	1,241,004
	{ Rangoon "	212,364

White Piece Goods.

Imports by sea from	{ Calcutta yds.	4,623,702
Foreign ports into	{ Bombay "	5,298,802
	{ Karachi "	80,911
	{ Madras "	776,136
	{ Rangoon "	353,092

Other Piece Goods.

Imports by sea from	{ Calcutta	yds.	..	1,617,533
Foreign ports into	{ Bombay	"	..	3,776,627
	{ Karachi	"	..	86,643
	{ Madras	"	..	1,147,852
	{ Rangoon	"	..	1,625,347

Piece Goods.

(Indian and Foreign.)

Despatches by rail from	{	Calcutta	cwt.	.	.	* 18817
		Bombay	"	.	.	572
		Karachi	"	.	.	12,506
		Madras	"	.	.	2,789

Cotton. Raw.

Imports into Bombay	{ by sea	Owt.	325
	{ Co. stwise	"	44,965
	{ by rail	"	375,917
Imports into Karachi by rail	"	"	73,854
Colombo by rail and river	"	"	15,355

JUTE.

Arrivals by all routes in Calcutta	cwt.	504,325
Exports by sea from Calcutta	Gunny bags No.	8,936,163
	" cloth yds.	25,015,125
	Jute cwt.	260,700
Chittagong-Jute		956

COTTON SEEDS.

Exports by sea from Bombay	owt. . .	517,836
----------------------------	----------	---------

OIL SEEDS.

Linseed.

0		Calcutta by rail and river cwt.	4,579
	Imports into	Bombay { By sea	29
		Coastwise	48
		By rail	4,060
		Karachi by rail	...
80		Calcutta	1
9	Exports by sea from	Bombay	4,097
3		Karachi	...

Rape and Mustard Seed.

	Calcutta by rail and river cwt.	32,648	
Imports into	{	By sea	...
		Coastwise	...
		By rail	22,437
		Karachi by rail	32,810
Exports by sea from	{	Calcutta	21,997
		Bombay	8,248
		Karachi	239,852

RICE.

Arrivals by all routes in	Calcutta	cwt.	• 350,187
	Cientta	"	179,644
	Chittagong	"	...
Exports by sea from	Bombay	"	18,438
	Karachi	"	11,008
	Madras	"	347
	Rangoon	"	168,763

TEA.

Arrivals by all routes in Calcutta	lbs.	2,898,366
Exports by sea from		
Calcutta	"	13,650,752
Chittagong	"	...

WHEAT.

	Calcutta by rail and river	cwt.	• 43,540
	Karachi by rail	"	29,310
Imports into	Bombay	{	
	{ B. sea	"	357
	{ Coastwise	"	7,265
	{ By rail	"	32,357
	Calcutta	"	"
Exports by sea from	Bombay	"	4,916
	Karachi	"	217,807

* B. N. Ry. figures not included.

EXPORTS-RUNNING TOTALS INCLUDING FIGURES RECORDED ABOVE.

		FROM APRIL		FROM JANUARY					
		1908.	1909.	1909.	1910.	1909.	1910.	1909.	1910.
		Wheat.		Linseed.		Rape and Mustard Seed.		Cotton Seed.	
Calcutta	Cwt.	46,338	3,376,645	54,563	10,440	8,803	61,270	Not	reported.
Bombay	"	78,155	2,642,957	23,598	30,091	7,301	67,578	933,967	1,655,132
Karachi	"	3,722,010	15,910,789	...	...	401,783	406,433	Not	reported.

KEROSENE OIL, WEEK ENDING 22nd JANUARY, 1910.

Imports by sea into—	FROM			
	Russia.	America.	All other foreign countries.	TOTAL.
	galls.	galls.	galls.	galls.
Calcutta	...	...	...	...
Bombay	...	...	...	...
Karachi	...	...	...	...
Madras	...	50,878	...	500,878
Exports by sea from Burma to				
		Bengal	436,800	
		E. B. & Assam	327,900	
		Bombay	...	
		Sind	...	
		Madras	...	
		Indian Ports, Non-Br.	...	
		Foreign Ports	...	

IMPORTS OF SUGAR, WEEK ENDING 22nd JANUARY, 1910.

Country of Shipment.	REFINED SUGAR IMPORTED INTO						
	Calcutta.	Chittagong.	Bombay.	Karachi.	Madras.	Bangoon.	TOTAL.
	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.
United Kingdom	8	...	22	6	25	...	61
Germany	...	...	...	...	...	...	...
Austria-Hungary	...	...	1,000	14,591	1,000	...	16,591
Other European Countries	...	...	...	...	...	...	...
Java	15,200	...	...	7	...	...	15,207
Mauritius	24,080	...	82,264	8,261	...	...	114,605
Other Non-European Countries	...	...	1,248	...	...	1,190	2,438
Total refined							148,903
Total un-refined							1
Grand Total							148,903

RESULTS OF AUCTION TEA SALES IN CALCUTTA.

DISTRICTS.	SEASON 1909-10.				SEASON 1908-09.			
	Sold in sale of 21st January.		Sold to 21st January		Sold in sale of 22nd January.		Sold to 22nd January.	
	Packages.	Average price per lb.	Packages.	Average price per lb.	Packages.	Average price per lb.	Packages.	Average price per lb.
Assam	3,995	6 10-2	171,491	7 4-4	3,937	5 9-4	180,228	6 7-8
Cachar	3,426	5 11-6	150,616	5 10-2	3,420	4 7-6	131,903	4 11-7
Sylhet	3,393	5 11-7	103,041	5 9-9	2,496	4 5-3	104,092	4 11-9
Darjeeling	135	9 11-2	61,730	10 0-5	99	5 3-7	62,919	8 7-8
Dooars	2,451	7 0-1	189,499	6 10-8	3,213	5 7-6	183,782	6 0-3
Tera	445	6 1-8	17,969	6 3-3	7	2 10-7	25,006	5 1-6
Chittagong	87	5 7	7,406	5 10-5	377	4 3-3	7,647	4 11
Chota-Nagpore	...	...	1,678	6 7	29	12 10-3	1,732	5 2-8
Kumaon and Kangra	...	...	3,288	5 8-1	...	...	2,043	5 8-3
Madras	...	...	110	5 11-7	15	5 0	169	5 2-9
Dehra Dun	...	...	358	5 11-3	...	...	...	...
Nepal	...	...	608	6 2	...	...	756	4 10
All other places	76	5 5	76	5 5	...	...	...	...
TOTAL	14,008	6 5-3	707,869	6 10-5	13,653	5 2	700,282	6 0-2

(The above do not include second-hand Tea, damaged Tea and Dust from those concerns which sell only that grade on this market.)

Season 1909-10 Average price of 42,498 packages Dust* sold to 21st January 5 5
 " 1908-09 " 40,285 " " 22nd " 5 0-4
 * On account of gardens which sell only that grade on this market.

COTTON SEED OIL IN TURKEY.

AN article on the subject of cotton seed oil published in the *Revue Commerciale du Levant*, which is the monthly bulletin of the French Chamber of Commerce at Constantinople, states that in former years cotton seed oil was used on account of its absence of taste, for mixing with Turkish olive oil to modify the generally rancid taste of the latter. The number of oil mills was small and their methods rudimentary in the extreme. The ripe olives were left in heaps waiting their turn for expression, and became rancid, with the result that the oil yielded by them was not only unpalatable but indigestible. It was therefore a great advantage to add to these bad olive oils a certain proportion of cotton oil; their bad taste was diminished and they were less harmful. Such were the oils which Turkey then exported to the neighbouring countries—Russia, Bulgaria, Roumania, and Egypt—where olives were not produced. But with the advent of protection by means of customs duties, instead of recognizing that cotton oil favoured the export trade in olive oil by improving the quality of the latter, the exporters of olive oil thought they saw in cotton oil a dangerous rival and decided that it ought to be prohibited in Turkey. On the ground, therefore, that it was "harmful to the public health," the importation of cotton seed oil was forbidden. This was 22 or 23 years ago. Recently, the prohibition has been removed, and cotton seed oil now enters Turkey without restriction. Its admission coincided with the short olive crop of 1908, and there was a considerable consumption during that year. Cotton oil and its mixtures with olive oil are sold in Turkey under the name of olive oil, which is of course wrong, and should not be tolerated. In France mixed oils are termed fine, superfine, etc., but the word olive does not appear in their descriptions; olive oil when sold as such must not contain the slightest addition of other oil. It is noted that with the free importation of cotton oil into Turkey the imports of sesame oil, which has always been permitted, has diminished and become almost nil. It is perhaps unnecessary to state that refined cotton seed oil is not regarded as in any way harmful or unsuitable for human consumption. It is, of course, at the present time consumed in large quantities as "salad" oil for culinary purposes, and as an important ingredient in many butter substitutes. It is estimated that the importation of cotton seed oil into Constantinople this year (1909) will amount to 40,000 or 50,000 barrels of 200 to 230 kilos. gross weight. The barrels are bound with eight hoops and weigh when empty from 30 to 40 kilos. It thus appears that 10,000 tons of cotton seed oil might be sold annually on this market. A year of abundance in the olive crop, however, would certainly see a reduction in the importation of cotton seed oil. Formerly, cotton oil was sold at 64 to 65 francs per 100 kilos., c. i. f. Constantinople. Prices have gradually risen owing to the importance of the demand and they are now 78, 80 and even 82 francs per 100 kilos. The article

is sold for cash against bill of lading. Even at this price, which is equivalent to about 5½ piastres per oke retail, it will be seen that it is very profitable to add a small quantity to the olive oil which is sold retail at 121 piastres.

NOTICE.

The undermentioned publications can be purchased from the Statistical Department of the Custom House.

COMMERCIAL GUIDE (MONTHLY).

	RATE.
	Rs. A.
Per annum	100 0
Per half-year	54 0
Per quarter	28 0
FOR LESS THAN 3 MONTHS:—	
To Subscribers per copy	3 0
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POSTAGE FOR ONE YEAR:—	
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In India " "	2 8

WEEKLY MANIFEST

First copy per annum	100 0
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" " " quarter	28 0
Additional copy per annum	20 0
" " " half-year	12 0
" " " quarter	8 0

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To Non-Subscribers " "	2 0

POSTAGE FOR ONE YEAR:—

Abroad per copy	5 0
In India " "	2 8

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" " " half-year	35 0
" " " quarter	20 0
For less than 3 months whether to Subscribers or Non-Subscribers, annas 5 per copy.	

POSTAGE FOR ONE YEAR:—

Abroad—One copy despatched in batches once a week	5 0
In India—One copy despatched daily	20 0
In India—One copy despatched in batches once a week	5 0
The above charges apply also to back numbers.	

MISCELLANEOUS.

Review on the Maritime Trade of Bengal (per copy)	1 0
Annual Statement of the Sea-borne Trade and Navigation of the Bengal Presidency (per copy)	6 0
Rules under the Sea Customs Act (VIII of 1878), published by the Board of Revenue, L. P., with appendices (per copy)	4 12
Schedule IV of the Indian Tariff Act, 1894 (VIII of 1894 with subsequent amendments) (per copy)	0 6

N.B.—All communications regarding the above Publications should be addressed to the Collector of Customs, Calcutta, by designation only and not by name.

H. F. HOWARD,

Collector of Customs, Calcutta.

23rd September, 1909.

THE "GALVO" FILTER

AND WATER STERILISER ANTI-SPLASH.

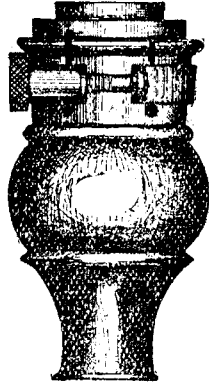
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See Medical Report.

LONDON, S.W., August 5th, 1909.
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I have passed through the "Galvo Filter" distilled water containing pure cultivations of the microbes of Typhoid Fever and Asiatic Cholera, and the filtered water was then tested by the ordinary methods of bacteriology, but in no instance did microbial growths make their appearance. The filtered water was free from microbes.

To fit $\frac{1}{2}$ inch Taps
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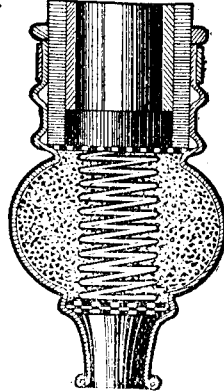
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Author of "A Manual of Bacteriology," &c.

To fit $\frac{3}{4}$ inch Taps
2 Rs. 4 as.



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PUBLISHED WEEKLY.



REGISTERED.

The Indian Trade Journal.

*Issued by the Commercial Intelligence Department,
India.*

VOL. XVI. No. 201.]

CALCUTTA, THURSDAY, FEBRUARY 3, 1910.

[ANNAS 4.]

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NOTES.

MONEY MARKET.

Wednesday Evening.

PRESIDENCY BANK RATES	Calcutta	6 per cent. (Dec. 9).
	Bombay	6 per cent. (Nov. 25).
	Madras	7 per cent. (Jan. 4).
EXCHANGE	On demand	1-4 $\frac{1}{2}$
	Telegraphic Transfers	1-4 $\frac{1}{2}$
	3 months	1-4 $\frac{7}{8}$
	6 months	1-4 $\frac{5}{8}$
GOVERNMENT PAPER (3 $\frac{1}{2}$ per cent.) Rs. 93 $\frac{1}{8}$.		

Subscribers to this *Journal* should make arrangements in their offices for the regular scrutiny of the **Enquiries Column**, and for following up such enquiries as appear suitable. There is a steady increase in the number of enquiries received from firms of position in other countries who desire to find agents in India and who would naturally prefer to deal with a firm of high standing. But it is a rule in this Department not to suggest the name of any such firm in India unless expressly authorised to do so, the reason being that such selection might appear to give an opening for undue preference. It has been ascertained that the failure to respond to these enquiries is often due to a neglect to arrange for such a regular scrutiny of the **Enquiries Column** as is here suggested.

The spot price of wheat at Karachi on the 29th January was Rs. 34-14-0 per candy of 656 lbs. This is for white wheat on a basis of 30 per cent

red wheat, 5 per cent barley and 3 per cent dirt; the price of bags included. The price of Indian grey yarn (20's) at Bombay on the 1st February was Re. 0-7-6 to Re. 0-8-0 per lb. and of Muttia Bhawnagar cotton, February delivery, Rs. 267 per candy of 784 lbs.

The wholesale spot prices of the undermentioned articles in Calcutta on the 2nd instant were as under:—

Jute—C. D. M. and Co. (Red) Group	
per 400 lbs.	Rs. 35 8 3
" M. per 400 lbs.	" 32 0 0
Rice—Ballam No. 1 per B. md.	" 3 14 3
Moonghy "	Nil.
Linseed—Bold 4½ per B. md.	Nil.
Rapeseed—Yellow, mixed, bold,	
Cawnpore, 4½ per B. md.	Nil.

The total approximate gross earnings of State and Guaranteed Railways from 1st April, 1909, to the 15th January, 1910, show a gain of Rs. 1,87,60,736 compared with the corresponding figures for 1909 and are less than those of 1908 by Rs. 21,27,114.

The following return shows the number of bales of cotton imported and exported at the various ports of the United Kingdom during the week ended 6th January, 1910:—

	Week ended 6th January, 1910.	
	Imports.	Exports.
	Bales.	Bales.
American	58,062	542
Brazilian	...	76
East Indian	6,935	139
Egyptian	14,415	7,497
Miscellaneous	518*	58
TOTAL	79,930	8,312

* Including 57 bales British West Indian.

NOTE.—Cotton "in transit" or "for transhipment under bond" if described as such in the ships' reports, is not included in this return.

On the 10th January the United States Census Bureau of the Department of Commerce and Labour issued its eighth report on the amount of cotton ginned of the growth of 1909. It makes the aggregate to January 1st 9,646,000 bales, against 12,465,000 last year, 9,952,000 to the same date in 1908, and 11,741,000 to January 1st, 1907. The amount ginned between December 13th and January 1st totals 296,000 bales, against 561,000 during the same time last year, and 667,000 in the same fortnight two years ago. Texas furnished 64,000 bales (against 14,000 and 102,000 respectively in the two

previous years), Mississippi 46,000 (against 80,000 and 109,000), Georgia 47,000 (against 62,000 and 94,000), South Carolina 34,000 (against 42,000 and 52,000), Alabama 32,000 (against 36,000 and 70,000), North Carolina 24,000 (against 32,000 and 42,000), Arkansas 15,000 (against 63,000 and 54,000), Oklahoma 12,000 (against 90,000 and 56,000), Tennessee 6,000 (against 117,000 and 21,000), and Louisiana 3,000 (against 17,000 and 59,000).

The *Financial Chronicle* published on January 9th the following summary of its reports received from correspondents in the American cotton-growing states:—The weather during the past week has been quite generally rainy, but precipitation has not been excessive. The temperature has been lower, and snow is reported from some localities. The week's plantation deliveries amount to 162,000 bales, against 180,000 bales last week, and 265,000 bales last year. The quantity of cotton now on shipboard, but not yet cleared, amounts to 143,000 bales, of which 43,000 are for Great Britain, 24,000 for Germany, and 35,000 for the rest of the Continent. The same authority makes the quantity of cotton brought into sight since September 1st as follows:—

	This year.	Last year.
Aggregate port receipts	5,237,000	6,550,000
Aggregate net overland	497,000	768,000
Aggregate southern consumption	962,000	822,000
Excess interior stocks	711,000	789,000
Total in sight to date	7,407,000	8,929,000
Brought into sight during week	237,000	349,000
Northern spinners' takings since September 1st	1,252,000	1,480,000

The following paragraph from the *Manchester Guardian* instances a successful resort by a British manufacturer to the use of raw cotton from India, but it will probably suggest to some Bombay spinners a possible opening for their yarn:—The increase this season in the crop of East Indian cotton does not balance the decrease in the American crop, and in Lancashire the objection to Surats is shared by master spinners and operatives. It is possible, however, that this objection or prejudice is sometimes carried too far. A case has been brought to our notice in which a Manchester shipper, supplying a Near Eastern market, was accustomed to buy a particular line of goods made in Italy because he could not get a quotation that would encourage him to place the order with a Lancashire manufacturer. The quotations, however, were calculated on the basis of yarns made from American cotton, and the Italian cloth was made from Indian cotton. The order being a good one, a manufacturer was induced to try what he could do with yarns made from the despised Surats, and the consequence is that he now makes quite successfully some 20,000 or 30,000

pieces a year which without this moderate enterprise would have been made in Italy. It is interesting to note that Great Britain used last season less than 70,000 bales of East Indian cotton, and Italy, with less than a twelfth of the number of spindles, over 250,000 bales. We do not wish to see the figures reversed, for we value the quality of our trade, but perhaps there may be other cases in which the Surat loaf is better than no bread.

In their weekly report on the Shanghai piece-goods market, dated the 6th ultimo, Messrs. Noel, Murray & Co. say—Forced sales of Indian yarn by native holders have kept the market well supplied at prices under what importers are willing to sell at, the sales by the latter not amounting to more than 100 bales for early delivery, though something over 1,000 bales are reported to have been taken at a slight advance in clearance after China New Year. The demand is entirely for Szechuen and the River Ports, the total transactions amounting for 1,331 bales, the market closing very firm.

It is stated in the Consular Report on the Trade of Erzeroum (Turkey) during 1908 that, with regard to the trade of Diarbekir, cotton yarn has increased from £38,000 to £40,000. A general demand is now springing up for cotton yarn from India (Bombay) in preference to the Manchester quality. In 1907 India was responsible for one-fifth of the total quantity imported, but in 1908 it contributed one-half. In 1909 India will probably increase still further her preponderance in this article. The following table will give some idea of the growth of this trade:—

Articles.	Vilayet.	1907.	1908	Increase or decrease.	Character of Trade.
Cotton yarn and thread.	Erzeroum	£ 8,850	£ 9,335	+ 485	£8,000, United Kingdom; rest Italy.
	Diarbekir	41,000	44,000	+ 3,000	United Kingdom and India.
	Van	3,000	2,500	- 500	United Kingdom.
Cotton goods.	Erzeroum	10,540	10,940	+ 400	£7,000, United Kingdom; rest Italy.
	Bitlis	6,200	8,000	+ 1,800	United Kingdom, Germany, Italy, France.
	Van	11,500	9,500	- 2,000	United Kingdom.

In our issue of January 20th (page 58) we published a note from Mr. E. F. Crowe, Commercial

Attaché, Yokohama, dealing with the export bounty on Japanese yarn. Mr. Crowe now writes to say that he learns that the Japanese shipping conference and spinners have agreed that the net freight on raw cotton from Bombay is to be 9-3 rupees a ton.

In the New York cotton market the crop positions fell as much as 47 to 54 points on 12th January and there was a similar decline at New Orleans. Reuter's New York correspondent telegraphed that at one time prices were down 78 points net. There was an enormous amount of selling, which threw the market into great disorder. The collapse had nothing to do with the day's news; it was the result of what appeared to be a combination of "bear" drives, speculative liquidation, and a withdrawal of support by the interests which fostered the recent advance. It is reported that many leading "bulls" unloaded. The market rallied somewhat near the close on buying by spinners. A New York correspondent telegraphed that the chief speculation has centered round May and July cotton. A heavy batch of orders to sell out having come in from the South there was a rapid decline, which was accentuated by foreign cablegrams indicating over-purchases. The quotations on January 12th were over \$7 a bale lower than the season's best figures.

The *Corn Trade News* gives the following summary of the world's crops as on the 11th ultimo:—United States of America—Conditions not quite so good, but no complaints, receipts fair. Canada—Receipts fair. Argentina—Estimates of surplus generally reduced. Our agent now gives wheat 10,000,000 qrs. against 12,000,000 in 1909, linseed 3,800,000 qrs. 5,000,000 qrs., oats 3,100,000 qrs. against 3,300,000 qrs. General rains benefited maize, prospects good. Australia—Harvest indications maintained big part of crop marketed, and loading active. India—Beneficial rains confirmed, good crop prospects. Russia—Weather wintry, much snow fallen. Port stocks increased slightly during December, quantities liberal. Roumania—Weather wintry, crop conditions good; supplies all cereals rather better. Bulgaria and Turkey—Crop conditions normal. Hungary—Weather turned frosty, crop conditions highly satisfactory. France—Weather dry, colder and favourable for crops, which satisfactory except minor complaints vermin and irregular plant; supplies quite moderate; some talk last crop over-estimated. Germany—Weather mild, showery; seedings made capital progress; forward growth causes some anxiety because severe frost later might be harmful. Supplies fair. Shortage of good wheat feared later. Italy and Spain—Crops favourable, supplies fair. United Kingdom—Weather favours ploughing; winter crops fair, but some thin plant mentioned. North Africa—Some rains recently fallen, but important areas were seeded dry.

It is announced that the Government of British Columbia is considering proposals made by the local Government of Alberta for the adoption of **grain elevators at Vancouver.**

The prices of British corn per quarter of 8 bushels, as received from the inspectors and officers of Excise in the week ended 8th January, 1910, were as follows:—Wheat, 33s. 6d.; barley, 24s. 11d.; and oats, 17s. 2d.

The *Corn Trade News* of January 4th writes:—From the Southern Hemisphere and India during the past 52 weeks since 1st January, the shipments of Wheat and Flour to Western Europe compare as follows with those of the five previous seasons:—

1906-qrs.	1908-qrs.	1907-qrs.	1906-qrs.	1905-qrs.	1904-qrs.
19,738,000	18,032,000	18,203,000	15,827,000	21,476,000	23,226,000

Commenting on the grain markets in its issue of January 14th, the *Times Financial and Commercial Supplement* says:—The fluctuations in prices of wheat have been unusually wide this year, the *Gazette* prices of English wheat showing a range of 13s. while foreign wheats have varied from 8s. 6d. to 10s. 6d. between the lowest and highest. During January the market was comparatively quiet under poor buying, but with February a better demand set in developing into activity, and prices advanced fully 1s. 6d. per qr. by the end of the month with reduced shipments, and the progress of a "cornering" movement in America restricting exports thence, a tendency towards easiness early in March was corrected and the upward movement resumed and maintained until advances of 5s. to 6d. over the quotations ruling at the beginning of the year were recorded. A decline of 2s. to 3s. ensued, due mainly to liquidation in America, but May saw the market better again, and in June the high prices of the year were recorded. Ready supplies were scarce, and the on-passage figures at one time during the month were the smallest on record. From the point of June there was a gradual decline until in September low-water mark of the year was reached, and since then there has been but a moderate recovery, very heavy shipments keeping the markets well supplied, although at the same time the ease with which these shipments have been taken care of has been surprising. At the end of the year the tone is firm, but buyers have again resorted to cautious methods. The American and Canadian crops have yielded abundantly and shipments thence are likely to be more liberal than from the previous year's crops. Reports from Argentina are mostly unfavourable, pointing to an exportable surplus probably less than last year. The Russian yield is officially given as the largest on record, about 97,000,000 qr. The prospects are thus for more abundant supplies this grain year than the previous one, but as stocks in consuming countries

were heavily depleted during the summer and early autumn the process replenishing these is likely to prevent the weight of increased shipments being felt.

The final forecast of the winter rice crop of Eastern Bengal and Assam for 1909-10 states that the area cropped this year was 11,775,600 acres against 11,048,400 acres last year. The estimated outturn this year is 123,055,000 cwts. against 86,067,000 cwts. last year.

A Persian correspondent informs us that the rainfall in Arabistan has been favourable this season and that if further rain falls during February and March, large crops of wheat and barley are likely to be available for export. Under such conditions it is considered possible that the exports may approach in volume those of 1907, which were 471,502 cwts. valued at £114,301.

The *Proceedings of the Fourth Conference of Registrars of Co-operative Credit Societies* have now been published by the Superintendent of Government Printing, India, and deal with a number of important questions such as cash banks with unlimited and limited liability, the utilization of reserve funds of societies, how to finance cash societies, and the organisation of co-operative stores in India.

We have received a copy of the *Report of the Indian Merchants' Chamber and Bureau for 1908-09*. It is well turned out; and both the list of membership and the range of subjects dealt with show that the body is full of vitality. It distinguishes itself by publishing a vernacular trade journal, which translates and so makes available to those of the people who do not read English a great deal of information which it would otherwise be difficult to place before them. It is sometimes urged by Indian commercial associations that this Department should publish a vernacular edition of the *Indian Trade Journal*, but this is almost forbidden by the plurality of languages in India, and by the special selection of subjects that would have to be made to interest readers in the diverse Provinces. All that the *Indian Trade Journal* can do in this matter is to bring together a quantity of commercial matter from which the Editors of local vernacular papers can make selection; and the success that is apparently attending the publication of such a journal by the Bombay Indian Merchants' Bureau should encourage gentlemen who are projecting similar ventures in other parts of India.

The *Annual Statement of the Coasting Trade and Navigation of British India* (43rd issue) compiled

in the Office of the Director-General of Commercial Intelligence, has now been published by the Superintendent of Government Printing, 8, Hastings Street, Calcutta, the price being Rs. 3 or 4s. 6d. per copy.

The Ordinance below has been enacted by the Government of Mauritius:— "The following shall be levied as **harbour dues** on every steamer entering the harbour of Port Louis for the exclusive purpose of coaling:—

	R. c.
Pilotage inwards and mooring, per ton register	0.04
Unmooring and pilotage outwards, per ton register	0.04
Light dues, per ton register	0.09
Anchorage dues, per ton register	0.08

"The above anchorage dues shall cover a period of 24 hours of daylight for coaling and there shall be charged an additional due of R. 0.05 per ton register for every subsequent 12 hours or part of 12 hours daylight, provided that the total charge for anchorage dues shall in no case exceed the maximum charge under Ordinance No. 21 of 1897 of 23 cents of a Rupee per ton register."

The fluctuations of the freight market during the past year have been exceedingly interesting, the first six months being marked by a record depression, from which, however, there has been a more or less satisfactory recovery. At one time an enormous amount of tonnage was laid up at the various ports, some 2,000,000 tons of shipping being compulsorily idle, and, in the opinion of many of those whose opinion is worth having, a worse season both for the shipping and shipbuilding trades was never experienced. Towards the middle of the year, however, an improvement set in, the Eastern trade showing great development, especially with regard to the engagement of steamers to carry **soy beans** from Manchuria to Europe. So great has been this trade that it is estimated that nearly 400,000 tons of the new edible have been shipped during the past season. It is generally felt, however, that this spurt will not last, and so strong is the feeling that there is at present far too much tonnage for the world's trade, that a special committee of the Liverpool Steamship Owners' Association has been appointed to consider the question from this point of view. During the year an attempt was made to form an **International Shipping Union** with the object of forcing up freights by compulsorily laying up about one quarter of the existing tonnage, but the scheme came to nothing. Strikes have also been numerous, though happily not in England. British shipowners have, however, suffered heavily from disputes at Marseilles, Sweden and Australia, and in this connection it is interesting to record the establishment of an **International Shipping Federation** consisting of all the local organizations, the object being to afford mutual help in maritime labour disputes.

From the returns compiled by Lloyd's Register of Shipping it appears that, excluding warships, there were 331 vessels of 913,374 tons gross under construction in the United Kingdom at the close of the quarter ended 31st December. The tonnage now under construction is about 135,000 tons more than that which was in hand at the end of last quarter and about 149,000 tons more than that building twelve months ago. Of the vessels under construction in the United Kingdom at the end of December, 250 of 653,767 tons are under the supervision of the surveyors of Lloyd's Register with a view to classification by that Society. In addition 66 vessels of 191,004 tons are building abroad with a view to classification. The total building at the present time under the supervision of Lloyd's Register is thus 316 vessels of 844,771 tons. Details of this total follow:—Building in United Kingdom for home account, for sale, etc., 216, gross tonnage 584,547; ditto for foreign and colonial account, 34, gross tonnage 69,220; building abroad for United Kingdom owners, 5, gross tonnage 1,150; ditto for foreign and colonial account, 61, gross tonnage 189,854; total building on 31st December for classification with Lloyd's Register, 316, gross tonnage 844,771. A table relating to vessels (other than warships) under construction abroad shows that the total is only 222, of 439,542 tons. The United States has 52, Germany 50, Austria-Hungary 15, France 11, Italy 11, Sweden 9, and Holland 23.

The *Manchester Guardian* of December 29th writes:—Some particulars regarding the shipping subsidies paid by the different Governments have just been given by Herr Huldermann, general secretary of the Hamburg-America Line, in a pamphlet published by Mittler und Sohn. The general impression that secret subsidies are paid by the German authorities is contradicted, and subsidies in general are deprecated as being really injurious to the healthy development of the shipping industry. The following table is given as illustrating the extent to which the practice is carried on:—

	Mercantile Marine. Reg. Ton.	Subsidies Paid (Marks.)	Subsidy per Reg. Ton. (Marks.)
Great Britain	17,378,000	34,000,000	1.95
Germany	4,267,000	8,000,000	1.85
France	1,894,000	53,000,000	28.0
Italy	1,320,000	16,000,000	12.10
Japan	1,153,000	28,500,000	24.70
Russia	972,000	11,000,000	11.30
Austria-Hungary	750,000	20,000,000	26.70
Spain	710,000	15,500,000	21.85

The loan to the Cunard Line is not taken into account. It is suggested that steps should be taken by international agreement, somewhat on the lines followed in removing the sugar bounties to prevent or to reduce the granting of shipping bounties.

The visible supply of copper continues to increase. At the end of the year it stood, according to Merton's statistics, at 109,022 tons, showing about 3,300 tons further increase in a month.

The production of silver ore at Cobalt Camp, Canada, in 1909 totalled 29,968 tons, valued at £2,400,000. In the previous year the production was 25,262 tons valued at £1,822,000. The total output for five years is 51,456 tons, valued at £6,049,000. There is a great rush to the new gold fields in the Porcupine district. On the average 1,000 men are going into the district daily.

The total quantity and value of gold extracted from the Indian mines during the month of December, 1909, were 53,289 ozs. and Rs. 30,31,581, and those in the nine months, April to December, 1909, were 425,511 ozs. and Rs. 2,42,79,532. The output as compared with the corresponding periods of 1908 and 1907 was as follows:—

Month of December.

	1909.	1908.	1907.
Mysore	ozs. 52,070	ozs. 50,792	ozs. 50,511
Nizam's Territory	Rs. 29,60,331	Rs. 29,17,536	Rs. 29,22,065
	ozs. 1,219	ozs. 1,401	ozs. 1,093
	Rs. 71,250	Rs. 81,129	Rs. 63,000

Nine months, April to December.

	1909.	1908.	1907.
Mysore	ozs. 414,002	ozs. 405,088	ozs. 403,718
Nizam's Territory	Rs. 2,36,09,032	Rs. 2,33,38,063	Rs. 2,31,92,248
	ozs. 11,509	ozs. 12,824	ozs. 10,195
	Rs. 6,70,500	Rs. 7,32,749	Rs. 5,75,668

The following statement shows the value of the monthly total net imports of gold since April, 1907:—

	1907-08.	1908-09.	1909-10.
	R	R	R
April	1,26,24,720	48,59,653	48,73,280
May	2,90,19,605	63,81,707	28,29,216
June	2,90,24,291	71,44,113	52,48,916
July	1,90,81,406	10,35,750	90,60,239
August	1,84,76,744	19,90,048	42,77,609
September	1,14,37,044	2,07,562	64,57,869
October	94,69,072	24,95,436	69,25,301
November	63,49,097	21,47,795	1,13,70,681
December	19,67,057	3,83,395	5,32,98,946
January	65,91,956	26,32,279	...
February	1,61,22,329	70,02,620	...
March	1,36,18,879	38,89,523	...
Total	17,36,77,230	4,35,51,657	...

In their Australian wool circular dated Melbourne, January 6th, Messrs. Goldsbrough, Mort & Co., Ltd., state:—Excepting a few private sales, nothing of any importance has occurred in this centre, and the majority of buyers are at present in Tasmania attending the sales there. The Launceston brokers held their sale on the 4th instant, when 5,139 bales were offered, and 4,500 disposed of—the only lots unsold being greasy merinos. Competition was keen and bidding brisk, and with the exception of merinos an all-round improvement was noticeable. The Hobart brokers held their sale yesterday, when 13,000 bales were quitted at record prices, the demand right through the sale was keen and buyers eager to purchase. Our next sale will be held on Wednesday, 12th January, when a full and representative catalogue will be submitted.

It is to be hoped, says the *Manchester Guardian*, that all connected with the wool trade—growers, dealers, topmakers, spinners, and manufacturers—may have as prosperous a year during 1910 as 1909 has proved to be. The conditions have been, almost from first to last, most favourable. Already when the year began trade in both the worsted and woollen industries, and especially in the former, had rallied considerably from the severe depression brought about by the financial panic in the United States of America and the values of all classes of tops at Bradford had advanced three pence to four pence per lb. from the lowest point. Notwithstanding the advance, a super 60's top could still be bought for less than 24d., and a 40's at 12d. These comparatively moderate prices enabled our manufacturers to quote reasonable terms for all classes of goods, with the usual result, viz., a gradually increasing demand. The finer classes of the raw material, owing to the strong consumptive demand, steadily advanced from month to month until in October they had reached a dangerous level, and a healthy reaction set in until 60's tops could be bought at 25d. At this point the heavy consumption began once more to assert itself, and values rallied to 26d., at which they still remain. During most of the year the most prominent feature in the trade has been the unpopularity of the coarser grades of tops. Formerly it used to be considered that the difference in value between a 60's and 40's top should be about 10d. or 11d. per lb., but often during the past year the difference has been abnormally great and has been as much as 15d. per lb. The comparative cheapness of these tops compared with those of merino and fine cross-bred qualities seems at least to have attracted the attention of users with the result that values have advanced during the last few weeks somewhat sharply, and the difference between the two classes is once more less than 12d. If values remain at about their present level it looks as if all connected with the wool trade may expect another good year. The one necessary condition for remunerative trade all round is an ample

supply of the raw material at fairly reasonable prices. It is now acknowledged that the increased shipments from Australia, New Zealand and South Africa will amount to not less than 200,000 bales, and we think they will exceed 300,000 bales. From the River Plate a big decrease is prophesied, but the statements about the probable size of the deficit from Argentina are evidently so exaggerated that the trade would do well to receive them with the utmost reserve.

The interesting question, says the *Manchester Guardian*, has been raised as to the increase or decrease of the number of sheep in the "Northern hemisphere," and some misapprehension appears to exist on this subject. Never before in their history did the United States and Canada depasture so many sheep as they do at the present time and Great Britain is more than holding its own. In 1907 Great Britain alone possessed 26,115,400, whilst now she has 27,618,420, the increase being about 1,500,000 sheep. We have not the figures for Ireland at hand for 1909, but in 1907 she depastured 3,316,609, so that the United Kingdom owns no fewer than 31,435,029 sheep. When one remembers the limited area of the United Kingdom compared even with single States in Australia these figures are quite surprising. It will be seen that Great Britain actually owns more sheep than Western Australia, South Australia, and Queensland all put together. In France also the sheep are increasing. Of course the number of sheep depastured in the German Empire has been declining ever since that empire was formed nearly forty years ago. The number of German sheep has gradually dwindled from about 25,000,000 to little more than 7,000,000 or about half the number an Australian population of about 4,500,000 eat every year. All available statistics suggest a very big increase in this year's wool exports from Australia. The weekly receipts at Melbourne and Sydney greatly exceed those for the corresponding period of last year. All sheep farmers, both big and little, are now fully alive to the importance of breeding and keeping only the best bred sheep. Consumers at Bradford assure that never before in their recollection has the wool shown such signs of careful breeding as it does this year.

In the course of an article on the packing for transportation of sugarcane for planting in Vol. X of the *West India Bulletin*, Mr. J. R. Bovell says:—The sugar-canes for transportation are cut at the station at which they are grown, in lengths of about 4 feet 6 inches, wrapped in sacking to avoid injury to the buds, and taken to the central station where they are to be packed. On their arrival, or, if they reach the station too late, on the following morning, about three inches are removed with a sharp knife from the ends of each stalk, and the sugar-canes immediately immersed in Bordeaux

mixture and allowed to remain for half an hour. The object in cutting off the ends of each stalk is to ensure that any fungus spores which may have germinated on the cut ends are removed. As soon as the stalks are removed from the Bordeaux mixture and have dried sufficiently, the ends are sealed with resin to which sufficient tallow or other grease has been added to prevent the resin from being too brittle. The canes are then labelled either with pieces of tin on which the numbers of the canes are recorded by punching with a sharp instrument, or with pieces of zinc on which the numbers are stamped with a steel die. The canes are now packed in cases 4 feet long by 1 foot wide by 1 foot deep, in damp, powdered charcoal which has first been passed through a sieve having 144 meshes to the square inch. From a number of experiments it has been found that in damping the charcoal 1 pint of water to 1 lb. of charcoal gives the best results. Each case should contain about 60 lb. of canes packed in about 60 lb. of charcoal (weight before damping). Sugar-canes packed in the manner described above have at various times been kept for three months and over. A case of canes was recently kept for three months and twenty days, and at the end of that time they were in excellent condition.

The daily prices of opium per chest for the periods mentioned below were as follows:—

For the week ending 29th January, 1910—

In the Calcutta market—

Behar opium—Rs. 2,257; 2,360; 2,300; 2,312; 2,291; 2,274; 2,275.

Benares opium—Rs. 2,210; 2,310; 2,250; 2,260; 2,240; 2,225; 2,225.

The prices in the time bargains for the Behar opium of the 2nd sale of 1910 were exactly same as mentioned above in case of Behar opium.

In the China market—

At Hongkong—(Exchange Rs. 133 per \$100.)

Behar opium—\$1,735; 1,750; 1,780; 1,780; 1,780; 1,750; 1,740.

Benares opium—On the 23rd and 25th January \$1,375; and 1,780, respectively; on the 24th and 28th January \$1,750.

At Shanghai—(Exchange Rs. 178 per 100 taels.)

Behar opium—No quotations received.

Benares opium—No quotations received.

For the week ending 22nd January, 1910—

In the Bombay market—

During the entire period (new, 1909-10) Rs. 1,775; (new, 1908-09) Rs. 1,400 to 1,902; and (old, 1907-08) Rs. 1,975 to 2,025. The latest prices at Hongkong and Shanghai were (new) Rs. 1,792 and 2,092; (old) Rs. 1,899 and 2,127 respectively.

The latest accounts of the North Manchurian bean crop are not very satisfactory. It would appear that the beans were adversely affected by the late rains, and are in consequence inferior in quality and size to those of the 1908 crop.

The weather conditions in India during the week ended Tuesday last were marked by the passage of a disturbance in the South, which gave a few falls of rain. The weather was generally dry over the whole of the Peninsula.

A Resolution appears in the *Gazette of India* of the 29th ultimo regarding the **Japan-English Exhibition** to be held in London in May-October this year. The Resolution gives particulars of the method of obtaining space and the tariff per square foot thereof, besides the rules and regulations for concessionaires, exhibitors and others. The Government of India have decided not to participate in the Exhibition.

The Chief Commissioner in his review on the **Forest Administration Report** of the North West Frontier Province for 1908-09 states:—The financial results of the year are satisfactory, the receipts amounting to Rs. 1,75,688 and the expenditure to Rs. 82,116, the surplus being Rs. 93,572. The gross receipts of the year were less than those of the previous year for special reasons. The prospects of the development of the revenue under various heads in the ensuing years are good.

The **Customs revenue of China** for 1909, estimated in silver, is larger than in any previous year except 1906, and its sterling value is a quarter of a million higher than in 1908. The New Year opened with a marked revival of trade, and specially a growth in exports; the most promising feature is the new trade in the **export of beans** from Manchuria to Europe, which, it is believed, will amount next year to six millions sterling. There has been a noteworthy increase in the prosperity of provinces like Yunnan and Shansi, which have suppressed the **cultivation of the poppy**. Although the **currency conditions** are unsatisfactory, there is a large increase in the inland trade, and in the material prosperity of the people, due to the general tranquillity, to the improvement in communications, the extension of the railways, and the increase in the number of steamers plying on inland waters. The Post Office, which is a useful guide to China's development, shows an increase in every branch of the service, 480 new offices having been opened during the year, and 40 million more articles dealt with than in 1908.

The **bank dividends** announced in England after the close of the old year show that there has been little change in the ratio of profits as compared with the second half of 1908. The Manchester turnover for the year, as indicated by the Clearing-house return, represented a drop of £3,615,255, but in the country as a whole there was an increase of

£1,405,084,000. The Manchester and County again pays for the half-year at the rate of 15 per cent and adds £10,000 to the reserve. No addition was made to the reserve last year, but £1,000 more was written off premises account and £9,600 was applied to depreciation of securities. The Union Bank of Manchester has increased its net profit from £38,425 to £39,353, and again announces a dividend of 12s. per share. The Lancashire and Yorkshire Bank, as usual, is paying 16s. per share and placing £10,000 to the reserve, and its balance to carry forward is increased by £2,700. The London City and Midland has a larger disposable balance, and again pays at the rate of 18 per cent per annum. The London and South-Western's 16 per cent is the same as last year, and the Halifax Joint-stock (10 per cent), National Discount (10 per cent), and Bank of Madras (10 per cent) have also maintained their positions.

The *Journal* of the London Chamber of Commerce for January writes:—The course of the **market for timber from Burma and Siam** in 1909 has fully borne out our forecast of twelve months ago. Imports have been moderate, and the demand, steady for a time, has now considerably increased. Buyers have, therefore, had, in many cases, to cover their requirements at much increased cost, and although but little business has been done at the high rates now demanded, it is not improbable that the restricted supplies may shortly give to these rather nominal rates the justification of actuality. The business done in Java timber has been small, but the prospects are more favourable, as the stocks on this side are very limited. For planks the market is now also distinctly higher, both Burma and Siam wood having recently established a further advance over the improved rates ruling since about April last, previous to which values had been very weak. Java planks have been a dull market throughout. The present tendency is for firmer values for all descriptions, both Burma, Siam and Java; supplies are likely to be quite moderate, and will probably have difficulty in keeping pace with any extensive demand.

The British Consul-General, **Baghdad**, in a letter regarding the **opening for woollen goods** in that market, reports that owing to the younger generation following European fashions large quantities of woollen and union fabrics are absorbed in that market. There is a demand for plain and fancy blacks, blues, greys and browns, as well as designs with lines and checks. Cloths with a rough surface are not in favour. Worsted fabrics should have a fine finish. Prices may range from one rupee to Rs. 3-8 per yard, 54 inches wide. It would, however, be an advantage if an agent, possessing a thorough knowledge of the trade, were sent to Baghdad to study local requirements and particularly the materials required for the uniforms of the Baghdad Army Corps.

We quote from the *Manchester Guardian's* Review of Trade and Finance in 1909 the following statement which shows the **actual quotations for a limited list of high-class securities in England** at the end of the week preceding Christmas week, with the prices at the corresponding date in the four preceding years:—

	1905	1906	1907	1908	1909
Consols (2½ per cent) . . .	89½	85½	82½	83	82
Indian Rupee 3½ per cent . .	66½	64½	63½	63½	62½
Hungarian 4 per cent gold . .	96½	96½	93½	92½	96½
Russian 4 per cent, 1889 . . .	78½	77½	81½	85	94
Argentine 5 per cent, 1886 . .	104	103½	102½	105	104½
London and North-West Rail. .	159½	151½	145	131½	133½
Canadian Pacific Rail.	177½	202½	154½	180	185½
Gd Trunk (1st pref.)	114½	118½	141½	101	103½
B. Ayres Gt Sthn. Rail.	139	125½	122½	125	122½
Atchafon Rail. shares	89	106½	72½	98½	125½
Chic., Mil., and St. Paul	185½	192½	105½	152½	163
Illinois	180½	178½	128½	150½	152½
Louis. and Nash. shares	155½	150½	92½	125	161
New York Cent. shares	156½	135½	96½	122½	128½
Pennsylvania shares	172½	71	57½	66½	69½
Union Pacific	159½	188½	120	185½	209½
Rio Tinto Copper	65½	85½	65½	72½	77½

Applications in respect of the following **new inventions** were filed in the Patent Office, Calcutta, during the week ending 24th January, 1910:—Hydrocarbon Converter Co., 37, Wall Street, New York—Improvements relating to the manufacture of gas from hydrocarbon oils and the like. C. G. Westhead, engineer, Macbeth Brothers & Company, 12, Mission Row, Calcutta, British India—A preparation for use on leather, canvas, or cloth goods and the like. A. B. Price, chief engineer, Marsland Price & Co., Ltd., Bombay—Improvements in apparatus for consolidating concrete plastic or granular matter or for analogous purposes. A. T. Reid, engineer, North British Locomotive Co., Ltd., Hyde Park Works, Sringburn, Glasgow, and J. Rickie, engineer, 277, Nithsdale Road, Dumbreck, Glasgow—An improved spring wheel. A. McLennan, manufacturer, 165, Bermondsey Street, London—An improved process for the treatment of leather. E. Richardson, engineer, Hawthorne, Victoria, Australia, and J. T. Marshall, engineer, 17, Francis Street, Leeds, England—Improvements in slide valves for fluid pressure, steam and other engines. E. Armstrong, engineer, "Elmwood," Wellington Road, Bush Hill Park, Enfield, Middlesex, England—Improvements in or relating to files, rasps, or similar tools. Kathleen M. Brown, Tordeevra, Helen's Bay, Ireland, and H. Brown, manufacturer, 14, Dublin Road, Belfast, Ireland—Improvements in electric signalling on railways. J. N. Cook, baker, Victoria Street, Paddington, Sydney, Australia—A combination pipe attachment. A. Von Groeling, engineer, Vienna—Improvements in or relating to the utilization of natural gases or petroleum distillation gases. G. Spalding, gentleman, Rockefeller Building, Cleveland, United States—Improvements in tilling machines.

It is very difficult to obtain trustworthy figures as to the cost of running **steam waggons**, and, indeed, it is fairly obvious that the cost will be largely influenced by the nature of the service. Mr. J. C. Cornock, in a paper before the Society of Engineers, gives the cost for a 5-ton waggon as about £1 per day, this including depreciation and repairs at the liberal rate of 20 per cent. The cost per ton-mile he estimates as varying from 1¼d. to 2½d., the heavier cost being incurred with short runs, long stops and loads one way only. The estimates of another writer amount to about 1½d. for coke, 5d. for wages, 2½d. for repairs and renewals, and about 2d. for other charges, or a total cost of about 11d. per mile. Although the full load on the lorry might be, say, 5 tons, the average load would probably not exceed 3 tons, which would give about 4d. per ton-mile as the cost of running. The revenue was apparently about 1s. 5d. per mile, so that the running expenses amounted to about 65 per cent of the revenue, which, curiously enough, is about the figure usual for both railways and electric tramways, although these three kinds of transport have not a great deal in common. Figures for **petrol luries** are even more difficult to obtain, as very little experience is available, but from the working costs of motor buses one would anticipate the cost to lie between 1s. and 1s. 6d. per mile.

Alcohol has often been proposed for use in gas engines, but has so far achieved no practical popularity. In a paper read before the Canadian Society of Civil Engineers, Mr. G. L. Guillet recently described some experiments carried out by him with an **ordinary oil engine using wood alcohol as a fuel**. At first it was found impossible to obtain satisfactory running with alcohol, but the troubles were traced to insufficient fuel supply and defective ignition. It would appear from the experiments that the hot tube igniter gives most uncertain firing even with a suitable explosive mixture in the cylinder, and the range of load over which satisfactory ignition could be obtained was comparatively narrow, even with electric ignition, which was, however, a decided advance over the hot tube system. It was clear, too, from the experiments that the ordinary gasoline vaporiser is somewhat unsatisfactory when used with alcohol. Although the experiments led to no startling discoveries they serve to indicate the lines along which progress towards a satisfactory alcohol engine will be likely to move—that is, a strong and certain ignition coupled probably with a higher compression and a more perfect vaporisation of the fuel. It appears that there are no inherent difficulties in the use of alcohol as a fuel, and indeed there are British firms which have for some time past offered alcohol motors to the public, although the sale of such is believed to be small.

The *Hamburger Nachrichten* recently published an interview with the Commercial Expert of the German Consulate-General at Calcutta on the

prospects of German trade with India. We take the following extracts from the interview:—
 "As regards the position of business intermediaries in the European trade with India, the Commercial Expert observed that there is a general, but mistaken, idea that Commercial Experts are trying to do away with all business intermediaries. This is, however, by no means the case; for there is no country where these intermediaries are so absolutely indispensable as in India. A manufacturer in Germany who might try to do business direct with Indian firms would soon have most disastrous experiences. It is true that in certain industries, more especially in technical industries, for instance, in the machinery industry, the exporter is not employed as intermediary, but the reason of this is that the exporter is not an expert in these goods, and that a technical intermediary or representative is indispensable. It is a different thing if the exporter can send out a technical expert of his own to India in order to represent him. In all other cases, however, in which it is intended to sell machinery, the manufacturer will always find himself obliged to send out a technically experienced representative to the country for which his goods are destined, as otherwise he will find it impossible to do any business. Two important points should especially be attended to when trading with India. Firstly, every firm should send out a traveller; and, secondly, have a representative residing in India itself. No business can be done from Germany itself with India. Even a Hamburg exporter would be unable to do any business unless he is represented out there, and unless he keeps himself constantly informed of the state of the Indian markets. The chief work of the representative lies in keeping in close touch with the bazaars; for everything that occurs in the Indian commercial world is known in the bazaars, and it is necessary to keep close watch there in order on the one hand to avoid losses, and on the other to find out what special articles are in demand."

An Antwerp report on the rubber trade, in commenting on the reduced imports of Congo rubber into that port last year (772,813 kilos against 1,119,026 kilos in 1908), states that this is due chiefly to the alterations made in the labour tax. This has been removed from certain classes of natives, who have, therefore, no longer any necessity to collect rubber with which to pay. It is further stated that considerable alterations will be made by the Belgian Government with regard to the rubber trade. The trade will be worked by private interests, the change being made gradually, but to be completed within three years from July 1st, 1910. Considerable changes are also to be introduced in the system of planting, as the present arrangement, whereby rubber collectors are supposed to plant a certain number of trees each year, has not worked satisfactorily. A tax of from 20c. to 40c. per kilo, according to the nature of the rubber, is to be paid on all exported,

and this tax is to be applied solely to the planting of new trees which will become Government property. About 5,000 acres of new land will come under cultivation each year, and it is anticipated that this will presently prove a very good source of revenue. Reference is made to the progress made with rubber cultivation in the Far East, the land under cultivation in the Malay States and the Straits being estimated at 240,000 acres, in Ceylon at 180,000 acres, and in Java, Sumatra, and Borneo at 50,000 acres, a total of 470,000 acres.

NOTICES.

INDIAN CROP FORECASTS.

SEASON 1909-10.

Dates of Publication.

The following are the dates on which the general memoranda on crops of the season 1909-10 are expected to be published in the *Indian Trade Journal* :—

RICE—			
Final memorandum	February 24,	1910	
WHEAT—			
Second	March 10,	1910	
Final	May 26,		
COTTON—			
Final	February 17,	1910	
LINSEED, RAPE AND MUSTARD (spring oilseeds)—			
Second	March 10,	1910	
Final	May 26,		
SESAMUM—			
Supplementary memorandum	April 21,	1910	
GROUND-NUT—			
Final	February 17,	1910	
SUGARCANE—			
Final	February 24,	1910	

CALLS FOR TENDERS.

Coal.

The following notice has been issued by the Director of the Royal Indian Marine, Bombay, and copies of it may be had on application to this office:—

Sealed tenders for the supply of *Indian steam coal* at the following ports, by contract, for the periods and probable quantities specified below, will be received by the Director of the Royal Indian Marine at his office in the R. I. M. Dockyard, Bombay, up to 2 p. m., gunfire, on Tuesday, the 15th February 1910, after which hour no tender will be received :—

	Annual requirement.	Period.	
		From	To
Pombay	Tons.		
Calcutta	10,000	1st Sept. 1910	31st Mar. 1911.
Colombo	7,000	1st Apr. 1910	Ditto.
Karachi	900	Ditto	Ditto.
Madras	2,000	Ditto	Ditto.
Rangoon	400	4th Aug. 1910	Ditto.
	9,000	1st Apr. 1910	Ditto.

2. Tenders must be accompanied by a Bank of Bombay receipt for the amount to be deposited or by Government Loan Paper, which is not to be endorsed to any Government officer but to stand in the name of the owner; interest being made payable at the Bombay Treasury. Tenders must be sent by Registered Post; if forwarded in any other way they will not be received. Informal tenders will be rejected and no reason will be assigned for the rejection of any tender. The Director of the Royal Indian Marine does not bind himself to accept the lowest or any tender.

3. Any tender containing a conditional clause contrary to these requirements or making stipulations not provided for either in this notice or the printed tender and schedule forms will be summarily rejected.

4. Printed tender forms, and any other information in connection with this contract, can be obtained at this office, and the forms can also be had from the Deputy Director of the Royal Indian Marine, Calcutta; Port Officer, Karachi; Presidency Port Officer, Madras; and from the Principal Port Officer, Burma, Rangoon.

5. Each tender is to be superscribed "Tender for Supply of Indian Coal."

ENQUIRIES.

(For particulars address the Director-General of Commercial Intelligence, 5, Olive Street, Calcutta.)

An asterisk (*) preceding an enquiry indicates that bank references are offered.)

Wild Animals.

(587)—The Director of a French menagerie desires the addresses of persons in a position to supply wild animals such as tigers, elephants, etc.

Jute Carpets and Rugs.

(588)—A Calcutta firm, acting for a concern in Australia, desires to be placed in communication with manufacturers of jute carpets and rugs.

Helmets, Hats and Caps.

(589)—A London limited liability company manufacturing tropical helmets, gents and ladies' hats and caps of all descriptions desires to appoint an agent in this country.

Machinery.

(590)—A Lancashire firm manufacturing engines, hoists, cranes, etc., and in a position to supply all kinds of textile machinery, desires to appoint agents in India.

Bedsteads.

(591)—An English firm of manufacturers desires the addresses of large importers of brass and iron bedsteads in Calcutta and Bombay.

BOOKS OF REFERENCE.

The following publications have been received and may be consulted by any desirous of studying them at the Office of the Director-General of Commercial Intelligence, 5, Clive Street, where they will be displayed in the ante-room till Wednesday, the 9th February, 1910:—

Parliamentary Publications.

Census of Production, 1907—Preliminary Tables summarising the results of the returns received under the Census of Production Act, 1906. Colonial Reports—Miscellaneous Series—No. 67—Southern Nigeria—Report on the results of the Mineral Survey, 1905-06; No. 68—for 1906-07. Local Taxation Returns—1906-07, Part V. Seamen's Savings Banks, Money Orders, and Transmission of Wages—Accounts for 1908-09. Western Pacific—Report by Mr. Arthur Mahaffy on a visit to the Gilbert and Ellice Islands, 1909.

Foreign and Colonial Publications.

Canada—Report of the Deputy Minister of Labour on Industrial Conditions in the Coal Fields of Nova Scotia. China—Customs Gazette, July to September, 1909;—Returns of Trade and Trade Reports, 1908, Part III, Vol. II. Egypt—Return of Shipping, Cargo and Passenger Traffic in the Ports of Egypt and Suez Canal Transits 3rd quarter of 1909. France—Statistiques Generales de Madagascar, 1907. Mexico—Monthly Trade Accounts, October 1909;—Boletin de Estadistica Fiscal, July, 1909. Netherlands—Bijlagen tot de Statistiek van Nederland. Spain—Monthly Trade Accounts, November, 1909. Cuba—Boletin Oficial, 1909.

Diplomatic and Consular Reports.

Germany—Finances of the German Empire, 1909. Italy—Foreign Trade of Italy for 1908. Switzerland—Trade of Switzerland for 1908.

Indian Publications.

Forest Administration in Eastern Bengal and Assam—Report for the year 1908-09. Agricultural Department, Bengal—Report for the year ending 30th June, 1909. Agricultural Research Institute and College, Pusa—Report for 1907-09 (Including Report of the Imperial Cotton Specialist). Agricultural Department, Bengal, Leaflet No. 7, of 1909—Simple Instructions on Arboriculture. Irrigation Department, Bengal—Resolution on the Embankment and Drainage Reports for 1908-09.

BUSINESS NOTICE.

All correspondence and remittances relating to the supply of the "INDIAN TRADE JOURNAL" should be forwarded to the Superintendent, Government Printing, India Calcutta, to whom all bills are payable.

Correspondence regarding advertisements in the "INDIAN TRADE JOURNAL" should be addressed to Reuter's Telegram Co., Ltd.; but all advertisements, blocks, etc., must be approved by the Director-General of Commercial Intelligence before insertion.

Retail trade advertisements cannot be accepted.

A full index is published as a quarterly supplement and should be filed for reference.

The annual rates of subscription to the "INDIAN TRADE JOURNAL" including quarterly index, are Indian, without postage, Rs. 12; with postage, Rs. 13; Foreign, Rs. 18. Single copies, 4 annas.

Subscribers and advertisers in the United Kingdom may remit either through a bank or by money order. For the purpose of postal remittances, one penny should be taken as the equivalent of one anna, and 1s. 4d. as the equivalent of one rupee.

Back numbers, when available, may be had at a cost of Re 1, for any number more than a week old.

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The Indian Trade Journal.

THURSDAY, FEBRUARY 3, 1910.

TRADE OF MASKAT.

THE total value of the export and import trade of Maskat for the year 1908-09 was Rs. 1,48,11,141, against Rs. 1,40,92,010 for the previous year. The increase is a little over 5 per cent. and occurs mainly under the heads of Rangoon rice imported from Bombay and American sheeting imported from Aden.

The total imports into Maskat amounted to Rs. 1,02,57,315 as compared with Rs. 98,46,560, the figure for the previous year, 1907-08. The increase amounts a little over 4 per cent.

The items which show an increase are:—

Articles.	1907-08.	1908-09.	Increase.	Per cent.
	Rs.	Rs.	Rs.	
Rice	16,50,000	21,10,725	4,60,725	28
Wheat, etc.	1,89,000	2,94,808	1,05,808	56
Piece goods	6,24,500	9,44,465	3,19,965	51
Silk goods	2,14,000	2,53,300	39,300	18
Yarn and Twist	2,74,700	3,13,845	39,145	14
Miscellaneous	2,39,000	4,18,913	1,79,913	75

There was a marked increase in the import of rice. The price of Rangoon rice during the

year under report fell very low, and the local merchants imported a large quantity with the idea of storing it and making a profit. But the price fell instead of rising, and the speculators suffered loss.

Under wheat and other grain are included all kinds of grain except rice. The imports from Persia and Turkey in Asia consist mostly of wheat and barley and from India of pulse, gram, and peas.

The increase in piece-goods was principally due to the larger import of American sheeting, which comes to Maskat from Aden. The cloth is extensively purchased by the poorer classes, as it is strong and can be dyed to any colour. Each bale is stated to contain 25 pieces of 30 yards each. The price per bale in Aden ranges from Rs. 113 to Rs. 137. The bales are sold in Maskat at from Rs. 130 to Rs. 152. Imports from India and Persia show increases of Rs. 1,01,250 and Rs. 22,800, respectively. Imports from India consist of articles of European manufacture such as coatings, trouserings, shirtings, chintz, etc. Imports from Persia chiefly consist of a dark coloured cotton stuff with a mixture of crude silk used for women's costumes. Each piece is about 8 yards in length and is sold for 8 dollars (Rs. 10-8-0) per piece.

The imports of silk and silk goods from India contribute Rs. 33,800 to the increase under this head and imports from Persia Rs. 5,500. The imports from India consist solely of raw white silk which is coloured locally and used in the preparation of lungies and pugrees.

Yarn and Twist were in excess of the demand, and a large quantity remained in hand at the close of the year. The increase in the import was due to the cheap price ruling in the Bombay market.

There is a good sale of syrups which are all of French make. The bottles are retailed at Rs. 1-8-0 per litre. Traders say that there is a good opening for British made syrup if it can compete with its French rival.

The undermentioned articles show a decrease as compared with last year's import:—

Articles.	1907-08	1908-09	Decrease.	Per cent.
	Rs.	Rs.	Rs.	
Arms and Ammunition.	41,85,760	35,64,665	6,21,095	17
Oils of all kind.	1,64,000	1,01,443	62,557	61
Wine and spirits	50,000	26,675	23,325	47
Specie	18,05,000	16,88,000	1,17,000	7

The decrease in oils is only nominal, the consignment of kerosine oil intended for consumption during the year under review, having arrived at the end of March, 1908, and having been included in last year's return. The Batoum oil, which was being imported previously, has been entirely superseded by the America Standard Company's oil known as the "Monkey" and "Snowflake" brands.

Local dealers say that the present import of spirits is only one-third of what it was ten years ago. It is probable that the decrease is due to the rise in the price of necessities of life on account of which the poorer classes are now unable to afford the luxury of alcohol.

It is difficult to account for the decrease in the import of specie. Among various causes which contribute to it, may be reckoned the lowness of the exchange rate between dollars and rupees and fluctuations in the arms trade.

The total value of exports for the year under review amounted to Rs. 45,53,826, an increase of 7 per cent as compared with the last year's figures. These figures are only approximate.

The increase is in the following articles:—

Articles.	1907-08.	1908-09.	Increase.	Per cent.
	Rs.	Rs.	Rs.	
Cotton and Cotton fabric.	24,000	28,000	4,000	14.28
Fish	70,000	76,000	6,000	7.80
Pearls	2,50,000	5,09,645	2,59,645	50.95
Specie	17,90,000	18,80,000	90,000	4.79

The increase in pearls is due to the disposal of the large stock of pearls which merchants had kept back in previous years on account of the low prices ruling in Bombay and the European markets.

The following articles show a decrease:—

Articles.	1907-08.	1908-09.	Decrease.	Per cent.
	Rs.	Rs.	Rs.	
Dates	17,31,300	17,29,450	1,850	0.10
Fruits	42,200	40,890	1,310	3.1
Limes	83,950	78,875	5,075	6.4
Mother of Pearls	71,000	69,440	1,560	2.19
Hides and Skins	60,000	58,676	1,324	2.20
Miscellaneous	1,15,500	71,500	44,000	38.9

The decrease noted against all the above heads is nominal.

There was keen competition in the pomegranate trade which formerly was the monopoly of a British Indian and an Arab firm.

The combined figures for imports and exports excluding those under arms and ammunition and specie, show an increase of Rs. 13,66,326 over the figures of 1907-08. The two items shown as excluded do not benefit the country at large, but only His Highness the Sultan and a few gun merchants and shroffs and capitalists.

The percentage of the total trade of Maskat as regards the various countries is as follows:—Aden, 0.19 per cent, America, 6.39 per cent, Belgium, 11.62 per cent, France, 2.31 per cent, Germany, 1.21 per cent, Holland, 0.03 per cent, India, 58.09 per cent, Persia, 6.92 per cent, Roumania, 1.03 per cent, Turkey in Asia, 1.85 per cent, United Kingdom, 8.48 per cent, Zanzibar, 0.22 per cent, and other countries, 1.66 per cent.

No roads fit for wheel exist in the country. Transport by land is carried on by means of camels and donkeys and at sea by country craft. Traveling in the interior is dangerous without a large escort. Agricultural prospects are very meagre. Wheat, pulse, gram and maize are grown to a certain extent, but the yield is small owing to the fact that the country is mountainous and the water supply very limited. The average yearly rainfall is 5 inches.

The Customs are managed by His Highness the Sultan through a paid Superintendent. The import duty on all articles of merchandise except arms and ammunition is levied at 5 per cent *ad valorem*. On arms and ammunition the rate is 6 per cent plus \$1 on each rifle. Duty is levied on the price of goods ruling in the local market and hence the production of invoices is dispensed with by the Customs. No export duty proper is levied on goods leaving the country, but an internal transit duty of 5 per cent is collected on dates coming to the ports for export to foreign countries or for local consumption. This duty is payable by the growers of the produce.

The port of Sur is growing in importance, and merchandise is now carried to and from India

direct by native crafts. No statistics of imports and exports relating to this port are available.

Altogether 662 vessels of 367,993 tons burden entered and a similar number cleared from the port of Maskat during year under review. There are five lines of steamers running direct from Europe, three of which are British.

TARIFF CHANGES AND CUSTOMS NOTIFICATIONS.

THE *Board of Trade Journal*, published on the 13th ultimo, in the section relating to Tariff Changes and Customs Regulations, gives particulars about:—

SWEDEN.—Increase of Import Duty on Coffee.—Proposed.

DOMINION OF NEW ZEALAND.—Regulations respecting Manufacture, etc., of Methylated Spirits.

BRITISH EAST AFRICA PROTECTORATE.—Game Ordinance, 1909.

NETHERLANDS.—Prohibition of Importation, Sale, etc., of Absinthe.

BELGIUM.—Duty Free Importation of "Diastofor." Transit of Gunpowder Authorised.

VENEZUELA.—Customs Decisions.

CHINA (MANCHURIA).—Opening of further Customs Houses.

EASTERN BENGAL AND ASSAM.

Crop Reports.

(By Telegram.)

Shillong, Feb. 1st.

THE following is a summary of the weather and crop reports of Eastern Bengal and Assam for the week ending 31st ultimo:—

The weather has been fine without rain, which is needed for the tea and *rabi* crops.

The harvesting of winter rice is finished; that of mustard and sugarcane continues. Transplanting of spring rice is progressing. Preliminary cultivation for jute and other *bharoi* crops has commenced.

The prospects of tea, wheat, tobacco and sugarcane are good; mustard and pulses fair.

The average price of common rice has fallen about 3 per cent.

Cattle disease is reported in Darrang and Sibsagar.

—A Bill is before the Natal Parliament for the regulation of the exportation of elephant tusks and the horns, hides and skins of certain game from Natal. It provides that no elephant tusk weighing less than 11 lbs. shall be exported from the Colony. Any person exporting, or attempting to export, any such tusk shall be liable to a fine not exceeding £50, and the tusk shall, if found, be confiscated.

ARGENTINA CROPS.

Writing from Buenos Ayres on December 10th a correspondent says:—The severe frosts which visited a large portion of the agricultural zone towards the end of 1908 destroyed nearly 25 per cent of the wheat, linseed, and oats crops, and the balance available for export of these three grains in 1909 has, therefore, been considerably below the exports of former years, although the area originally sown was the largest on record. The much higher prices, however, which, as a rule, have been obtained in consuming markets have gone some way towards equalizing matters.

Exports of wheat to the end of the year will be about 2,600,000 tons, compared with 3,690,000 tons during 1908, when we had the largest crop ever harvested in this country. Prospects for the new crop are excellent: harvesting has begun in some districts in the north, and a total yield of some 4½ million tons can be reckoned on, out of which there should be available for export during 1910 about three million tons.

Exports of linseed to the end of this year will now not exceed 930,000 tons, as compared with 1,080,000 tons in 1908, but the present crop is being harvested under very good conditions, and the surplus available for export in 1910 should exceed a round million tons. With regard to oats, it was calculated at the beginning of 1909 that we should have about 700,000 tons for export, but a large portion of the crop was used for fodder owing to the loss through drought of a considerable proportion of the maize and the poor condition of the pasture lands from the same cause, so that shipments this year only reach 435,000 tons, or 15,000 tons less than last year. The outlook for the new crop, the harvesting of which has started in a number of districts, is very satisfactory, and a surplus for export next year of fully half a million tons is expected.

Maize and Wool.

Though the maize crop suffered this year rather severely from frosts, drought, and locusts, it yielded considerably more than in 1908, and exports to the end of the year may be expected to reach 2,400,000 tons, as compared with 1,790,000 tons on December 31st, 1908. The outlook at present for next year's crop is distinctly favourable; the greater part has already been sown, and the abundant and general rains fallen lately have put it in excellent condition, and provided a fair amount of rainfalls in the first three months of 1910; next year's crop bids fair to pass all previous records. Locusts have of course to be reckoned with, but not to such an extent as in former years, as the heavy rains lately have destroyed large quantities of the eggs.

Exports of wool during the 1908-09 season reached the record figures of 465,000 bales, but, owing to the very heavy mortality among the flocks of the Buenos Ayres province during the past winter through the long drought, the clip this year shows

a large decrease not only in quantity but as regards quality. Exports during the new season started on October 1st, and it is generally estimated that up to September 30th, 1910, they will not exceed 400,000 bales, though, on the other hand, higher prices than last year are expected to be obtained for the wool, which will compensate to a certain extent for this shortage.

THE COTTON INDUSTRY.

THE following table, taken from the "Comtel-buro" Handbook (published in September, 1909,) gives (in thousands) the spindles, looms, consumption of cotton, and the operatives employed in each country according to the latest available estimates:—

Country.	Spindles	Looms.	Con- sump- tion. Bales.	Hands em- ployed
Gt. Britain, 1909	57,026	739	3,426	620
U. S., North, 1908	17,544	†341	2,371	†197
U. S., South, 1909	10,370	215	2,574	†121
Germany, 1909	10,163	†230	1,980	375
Russia, 1909	6,700	†155	1,495	350
Poland, 1909	1,249	*12	300	*35
Finland, etc., 1909	425	...	46	...
France, 1908	6,731	†110	890	†95
Austria, 1908	4,412	†144	860	127
Hungary, 1905	250	5	48	8
Switzerland, 1909	1,492	20	117	19
Italy, 1909	4,500	†120	700	132
Spain, 1909	1,800	55	330	70
Portugal, 1909	450	8	80	25
Belgium, 1909	1,200	†24	160	15
Holland, 1909	465	10	77	26
Sweden, 1909	420	1	90	...
Norway, 1909	87	2	17	3
Denmark, 1909	78	...	25	1
Roumania, 1899	40	...	...	...
Turkey, 1908	100	...	26	...
Greece, 1906	97	2	15	...
Egypt, 1908	36	1	3	1
Asia Minor, 1909	130	...	25	...
India, 1908	5,756	68	1,992	222
China, 1907	750	2	200	...
Japan, 1908	1,696	10	1,125	77
Indo-China, 1905	64	...	...	...
Philippines, 1905	7	...	2	...
Brazil, 1908	1,300	†27	375	...
Argentina, 1906	10	3	...	...
Peru, 1904	...	1	...	...
Colombia, 1908	6	...	1	...
Mexico, 1908	694	24	160	33
Canada, 1908	855	19	195	10
Total (estimated)	136,903	2,377	19,634	2,562

* Incomplete. † Previous returns.

The prices of middling American, fully good fair Egyptian and good Bhownggar cotton, of 32's cop twist, 60's Egyptian twist, and 20's water twist since the commencement of last season are given below, together with the Bank rate and the price

of silver:—

	Middling Ame- rican per lb.	Fully good fair Egypt per lb.	Good Bhow- nggar per lb.	32's cop twist per lb.	60's twist Egypt per lb.	20's water twist per lb.	Bank rate.	Price of silver.
1908								
Sept.	4 5-25	7 1/2	4 1/2	7 1/2	11 1/2	7 1/2	p. c.	d.
"	11 5-47	7 1/2	4 1/2	8 1/2	11 1/2	7 1/2	2 1/2	23 1/2
"	18 5-54	7 1/2	4 1/2	8 1/2	12 1/2	7 1/2	2 1/2	24 1/2
"	25 5-33	7 1/2	4 1/2	8 1/2	13 1/2	8 1/2	2 1/2	23 1/2
Oct.	2 5-13	7 1/2	4 1/2	8 1/2	13 1/2	8 1/2	2 1/2	23 1/2
"	9 4-96	7 1/2	4 1/2	8 1/2	13 1/2	8 1/2	2 1/2	23 1/2
"	16 4-99	7 1/2	4 1/2	8 1/2	13 1/2	8 1/2	2 1/2	23 1/2
"	23 5-04	7 1/2	4 1/2	8 1/2	13 1/2	8 1/2	2 1/2	23 1/2
"	30 4-99	7 1/2	4 1/2	8 1/2	13 1/2	8 1/2	2 1/2	23 1/2
Nov.	6 5-00	7 1/2	4 1/2	8 1/2	13 1/2	8 1/2	2 1/2	23 1/2
"	13 5-05	8 1/2	4 1/2	8 1/2	12 1/2	8 1/2	2 1/2	23 1/2
"	20 5-07	8 1/2	4 1/2	8 1/2	13 1/2	8 1/2	2 1/2	23 1/2
"	27 5-08	8 1/2	4 1/2	8 1/2	13 1/2	7 1/2	2 1/2	22 1/2
Dec.	4 4-97	6 1/2	4 1/2	7 1/2	13 1/2	7 1/2	2 1/2	22 1/2
"	11 4-86	8 1/2	4 1/2	7 1/2	13 1/2	7 1/2	2 1/2	22 1/2
"	18 4-82	8 1/2	4 1/2	7 1/2	13 1/2	7 1/2	2 1/2	22 1/2
"	24 4-92	8 1/2	4 1/2	7 1/2	13 1/2	7 1/2	2 1/2	22 1/2
1909								
Jan.	1 4-99	8 1/2	4 1/2	7 1/2	13 1/2	7 1/2	2 1/2	23 1/2
"	8 5-07	8 1/2	4 1/2	7 1/2	13 1/2	7 1/2	2 1/2	23 1/2
"	15 5-14	8 1/2	4 1/2	7 1/2	13 1/2	7 1/2	2 1/2	23 1/2
"	22 5-30	8 1/2	4 1/2	7 1/2	13 1/2	7 1/2	2 1/2	23 1/2
"	29 5-29	8 1/2	4 1/2	7 1/2	13 1/2	7 1/2	2 1/2	23 1/2
Feb.	5 5-15	8 1/2	4 1/2	7 1/2	12 1/2	7 1/2	2 1/2	23 1/2
"	12 5-12	8 1/2	4 1/2	7 1/2	12 1/2	7 1/2	2 1/2	23 1/2
"	19 5-09	8 1/2	4 1/2	7 1/2	12 1/2	7 1/2	2 1/2	23 1/2
"	26 5-02	8 1/2	4 1/2	7 1/2	12 1/2	7 1/2	2 1/2	23 1/2
Mar.	5 5-14	8 1/2	4 1/2	7 1/2	12 1/2	7 1/2	2 1/2	23 1/2
"	12 5-08	8 1/2	4 1/2	7 1/2	12 1/2	7 1/2	2 1/2	23 1/2
"	19 4-97	7 1/2	4 1/2	7 1/2	12 1/2	7 1/2	2 1/2	23 1/2
"	26 4-91	7 1/2	4 1/2	7 1/2	12 1/2	7 1/2	2 1/2	23 1/2
April	2 5-13	7 1/2	4 1/2	7 1/2	12 1/2	7 1/2	2 1/2	23 1/2
"	8 5-27	8 1/2	4 1/2	7 1/2	12 1/2	7 1/2	2 1/2	23 1/2
"	16 5-54	8 1/2	4 1/2	7 1/2	12 1/2	7 1/2	2 1/2	23 1/2
"	23 5-49	8 1/2	4 1/2	7 1/2	12 1/2	7 1/2	2 1/2	23 1/2
"	30 5-53	8 1/2	4 1/2	7 1/2	12 1/2	7 1/2	2 1/2	23 1/2
May	7 5-54	8 1/2	4 1/2	7 1/2	12 1/2	7 1/2	2 1/2	23 1/2
"	14 5-78	8 1/2	4 1/2	7 1/2	12 1/2	7 1/2	2 1/2	23 1/2
"	21 5-85	8 1/2	4 1/2	8 1/2	12 1/2	8 1/2	2 1/2	24 1/2
"	28 5-88	8 1/2	4 1/2	8 1/2	12 1/2	8 1/2	2 1/2	24 1/2
June	4 5-13	8 1/2	4 1/2	8 1/2	12 1/2	8 1/2	2 1/2	24 1/2
"	11 5-13	8 1/2	4 1/2	8 1/2	12 1/2	8 1/2	2 1/2	24 1/2
"	18 5-96	8 1/2	4 1/2	8 1/2	12 1/2	8 1/2	2 1/2	24 1/2
"	25 6-06	8 1/2	4 1/2	8 1/2	13 1/2	8 1/2	2 1/2	24 1/2
July	2 6-33	8 1/2	5 1/2	8 1/2	13 1/2	8 1/2	2 1/2	23 1/2
"	9 6-75	9 1/2	5 1/2	8 1/2	13 1/2	8 1/2	2 1/2	23 1/2
"	16 6-72	9 1/2	5 1/2	9 1/2	14 1/2	8 1/2	2 1/2	23 1/2
"	23 6-48	9 1/2	5 1/2	9 1/2	13 1/2	8 1/2	2 1/2	23 1/2
"	30 6-73	9 1/2	5 1/2	9 1/2	13 1/2	9 1/2	2 1/2	23 1/2
Aug.	6 6-19	9 1/2	5 1/2	9 1/2	13 1/2	9 1/2	2 1/2	23 1/2
"	13 6-72	9 1/2	5 1/2	9 1/2	13 1/2	9 1/2	2 1/2	23 1/2
"	20 6-67	9 1/2	5 1/2	9 1/2	14 1/2	9 1/2	2 1/2	23 1/2
"	27 6-73	9 1/2	5 1/2	9 1/2	14 1/2	9 1/2	2 1/2	23 1/2
Sept.	3 6-88	9 1/2	5 1/2	9 1/2	14 1/2	9 1/2	2 1/2	23 1/2
"	10 6-83	9 1/2	5 1/2	9 1/2	14 1/2	9 1/2	2 1/2	23 1/2
"	17 6-93	9 1/2	5 1/2	9 1/2	14 1/2	9 1/2	2 1/2	23 1/2
"	24 7-31	10 1/2	5 1/2	10 1/2	14 1/2	9 1/2	2 1/2	23 1/2
Oct.	1 7-29	10 1/2	5 1/2	10 1/2	14 1/2	9 1/2	2 1/2	23 1/2
"	8 7-27	10 1/2	5 1/2	10 1/2	14 1/2	9 1/2	2 1/2	23 1/2
"	15 7-41	10 1/2	5 1/2	10 1/2	15 1/2	9 1/2	2 1/2	23 1/2
"	22 7-37	10 1/2	5 1/2	10 1/2	15 1/2	9 1/2	2 1/2	23 1/2
"	29 7-71	11 1/2	5 1/2	10 1/2	16 1/2	9 1/2	2 1/2	23 1/2
Nov.	5 7-59	11 1/2	5 1/2	10 1/2	16 1/2	10 1/2	2 1/2	23 1/2
"	12 7-72	11 1/2	5 1/2	10 1/2	16 1/2	10 1/2	2 1/2	23 1/2
"	19 7-72	11 1/2	6 1/2	10 1/2	16 1/2	9 1/2	2 1/2	23 1/2
"	26 7-62	12 1/2	6 1/2	10 1/2	16 1/2	9 1/2	2 1/2	23 1/2
Dec.	3 7-72	12 1/2	6 1/2	10 1/2	16 1/2	9 1/2	2 1/2	23 1/2
"	10 7-94	13 1/2	6 1/2	10 1/2	18 1/2	9 1/2	2 1/2	24 1/2
"	17 8-03	13 1/2	6 1/2	10 1/2	18 1/2	10 1/2	2 1/2	24 1/2
"	24 8-26	13 1/2	5 1/2	10 1/2	18 1/2	10 1/2	2 1/2	24 1/2
"	31 8-50	14 1/2	6 1/2	11 1/2	11 1/2	10 1/2	2 1/2	24 1/2

The following table gives (in thousands) the acreage of the American crop for the last ten years and the total crop, the figures being those of the New York *Financial Chronicle*; also the average prices of middling American for the season at Liverpool:—

	Acreage.	Crop. In Bales.	Average price. Mid. American d.
1898-99 . . .	23,174	11,235	3.23
1899-1900 . . .	24,175	9,439	4.80
1900-01 . . .	26,334	10,425	5.04
1901-02 . . .	27,874	10,701	4.71
1902-03 . . .	27,300	10,758	5.44
1903-04 . . .	28,396	10,124	6.92
1904-05 . . .	32,364	13,577	4.92
1905-06 . . .	28,898	11,320	5.95
1906-07 . . .	31,557	13,551	6.35
1907-08 . . .	33,079	11,582	6.18
1908-09 . . .	33,512	13,829	5.50
1909-10 . . .	33,862	?	?

CULTIVATION OF SOY BEANS.

In the *Indian Trade Journal* of January 20th (p. 78) we published an article to show the importance of bacteria in the successful cultivation of this bean. Additional information on this point will be found in Farmers' Bulletin No. 315, published by the United States Department of Agriculture, from which we take the following extracts:—

When Inoculation is Desirable.

Inoculation is desirable—

- (1) If the soil has not previously borne leguminous crops.
- (2) If legumes previously grown on the same land were devoid of nodules.
- (3) If the legume to be sown belongs to a species not closely related to one previously grown on the same soil.
- (4) If the soil produces a weak growth of legumes, even though their roots show some nodules.

It is significant of the relative value of pure culture inoculation that a high percentage of beneficial results is being obtained, not only where legumes new to the region are being tried, but where the ordinary legumes used in rotation have been inoculated, a phenomenon which is undoubtedly due to the increased virility of the nodule-forming bacteria resulting from the proper development of the pure cultures in the laboratory. It is also true that the crops following the inoculated legumes have in many cases shown grains not evident in the legume crop. The practice of inoculating is therefore justified where legumes are naturally inoculated but do not seem to reach their full vigour nor to give the best results as green manures.

When Inoculation is Useless.

Inoculation is of no value—

- (1) If the legumes usually grown are producing average yields and the roots show nodules in abundance.

(2) If the soil is in such condition as to prevent the normal growth of the bacteria or of the leguminous plants.

(3) If the directions for handling the cultures are not studied carefully and followed intelligently.

(4) If the soil is acid and in need of lime. Liming to correct acidity is as important for the proper activity of the bacteria as for the growth of the plants.

(5) If the soil needs fertilizers, such as potash, phosphoric acid, or lime. The activity of the nodule bacteria in securing nitrogen from the air and rendering it available to the legumes will not take the place of such fertilising elements as potash and phosphorus.

It must be remembered that inoculation will not overcome results due to bad seed, improper preparation and cultivation of the ground, and decidedly adverse conditions of weather or climate. Before attempting to inoculate a new crop the farmer should first inform himself thoroughly concerning the proper handling of the crop itself; otherwise failure is almost certain. As an illustration, sowing alfalfa on hastily prepared land, on land foul with weeds, and on acid soils or soils underlaid with hardpan, is contrary to accepted practice.

Free publications covering the essential points in growing all common legumes may be obtained from the State experiment stations and from the United States Department of Agriculture.

Danger in Inoculation by Soil Transfer.

Very satisfactory inoculations have been obtained by transferring soil from old fields where legumes have been grown, but there are dangers incident to such soil transfer which should be noted.

The source of supply should be very definitely known, and in no case should soil be used from fields which have previously borne any crops affected with a fungous disease, or with nematodes. Numerous animal and plant parasites live in the soil for years and are established in so many localities that it is manifestly unwise to strip soil indiscriminately from one portion of the country to another.

Of scarcely less importance is the danger of disseminating noxious weeds and insect pests through this plan of inoculating by means of natural soils. Even though weeds may not have been serious in the first field, the great number of dormant seeds requiring but a slight change in surroundings to produce germination is always a menace.

If soil is to be used, however, whether obtained from near-by fields or shipped long distances, the evidence should be clear that the soil is free from the objections mentioned above.

This season has been characterised by a marked shortage in the world's supply of certain oilseeds—namely cottonseed and linseed. In the face of that

*The quantity of soil from a thoroughly inoculated field regarded as sufficient for inoculating an acre of land for alfalfa, for instance, is variously placed at 200 to 500 pounds.

shortage the plight of the European crushers would have been most serious but for the sudden appearance of the soy bean. On the other hand, the appearance of vast supplies of that bean would almost certainly have affected to a serious extent the prices of linseed and cotton seed, had it not been for this shortage in these crops reported from America, Argentina, etc. As it is, India is receiving extraordinarily good prices for her cottonseed, and the rates for linseed continue exceptionally high. This is peculiarly fortunate as it gives us time to produce or obtain a supply of soy bean seed and to make all dispositions for undertaking the cultivation of the new crop.

THE "B. D. A." MARK.

On the 30th November, 1909, at 7, Whitehall Gardens, the Board of Trade heard arguments in support of the Objections of the Manchester Chamber of Commerce against the registration of the letters "B. D. A." as a standardising mark for cotton piece-goods, such mark when registered to have all the rights of a trade mark.

The Bradford Dyers' Association Limited, had applied for this registration under section 62 of the Trade Marks Act of 1905, which provides that where any association or person undertakes the examination of any goods in respect of origin, material, or other characteristic, and certifies the result by mark, the Board of Trade—if they judge it to be to the public advantage—may permit such association or person to register the mark as a trade mark in respect of the goods, whether or not such association or person be a trading association or trader, or possessed of a goodwill in connection with such examining or certifying. The section continues—"When so registered, the trade mark is to be deemed in all respects to be a registered trade mark, and the association or person to be proprietor thereof, save that such trade mark shall be transmissible or assignable only by permission of the Board of Trade." The controversy mainly turned on the words "if the Board judge it to be to the public advantage."

There was a preliminary hearing in May last, when the Chamber was directed to formulate its objections, with a view to the case being argued before the Board of Trade at a later date. These "objections" had been lodged with the Department, and had been followed by formulated "observations" upon them, prepared by the Bradford Dyers' Association. These, in turn, had been answered by a series of "Replies" by the Chamber, and the issue being thus clearly defined, the hearing was fixed by the Board of Trade for the 30th November, both parties being represented.

The case for the Chamber was as follows:—Subsection (10) of section 64 of the Act, which deals exclusively with "cotton" marks forbids the registration of words alone as trade marks in respect of

cotton piece-goods and yarn, and *a fortiori* forbids the registration of letters alone. It also states that no registration of a cotton mark shall give any exclusive right to the use of any letter. The Chamber contended that a registration which was prohibited under section 64 (10) could not, to the public advantage, be permitted under section 62, or even be effectively granted at all. The Chamber further denied that the Bradford Dyers' Association was such an association as is contemplated by section 62, and therefore contended that it was not entitled to obtain registration under that section.

The Chamber pointed out the hardship which would ensue to the large number of former applicants who had been refused registration of "word" and "letter" marks and also to the numerous owners of such marks if "B. D. A." were registered. No power existed, it was contended, under section 62 of the Act, enabling the Board to register a non-registrable mark in the cotton classes. It certainly was not to the public advantage that the Board should assume such a power.

The Chamber, of course, made it quite clear that it was not to the user, but to the registration of these letters, that opposition was offered.

On the second point the Chamber urged that the Bradford Dyers' Association was a trading association, and was not such a standardising body as was contemplated by the section. They merely certified that their own work whilst a public standardising authority should be prepared to certify the work of any producer who applied to them. Their standards were liable to variation. The Association had no claim to be treated in an exceptional manner.

In their Observations upon the Objections the Bradford Dyers' Association called attention to the absence of a formal opposition, the Chamber being heard not as directly interested parties, with marks of their own, but rather *ex gratia*, and in recognition by the Board of Trade of the statutory advisory position which the Trade and Merchandise Marks Committee of the Chamber held under the Act in respect of cotton marks. The Association said that Section 64 (10) did not forbid the registration of "letters" alone, but merely deprived the registered owner of a "letter" mark of exclusive right to the use of it. There was nothing in the Section expressly to prevent letters being registered. Section 64 did not govern and over-ride the provisions of Section 62. The Chamber had failed to appreciate the special character of a mark granted under Section 62. Such a mark would not indicate ownership of the goods produced by the proprietor of the trade mark. It was only to certify some standard of manufacture, quality, or other characteristic of the goods. It could not be assigned without leave of the Board of Trade, and was only to be used subject to restrictions on the part of the Department.

The Association distinguished between "mark" as used in Section 62, and "trade mark," and pointed out that Section 3, which defined a "mark"

included "letters." Special marks might, in their nature, be excellent special standardising marks, and yet quite incapable of registration under other sections of the Act. The Association had a special staff and facilities to enable them to examine and certify whether the dyed and finished goods submitted to them were of the approved dye and finish. Registration of the letters "B. D. A." could not inflict hardship on other users of letters, because the Association had, in fact, used those letters for years, and their common law rights were unaffected by the question of registration. No other buyer or finisher had ever used the combination "B. D. A." It was inaccurate for the Chamber to allege that the Association could not be a legitimate standardising association accessible to any producer of the goods or commodity which the Association undertook to standardise. The Association undertook no mechanical work, and the Chamber was confusing the position of the Association with that of its subsidiary companies who actually dyed and finished the goods. As to the alleged possibility of variation of standards—these could not be varied without permission of the Board of Trade.

At the hearing the Board of Trade was represented by Mr. G. S. Barnes, of the Companies' Department; Mr. Temple Franks, Controller of Patents; Mr. G. J. Stanley, of the Commercial Department; and Mr. J. W. Madders, Keeper of Cotton Marks.

Mr. Harry Nutall, M.P., a Director of the Chamber and an ex-President; Mr. E. L. Hoyle, Director; Mr. J. Rankine Finlayson; Mr. M. J. Riley, Solicitor; and Mr. Walter Speakman, Secretary, attended on behalf of the Manchester Chamber of Commerce. The Bradford Dyers' Association was represented by Mr. Sharp, Chairman of the Association, and other Directors, with Mr. McKenna, Solicitor.

Mr. McKenna had charge of the case on behalf of the Bradford Dyers' Association. Mr. Riley represented the Chamber of Commerce, being followed by Mr. Hoyle and Mr. Finlayson.

Mr. Barnes expressed no definite conclusions at the moment, but on the 10th December the following letter was addressed to the Chamber from Sir H. Llewellyn Smith, Permanent Secretary to the Board of Trade:—

"With reference to previous correspondence and the hearings which have taken place at this office with regard to the applications of the Bradford Dyers' Association, Nos. 117150 and 117151, for the registration of the mark "B. D. A." under section 62 of the Trade Marks Act, 1905, in class 24, I am now directed by the Board of Trade to inform you that they have arrived at the decision that it would not be to the public advantage for them to accede to these applications."

The *Manchester Courier* of the 14th December, in publishing the Board of Trade communication giving the result, thus summarises the matter:—

It may be remembered that by making application under section 62 of the Trade Marks Act of 1905, the Bradford Dyers' Association sought to establish

their right to have the initial letters of their Association registered as a trade mark on the ground that they propose to standardise their work, and to guarantee it by this mark. As section 64 forbids the registration of all words in the cotton classes—and as the Chamber contends—a *fortiori* of letters and explicitly says that no registration of letters shall give an exclusive right to their use, the Chamber, which is invested with a certain advisory capacity in respect of the Act, took objection to the passing by the Board of Trade of the application of the Bradford Dyers, on the ground that it would enable anyone who professed to "standardise" to get round the carefully drafted provisions of section 64, which forms part of the Statute mainly on the representation of the Chamber. Since the letters of the alphabet are limited in number, it is evident that it would be most inconvenient to give to any firm a proprietary right in any of them, or at least to recognise such right by regulation. Thousands of marks are current in the cotton classes, and it has long been a well-understood rule of the trade that letters of the alphabet should be excluded from such use. Nothing of course, in the decision of the Board of Trade debar the Association from continuing to use the mark; registration is forbidden, that is all. Their common law right to continue to apply this mark wherever their customers raise no objection continues as strong as ever.

Other particulars of the "B. D. A." mark were given in the *Indian Trade Journal* of July 1st, 1909 (p. 13).

—At the general meeting of the Atmospheric Nitrogen Utilisation Company, Wiesbaden, recently held at Cologne, the Chairman stated they were faced with the necessity of seeking absorption by some financially stronger concern in order to escape from their present difficulties. Negotiations had been carried on with a French as well as a German syndicate with this end in view, and the shareholders were recommended to accept the terms of the French syndicate, a course which was agreed to. The directors are thoroughly convinced of the merits of their system and their difficulties are not of a technical nature. Under the new arrangement operations will be conducted on a considerably enlarged scale. The present plant will be enlarged, a new plant built at Innsbruck and water power in the Spanish Pyrenees exploited. The power plant to be erected in the Pyrenees will develop 25,000 horse-power, and will be under the control of a separate company, which will lease it to the Atmospheric Nitrogen Company for 500,000 francs per annum. A new board of directors has been appointed, four members being appointed by the old company, three by the firm of Ganz and Company, Pesth, and seven by the French syndicate. The Atmospheric Nitrogen Company was formed about three years ago for the purpose of manufacturing nitrates, nitrites, and concentrated nitric acid from the air, but has not succeeded in reaching the profit-earning stage.

EXPANSION OF BRITISH FOREIGN TRADE.

THE *Monthly Record* of the Manchester Chamber of Commerce writes:—The monthly returns of imports and exports are so often questioned as to their fitness to be regarded as a true measure of the growth of our foreign trade owing, of course, to fluctuations in values, that some index, taking account of such fluctuations, is very desirable. In view of this need, the Board of Trade recently published a return in which the growth in imports and exports since 1900 was shown, after adjusting same on the basis of the average values for 1900.

Mr. R. N. Barclay has now supplied us with the annexed tables, in which is shown the progress attained since the year 1877. The method followed has been to adjust the Board of Trade returns according to the variations in Mr. Sauerbeck's price index numbers, the result being brought out in the form of a trade index number, 100 representing the average of the trade for the range of years 1867 to 1877.

Of course, such an index number can only be regarded as approximating to the actual position, as each article ought to be treated separately according to price and quantity, if an absolutely correct pointer is to be obtained, but the calculations made come sufficiently near the truth to serve a useful purpose at a time when the position of our trade in being so freely discussed.

A chart, which is not reproduced here, shows at a glance the steady expansion which has taken place during the past 32 years. During these years our population has increased about 30 per cent, while the index number for imports and exports, as here shown, has advanced over 130 per cent.

Imports and Exports.

Year.	Sauerbeck's Index Price.	Total of Imports and Exports.	Comparative figures, corrected by variation in Index Price.	Trade Index.
1867	100	500,985,666	...	...
1868	99	522,472,062	...	...
1869	93	532,475,266	...	...
1870	96	547,333,070	...	...
1871	100	614,590,180	...	...
1872	109	669,282,458	...	...
1873	111	682,292,137	...	...
1874	102	667,733,165	...	...
1875	9	655,551,900	...	...
1876	9	631,931,305	...	...
1877	94	646,765,702	...	...
Average	100	606,492,536	606,492,536	100
1878	87	614,254,600	706,039,770	116 ⁴
1879	83	611,775,239	737,078,601	121 ⁵
1880	88	697,644,031	792,777,308	130 ⁷
1881	85	694,105,264	816,594,428	134 ⁶
1882	84	719,680,322	856,762,283	141 ³
1883	82	732,323,649	893,083,718	147 ³
1884	76	685,986,152	902,613,358	148 ⁶
1885	72	642,442,263	892,280,921	147 ¹
1886	69	618,822,935	896,844,833	147 ⁹
1887	68	643,490,449	946,309,484	156 ⁶
1888	70	686,213,284	980,304,690	161 ⁶
1889	72	743,230,274	1,032,264,269	170 ²
1890	72	748,944,115	1,040,200,160	171 ⁵
1891	73	744,554,982	1,034,104,142	170 ⁵

Year.	Sauerbeck's Index Price.	Total of Imports and Exports.	Comparative figures, corrected by variation in Index Price.	Trade Index.
1892	68	715,431,048	1,052,108,894	173 ⁵
1893	68	681,826,443	1,002,685,953	165 ³
1894	63	682,130,677	1,082,747,106	178 ⁵
1895	62	702,522,065	1,133,100,105	186 ³
1896	61	738,188,118	1,210,144,456	199 ⁵
1897	62	745,203,078	1,201,940,448	198 ²
1898	64	764,558,690	1,194,622,953	197 ¹
1899	68	814,570,241	1,197,897,413	197 ⁵
1900	75	877,448,917	1,169,931,889	192 ⁹
1901	70	861,854,466	1,242,649,237	204 ⁹
1902	69	877,630,053	1,271,927,613	209 ⁷
1903	69	932,973,961	1,308,657,914	215 ⁸
1904	70	922,033,949	1,317,219,927	217 ²
1905	72	972,616,444	1,350,856,172	222 ⁷
1906	77	1,068,566,318	1,387,748,465	228 ⁸
1907	80	1,163,785,109	1,454,731,386	239 ⁸
1908	73	1,050,025,871	1,438,391,604	237 ²

Imports.

Year.	Sauerbeck's Index Price.	Total Imports.	Comparative figures, corrected by variation in Index price.	Trade Index.
1867	100	275,183,137	...	...
1868	99	294,693,608	...	...
1869	98	295,460,214	...	...
1870	96	303,257,493	...	...
1871	100	331,015,480	...	...
1872	109	354,693,624	...	...
1873	111	371,287,372	...	...
1874	102	370,082,701	...	...
1875	96	373,933,577	...	...
1876	95	375,154,703	...	...
1877	94	394,419,682	...	...
Average	100	339,926,145	339,926,145	100
1878	87	368,770,742	423,874,416	124 ⁷
1879	83	362,991,875	437,339,608	128 ⁷
1880	88	411,229,565	467,306,324	137 ⁵
1881	85	397,022,439	467,085,281	137 ⁴
1882	84	413,019,608	491,690,009	144 ⁶
1883	82	426,891,579	520,599,487	158 ¹
1884	76	390,018,569	513,182,328	150 ⁹
1885	72	370,967,955	515,233,271	151 ⁶
1886	69	349,863,472	507,042,517	149 ²
1887	68	362,237,564	532,687,594	156 ⁷
1888	70	387,635,743	553,765,347	162 ⁹
1889	72	427,637,595	593,941,104	174 ⁷
1890	72	420,691,997	584,294,440	171 ⁹
1891	72	435,441,264	604,779,533	177 ⁹
1892	68	423,793,882	623,226,297	183 ³
1893	68	404,688,178	595,129,673	175
1894	63	408,344,810	648,166,365	190 ⁷
1895	62	416,689,658	672,080,093	197 ⁷
1896	61	441,808,904	724,276,892	213 ¹
1897	62	451,028,960	727,466,065	214 ⁶
1898	64	470,544,702	735,226,097	216 ⁸
1899	68	485,035,583	713,287,622	209 ⁶
1900	75	523,075,163	697,460,217	205 ²
1901	70	521,090,198	745,700,283	219 ⁴
1902	69	528,391,274	765,784,455	225 ²
1903	69	542,600,289	786,377,230	231 ³
1904	70	551,038,628	787,195,040	231 ⁶
1905	72	565,019,917	784,749,836	230 ⁶
1906	77	607,888,500	789,465,585	232 ⁸
1907	80	645,807,942	807,259,928	237 ²
1908	73	593,140,723	812,521,538	239

Exports.

Year.	Sauerbeck's Index Price.	Total Exports (including Re-Exports)	Comparative figures, corrected by variation in Index Price.	Trade Index.
1867	100	225,802,529	...	...
1868	99	227,778,454	...	...
1869	98	237,015,052	...	...
1870	96	244,089,577	...	...
1871	100	283,574,700	...	...
1872	109	314,588,834	...	...
1873	111	311,004,765	...	...
1874	102	297,650,464	...	...
1875	96	281,612,323	...	...
1876	95	256,776,602	...	...
1877	94	252,346,029	...	...
Average	100	266,566,393	266,566,393	100
1878	87	245,483,858	282,165,354	1059
1879	83	248,783,364	299,738,993	1124
1880	88	286,414,166	325,470,984	1229
1881	85	297,982,775	349,509,147	1311
1882	84	306,660,714	365,072,278	1369
1883	82	305,437,070	372,481,232	1397
1884	76	295,967,583	389,431,030	1449
1885	72	271,474,308	377,047,650	1411
1886	69	268,959,463	389,796,323	1462
1887	68	281,262,885	413,621,890	1552
1888	70	298,577,541	426,539,344	1600
1889	72	315,592,679	478,323,165	1644
1890	72	328,252,118	455,905,719	1710
1891	72	309,113,718	429,324,608	1611
1892	68	221,641,166	428,882,597	1609
1893	68	277,138,270	407,556,279	1528
1894	63	273,785,867	434,589,741	163
1895	62	285,832,407	461,020,011	1729
1896	61	296,379,214	485,867,564	1823
1897	62	294,174,118	474,474,384	1780
1898	64	294,013,988	459,396,856	1722
1899	68	329,534,658	484,609,791	1818
1900	75	354,373,754	472,498,339	1772
1901	70	347,864,268	496,948,954	1861
1902	69	349,238,779	506,143,158	1899
1903	69	360,373,672	522,280,684	1959
1904	70	371,015,321	530,021,887	1988
1905	72	407,596,527	566,106,287	2124
1906	77	460,677,818	598,282,880	2244
1907	80	517,977,167	647,471,459	2430
1908	73	456,885,148	625,870,065	2348

—A Tokio correspondent states that the economic situation in Japan is not encouraging, and the looked-for revival has not arrived. As a result depression in manufacturing is very great, and the agricultural section throughout the entire island is gloomy. A bounteous harvest has brought down the price of rice, and as a result the amount of money in the hands of the large consuming class is for the present comparatively small. The weaving industry is particularly hard hit by this depression, and a limit is being put upon production by agreement among the weavers. Immediate release from this embarrassment is not looked for in economic circles; but on account of the fact of a magnificent harvest and a good silk year, together with the recovery of the balance of trade which is rapidly being accomplished, it is hoped that a greater degree of content will be brought about at least by next spring.

THE BRITISH MONEY MARKET.

THE year 1909, says the *Times Financial and Commercial Supplement*, has not, on the whole, been a year of great prosperity, but it was a great improvement on 1908. The world generally reduced its transactions in 1908; it appreciably expanded them in 1909, and in some directions the expansion has been considerable. The Money Market varied little during the first nine months of the year. The bank rate rose from $2\frac{1}{2}$ per cent to 3 per cent on January 14th, was lowered to $2\frac{1}{2}$ per cent again on April 1st, and remained undisturbed until October 7th, on which date it was advanced to 3 per cent in consequence of considerable gold withdrawals for export. On October 14th, it rose to 4 per cent, and on the 21st to 5 per cent. Seven weeks later, on December 9th, the movement of gold having been turned in favour of London, the rate was fixed at $4\frac{1}{2}$ per cent, and on January 6th, 1910, it was lowered to 4 per cent. These changes are evidence of a normal state of the Money Market, which has responded readily to the varying character of the year's transactions. The record of the London Bankers' Clearing House as usual gives fairly accurate general indications of the course of business. The following table, giving the amounts cleared in each of the four quarters of the year, is compiled from Mr. Martin Holland's annual statement, which was quoted at length in the *Times*, of January 3rd, 1910:—

Statement of Amounts Cleared at the London Bankers' Clearing House in 1909 (000's omitted).

Periods.	1909.	1908.	INCREASE OR DECREASE.	
			Amount.	Per cent.
1st Quarter	£ 3,288,337	£ 3,109,269	+ 179,068	+ 5.8
2nd "	3,416,631	2,969,285	+ 447,346	+ 14.9
3rd "	3,262,036	2,927,084	+ 334,952	+ 11.5
4th "	3,555,442	3,114,721	+ 440,721	+ 14.3
Year	13,525,446	12,120,362	+ 1,405,084	+ 11.6

It will be noted that the increase in the first quarter was small, that that in the second quarter was very much greater, and that after a slight reduction in the rate of expansion in the third period a high rate of increase again appeared at the close of the year. The high rate of the second quarter was largely due to the numerous new issues which followed the reduction of the Bank rate to $2\frac{1}{2}$ per cent on April 1st; and throughout the year the increase in the clearings on Stock Exchange Settling days has been an important feature. Mr. Holland's tables show that the average amount cleared on those occasions was £88,716,000, which is a higher average than has been previously recorded in any year; the next biggest average was £86,275,000, the figure for 1905. The rush of new issues of capital was greater in the first than in the second half of the year; for the whole year the increase in Stock Exchange clearings was about 27 per cent, while that in the total clearings was only 11.6 per cent.

BURMA TEAK TRADE.

THE following particulars are taken from the Report on the Forest Administration in Burma for the year 1908-09:—The outturn of teak extracted by Government agency and by purchasers is compared with that of the previous year in the following statement:—

	Government.		Purchasers.		Total.	
	1907-08.	1908-09.	1907-08.	1908-09.	1907-08.	1908-09.
1	3	4	5	6	7	
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Pegu	33,620	35,017	2,311	5,381	35,931	40,398
Tenasserim	118,419	7,136	24,554	27,893	42,073	35,029
Northern	653	949	76,631	100,078	77,284	101,027
Southern	9,562	7,999	59,012	85,687	68,474	93,686
Total	62,254	51,101	163,408	219,039	225,662	270,140

The decrease of 11,153 tons in the quantity of teak extracted by Government agency was chiefly

due to a falling off in the Tenasserim Circle which is not explained by the Conservator, but must be caused by the giving up of areas, formerly worked departmentally, to purchase-contractors.

Apparently 902 tons of selected teak squares were supplied to the Admiralty during the year, but the Pegu Circle report is not clear on the point, nor is mention made in it of any timber being supplied as usual to the Royal Indian Marine or to other Government Departments.

The quantity of teak extracted by purchasers was 55,631 tons greater than in 1907-08. This large increase took place chiefly in the Northern and Southern Circles and was due to a favourable floating season and unusually heavy floods in November. Of the total quantity of 219,039 tons, purchase contractors extracted 208,587 tons on which the average royalty realized was Rs. 19-3-9 per ton.

Other Timber.

The following statement shows the quantities of timber other than teak and of fuel extracted by departmental agency and purchasers as compared with the previous year:—

Circle.	RESERVED WOODS.		UNRESERVED WOODS.		FUEL.		TOTAL, 1908-09.			TOTAL, 1907-08.		
	By Government.	By purchasers.	By Government.	By purchasers.	By Government.	By purchasers.	Re-served woods.	Unre-served woods.	Fuel.	Re-served woods.	Unre-served woods.	Fuel.
1	2	3	4	5	6	7	8	9	10	11	12	13
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Pegu	1,038	25,716	758	63,631	91	13,828	6,754	64,389	131,919	24,329	53,798	129,406
Tenasserim	1,147	32,746	2,041	54,244	20	38,566	33,898	56,285	38,586	37,660	52,989	44,320
Northern	10	5,974	1,553	71,314	702	73,073	5,984	72,867	73,775	5,645	79,366	68,075
Southern	3,970	681	125	52,446	3,207	29,102	4,651	52,571	32,309	4,144	52,899	32,364
TOTAL	6,165	65,117	4,477	241,635	4,020	272,569	71,282	246,112	276,589	71,778	239,052	274,105

The total quantities do not differ materially from those of 1907-08. They include under reserved woods 38,522 tons of *pyinkado* and 555 tons of *padauk*, and under unreserved woods 127,587 tons of *ingyin* and *thitya*. Efforts continued to be made in the Northern Circle to encourage the use of woods other than the well known ones, and it is hoped that they will soon be assisted by the building of a seasoning-shed at Mandalay. A recrudescence of plague caused a decrease in the demand for timber in the Mandalay market.

The number of *pyinkado* sleepers cut departmentally in the Pyinmana division was 122,063, of which 104,149 were apparently sold to the Burma Railways Company. It was arranged during the year that the departmental supply of sleepers to the Railways Company should cease, and that the Company should make their own arrangements with local contractors who will be supplied with the necessary trees from reserved forests by the Forest Department.

Financial Results.

The following statement shows the financial results of the forest year under report, and the sources of income as compared with the preceding year:—

Circle.	Receipts.	Charges.	Surplus or deficit.	Percentage of net to gross revenue.
1	2	3	4	5
	Rs.	Rs.	Rs.	
Pegu .	29,59,487	14,60,395	14,98,492	51
Tenasserim .	18,75,206	7,79,346	10,95,860	58
Northern .	20,63,953	6,51,658	14,12,295	68
Southern .	22,26,482	7,95,373	14,31,109	64
General Direction.	3	36,892	-36,889	...
Total for 1908-09 .	91,25,131	37,24,264	54,00,867	59
Total for 1907-08 .	88,33,420	35,94,633	52,38,787	59
Difference .	2,91,711	1,29,631	1,62,080	...

Particulars of Revenue.	1907-08.	1908-09.	Increase or decrease.
1	2	3	4
	Rs.	Rs.	Rs.
Timber and other produce removed by Government agency	34,96,557	28,01,672	-6,94,885
Timber and other produce removed by purchasers and consumers .	...	...	...
Timber .	41,56,138	51,00,449	+9,44,311
Firewood and charcoal .	1,71,527	1,74,113	+2,586
Bamboos and canes .	2,01,496	2,24,780	+23,284
Grazing and fodder .	3,418	8,180	+4,762
Other minor produce	2,09,612	2,17,255	+7,643
Confiscated drift and waif wood .	2,17,278	2,25,904	+8,626
Duty on foreign timber and other produce	2,50,573	2,52,099	+1,526
Miscellaneous .	1,26,821	1,20,679	-6,142
Total .	88,33,420	91,25,131	+2,91,711

The above figures include the charges of the General Direction Division which were not taken account of in the reviews for former years, and for this reason the charges of 1907-08 have been increased by the sum of Rs. 35,444.

The receipts were nearly three lakhs better than in the previous year, and were over 1½ lakhs less than the average for the five years 1903-04 to 1907-08. Compared with the preceding year there

was a fall of nearly 7 lakhs in revenue derived from departmental extraction, which was partly caused by a considerable fall in the price of teak, and a rise of over nine lakhs from produce extracted by consumers and purchasers. The latter was chiefly due to a more favourable floating season which enabled purchase-contractors to bring out a much larger quantity of teak from the forests of the Northern and Southern Circles than in the previous year.

The revenue has not yet recovered from the effects of curtailing the departmental extraction of timber, and in the Pegu Circle the lessees who have replaced Government contractors have scarcely begun to work. The revenue from timber extracted by Government agency fell from Rs. 44,44,000 in 1905-06 to Rs. 27,83,000 in the year under review, or a decrease of Rs. 16,61,000, whereas during the same period the revenue from timber extracted by purchasers only increased by Rs. 16,06,000, viz., from Rs. 34,94,000 to Rs. 51,00,000 and the last figures can only be maintained by an increased supply of girdled trees becoming available under working-plans and girdling schemes which have been brought into force comparatively recently.

The increase of Rs. 1,29,631 in the expenditure consisted of half a lakh under Conservancy and Works and the rest under Establishments. Slightly more was spent on departmental extraction than in the previous year, and owing to floods the cost of drift operations was much greater, and more money was expended in connection with the extraction of timber by purchasers and on communications and buildings. Increased establishment charges were chiefly due to the re-organization of the clerical establishment.

The surplus was Rs. 54,00,867 which compares favourably with that of the two preceding years. The average surplus for the five years ending 1907-08 was Rs. 56,51,223, due allowance being made for the cost of the General Direction Division not included in previous reports, but the average is unduly inflated by the inclusion of the abnormal figures of the year 1904-05.

The value of forest produce given away in free grants not including that removed by right-holders was Rs. 1,39,118. The produce included 3,029 tons of teak and 7,803 tons of other reserved woods.

The value of stock in hand at Sale depôts at the commencement of the year was Rs. 11,73,209 and at its close Rs. 7,22,772. The difference against the year of Rs. 450,437 was largely due to the sales of teak in the Pegu Circle being increased in order to make up the deficiency of revenue estimated in the Budget which was caused by the fall in prices. Unless an increased outturn in future was anticipated, which was improbable owing to the restriction of departmental extraction, this could only be done at the expense of revenue in one or more succeeding years, and was unsound finance in the opinion of the Chief Conservator. Departmental extrac-

tion of teak is now strictly limited, and although the outturn is liable to fluctuate according to the nature of the floating season from year to year, the average quantity of timber sold at Rangoon should be regulated more or less by the estimated outturn of the forests still worked by Government agency. The Conservator of the Pegu Circle should give this matter his early attention.

The scheme for the removal of the Rangoon timber depôt to another site and its equipment with mechanical means has been generally approved by the Government of India, but owing to financial exigencies the carrying of it out seems to be indefinitely postponed. Meanwhile the want of means for dealing properly with the timber arriving at Rangoon causes much inconvenience and no doubt a loss of revenue.

THE WOOL SUPPLY.

In its issue of January 13th the *Manchester Guardian* writes:—It is interesting to note that during the month of December last the shipments of wool from Australia amounted to 323,000 bales, which compare with shipments amounting to 394,000 bales during December, 1908. For the first five months of the present wool-year, notwithstanding many conditions which tended to prevent the rapid marketing of the clip, the exports showed an increase of 68,000 bales compared with the corresponding period of the previous wool-year. This came as a great surprise to the trade. During the last month, however, this increase has been wiped out, and there is the small decrease of 2,000 bales. Considering all the circumstances, it is surprising that the decrease is so insignificant, as the following extract from the letter of a correspondent dated December 8th will show:—“You will be reading all about the great coal strike in the papers, and you will see that after some interruptions the wool sales are again going on, though the buyers cannot ship the wool, the steamers being unable to obtain coal; but this difficulty is met by the wool brokers and owners having agreed to postpone payment until shipment is effected. The up-country trains will soon be arriving without wool, because delivery of it has been stopped at all the railway stations, and most owners will have to keep it in their wool sheds or under cover until coal is again available for the engines.” Turning to New Zealand, we find the exports of wool up to December 31st amounted to 164,000 bales, being an increase of 22,000 bales compared with the corresponding period of the previous year. At the end of November the exports were only 70,000 bales, and showed a decrease of 10,000 bales. This decrease was partly because general rains throughout the Dominion had greatly delayed shearing, and partly because a considerable quantity of wool—estimated at about 20,000 bales—belonging to the old clip was carried over into the wool-year 1908-09. As Messrs. Dalgety only

calculated on a total increase from New Zealand of 13,000 bales during the whole of this wool-year, it will be seen that with only half the wool-year past the exports have exceeded their estimate by 9,000 bales. But this statement of the case does not do justice to the situation, for although half the wool-year is past only about a third of the clip has up to the present been exported, so that if the increase continues to grow at the present rate on June 30th next, when the present wool-year ends, it will be as much as 66,000 bales. So far as the Australian and New Zealand supplies are concerned, we are of opinion that the total increase will not fall much, if at all, below 250,000 bales. The South African figures for the year which ended on December 31st are not yet published, but the increase from this source of supply cannot fall much below 100,000 bales, so that in all probability the trade will have to deal with a total colonial increase of about 350,000 bales. Against this large increase we are assured that an equally large decrease will be shown in the exports from the River Plate, and the most extraordinary statements are being circulated at Bradford and in the West Riding on the strength of anonymous cablegrams which are said to have been received from Buenos Ayres.

The market for all classes of tops at Bradford is exceedingly firm and consumption continues on as large a scale as ever. The values of coarse crossbreds continue to rise and good makers are now demanding 15½d. for a standard top of 40's quality. During the last 20 months these tops have just doubled in value. Some who, at the lowest point, said these tops were not at the bottom are now predicting that they are not at the top and darkly hint that they will shortly be at 18d. Last October, when super 60's tops were at 28½d., we heard predictions that they would be at 30d. before Christmas, instead of which they dropped to 25d. and less, and are still to be had at 26d. We think it will be proved by experience that prudent men will only buy at present values from hand to month. Supplies, in our opinion, are ample, notwithstanding the delays caused to shipping by the coal strike in Australia.

—The British Vice-Consul at Malaga (Mr. E. R. Thornton) reports that the olive oil yield in that district is expected to be good. It is impossible to say whether any considerable surplus will remain over for exportation; the exhausted stocks in the Spanish markets will in all probability have to be replenished before exportation takes place to any considerable extent. The Acting British Consul at Seville (Mr. A. Henderson) reports that the olive oil yield is good, and that there will be a considerable surplus above local requirements. The olive oil yield in Italy is likely to be a medium one, and there will be very little surplus for export. The olive crop in Crete is so far of average quantity and good quality. If all goes well, there should be a considerable surplus of olive oil for exportation.

TRADE OF THE PHILIPPINES.

The particulars below are taken from the Consular Report on the Trade and Commerce of the Philippine Islands for the year 1908:—

The total foreign trade of the Philippine Islands, statistics of which are taken from the customs returns for 1908, amounted in that year to £12,357,438; the exports exceeded the imports by £682,990. The figures do not include gold and silver, nor Government free entries, the latter of which would add a value of nearly £350,000 to the imports. Whilst the total trade for 1908 exceeds that of 1906, which showed a large shortage in value of imports, it is some £350,000 less than that of 1905 and of 1907. Imports and exports fell short of those of 1907 by £253,538 and £99,359 respectively. This shortage is accounted for by the decrease in the imports of cotton, which have nearly gone back to the figure of 1906 after having markedly increased in 1907; and the increase in certain lines, notably rice, is counterbalanced by falling-off in metals of all kinds, in animals, chemicals, fibres, leather goods, illuminating oils and sundry smaller items, as well as by that in cotton. The cotton imports decreased by £361,956. On the other hand, meat and dairy products increased by £117,969; wood of all kinds, including furniture, by nearly £10,000; and rice by £277,165. In exports, hemp, copra and sugar still, as formerly, hold the first place, but, whilst sugar and copra have increased by £301,594 and £254,947 respectively, the export of hemp, although exceeding that of 1907 by nearly 14,000 tons, has decreased in value from £3,937,898 to £3,300,391, or by over £637,000.

The tables below show the trade for the year 1908 between the Philippine Islands and British India, compared with that of the year 1907:—

Indian Transactions.

Imports.

Articles.	Quantity.		Value.		Percentage of Total Imports of each kind.	
	1907.	1908.	1907.	1908.	1907.	1908.
Opium . . . Lbs.	120,718	615,780	78,061	10,142	86	78
Candles . . . "	...	...	38,077	8,140	93	84
Cocoa . . . "	1,222,951	1,226,094	69,062	44,917	5	46
Cotton cloths . . . "	...	...	19,570	11,232	73	85
Bags for sugar Nos.	1,205,164	691,093	...	...	...	...

Exports.

Articles.	Quantity.		Value.		Percentage of Total Exports of each kind.	
	1907.	1908.	1907.	1908.	1907.	1908.
Copra . . . Lbs.	5,415,521	7,081,004	38,253	37,855	4	31
Cordage and twine . . . "	347,725	133,211	8,413	2,687	82	42
Gums and resins . . . "	...	...	19,365	8,687	13	11
Hemp . . . Tons.	1,606	1,339	51,327	36,020	19	16
Chairs . . . "	...	...	30,938	34,194	36	57
Shells . . . "	...	...	29,615	20,114	...	...

Coffee and Cocoa.

These are both products of the Philippine Islands, and coffee some 20 years ago, before the appearance of the coffee blight, was an important item of export, amounting to as much as £300,000 in value. The blight, however, dealt a serious blow to the trade, and coffee now figures as an annually increasing import. In 1908 foreign purchases of coffee amounted to £33,159 and of cocoa to £45,929. Over four-fifths, or a value of £38,149 of the latter came from British India, the Dutch East Indies contributing a value of £6,139. In coffee, where British India has been hitherto the principal source of supply, the increase in the total import is due to the competition of Java coffee, which in 1908 shared the total value almost equally with the British Indian product.

Opium.

This item no longer figures in the customs returns, the importation of the drug being absolutely prohibited since March 1st, 1903, except for medicinal purposes, on account of the Government. There is reason to suppose that a considerable quantity is being smuggled into the country, but the customs authorities are taking drastic measures for the suppression of the traffic; a very complete search of every ship entering these waters is made by the secret service police, and cases of smuggling brought to light are prosecuted with rigour, while vessels are fined when opium is found on board.

Mineral Oils.

Imports in 1908 decreased by over £21,000, the fall being principally in imports of illuminating oils from the United States and British India; those from the Dutch East Indies remaining about the same with an upward tendency. The Islands have purchased on the other hand nearly double the amount of lubricating oils from the United States, which is the only source of supply of any importance drawn upon.

Rice.

The total import of rice decreased steadily between the years 1903 and 1907, during which period it fell in amount from 737,083,174 to 262,399,906 lbs. Owing, however, to the very poor crops in the Islands in December and January of the season of 1907-08 caused by the drought in the preceding months, there was a shortage of about 50 per cent in the harvest and, as anticipated, a corresponding rise followed in the amount of rice imports. The respective imports of 1907 and 1908 were 262,399,906 lbs., valued at £833,345, and 349,175,386 lbs., valued at £1,110,514, and of this latter amount 327,778,039 lbs. valued at £1,038,109 come from Saigon. It will be of interest to quote here some remarks in the report attached to the customs returns, which are as follows:—

"Imports of rice during American occupation have constituted a very large portion of the import trade of

the Islands, and in view of the fact that these foreign purchases are to supplement local shortage in production of a vital necessity of the people, and are more the measure of their misfortune than an indication of healthy trade activity, any accurate estimate of general commercial conditions during a given period requires the elimination of this large and abnormal element from the total. The following table gives the relation of rice to other imports and to the total during the ten complete years of American occupation:—

Calendar Year.	Rice.	Other Imports	Total.
	£	£	£
1899 . . .	704,730	3,133,867	3,838,597
1900 . . .	873,011	4,099,745	4,972,756
1901 . . .	1,021,668	5,010,826	6,032,494
1902 . . .	1,756,878	4,911,555	6,668,433
1903 . . .	2,510,476	4,251,801	6,762,277
1904 . . .	1,542,151	4,373,395	5,915,546
1905 . . .	1,349,195	4,660,915	6,010,110
1906 . . .	798,383	4,482,371	5,280,754
1907 . . .	833,349	5,257,413	6,090,762
1908 . . .	1,110,514	4,726,710	5,837,224

It should be noted that after elimination of the "abnormal" features of rice (and opium, which is now prohibited), the general import trade of 1908 shows a net reduction of £441,494 as compared with that of the previous year. That the Philippines could ever be self-supporting in the matter of food-stuffs is a problem which goes a little deeper than the mere question of improved irrigation, now being carried out gradually. It would seem that, unless the Filipino can be induced to supply the necessary amount of labour, the only solution will be the admission of the hardworking Chinese coolie to the Islands, and that question appears to have been definitely settled in the negative in the United States of America.

Cotton Piece-goods and Yarns.

A British firm contributes the following remarks:—Business during the year 1908 has continued, if anything, even duller and more depressed than in 1907, the unfavourable conditions then ruling—shortness of rice crop and low value of hemp—having in no way improved, and their effects being more acutely felt each year. As a consequence ready money has been very scarce and the larger dealers being unable or unwilling to increase the credit of their provincial correspondents have simply had to curtail their operations. While the falling-off has been general, it has been less marked in the case of ordinary staples, and there is little to report regarding them save the untiring efforts of Japan to capture a share of the business. In grey sheetings and grey yarns they have fully maintained their advantage over Lancashire as a supplying centre, but in "bleached" and "dyed" lines they have made no appreciable headway even with yarns, while shirtings and drills of other than British manufacture are practically unknown.

Prints.

The surtax on "splits" (100 per cent. of the customs duty) has proved a very heavy handicap to the ordinary British qualities, and though it has enabled the American perfect selvedge goods to compete much more successfully, the former have not yet been altogether driven out of the market.

Fancy Cloths, Crapes and Trouserings.

In this lines Japanese goods have made considerable headway owing to the low prices at which they have been placed upon the market, and in the case of the more ordinary qualities they seem to be, little by little, driving out competitors both of Indian (Madras) and European manufacture.

SHIPBUILDING AND MARINE ENGINEERING.

DURING the year 1909 the British shipbuilding industry remained in a depressed condition, both at home and abroad. At the end of June the total tonnage of ships building in the United Kingdom was less than 53 per cent of the total building three years before. There are, however, evidences that the lowest point has been reached, and that improved conditions may be anticipated in the coming year. At the end of September 290 vessels of 778,000 tons (gross) were building in the United Kingdom, as against 319 vessels of 733,400 tons on September 30th, 1908. Towards the end of the year orders for mercantile shipping have been given in greater numbers, orders for new warships have added considerably to the employment of ship yards and engine factories in the coming year, and orders still have to be given for the armoured ships of which the cost will be defrayed by Australia and New Zealand.

A much more important factor in the probable improvement is, however, to be found in the conviction of shipowners that there is a better prospect for the employment of shipping, and that prices for new ships have reached their lowest point. Quotations for mercantile and war ships during 1909 have been extraordinarily low, and it is practically certain that many of the orders placed with leading firms have represented only the actual cost of production with a fraction of the establishment charges. Profit has been the rare exception, as the published reports of many companies have demonstrated, and not a few establishments have been virtually closed for a time.

There is no reason, however, for apprehension that the British lead in shipbuilding and shipping is likely to be lost. Depression has been universal, and the returns of Lloyds Register illustrate this fact. At the end of September last, when 778,000 tons of shipping (exclusive of warships) were under construction in the United Kingdom, the corresponding figures for Germany were 108,000, for the United

States, 92,600; France, 57,000; Italy, 37,700; and Japan, 28,800 tons.

The amendment of the rules of Lloyd's Register of Shipping has exercised considerable influence in this direction and tended to a better combination of lightness with strength of structure, thus favouring increased carrying power. Revision of the rules regulating the load-line and freeboard of British merchant ships has tended in the same direction. In passing it may be remarked that, although serious allegations have been made by imperfectly informed persons against the deeper loading now permitted by the load-line rules, there is no reason for thinking that any improper risks have been accepted by the revisers of the rules, who were in possession of full and accurate information of the experience gained during many years, had the assistance of skilled and scientific advisers, and had no reason whatever for going beyond an ample margin of safety.

Another source of satisfaction is to be found in the closer approximation which has been reached between official regulations as to tonnage, load-line and other matter applied to foreign merchant ships and those enforced for British ships. In the past there have been grave reasons for complaint by British shipowners, because foreign ships, even in British ports, were treated more leniently than British ships, particularly as regards tonnage on which dues were paid and depth of loading. The leading maritime nations have come into line as the result of persistent and tactful action on the part of the Marine Department of the Board of Trade and of officials of the great registration societies. In future the unavoidable and increasing competition for the carrying trade of the world will be carried on under fairer and more uniform conditions to which no British shipowner will object.

—The Manchester Chamber of Commerce has approved the proposal of the Indian piece-goods section to despatch a letter to the Bengal Chamber, the Bombay Native Piece-Goods Merchants' Association and the Karachi Chamber asking those bodies to consider the propriety of the following recommendation as a necessary provision for the protection of suppliers in this country:—(1) Inasmuch as the execution of contracts for India is often interrupted by delays in forwarding assortments of patterns of borders, of instruction for headings, stamping, numbering, or otherwise, the supplier shall have liberty to extend the shipment time to cover delay in preparation, without incurring liability for late shipment. (2) For goods where the initial process of manufacture cannot be proceeded with until receipt of particulars, the particulars shall be despatched from India not later than the second mail, after confirmation of order. (3) For goods where the initial process can be proceeded with at once assortment shall be in the possession of suppliers not later than ten weeks before the contract is due of the first shipment, or, (4) For prints where any engraving of designs is necessary, 12 weeks before contract date of the first shipment.

TRADE OF CHINA.

In his Report on the Foreign Trade of China for 1908 Mr. W. P. Ker, Commercial Attaché to His Majesty's Legation at Peking, has much to say that is of interest to merchants in this country. Below we give a few extracts from his Report:—

The most valuable import into China is that of cotton manufactures, and in 1904 and 1905 Chinese dealers recklessly gambled in these, anticipating a much quicker and greater resumption of the Manchurian demand than actually took place. The result of such speculation was not only to depress, naturally enough, the import trade of subsequent years, but to introduce into the ranks of Chinese piece-goods dealers a new type, the "man of straw" who would take advantage of the competition among foreign merchants for a large turnover to purchase on credit goods for which he could not pay if the market went against him, and would disappear when the day of reckoning came. From various parts of the Empire comes the complaint that Chinese commercial morality is not what it once was, and that the dealer of to-day has no scruples in seeking to evade a contract which turns out unfavourable. For much of this state of things foreign merchants are themselves to blame. In the north of China especially a system of giving out piece-goods on credit was allowed to grow up, which worked very well as long as trade prospered, but led to chaos as soon as depression set in. The result was that at the close of 1908 the debts outstanding from Chinese piece-goods dealers to foreign firms in Tientsin were estimated at some 14,000,000 Tientsin taels (say £1,750,000), of which amount only about 50 per cent was covered by goods not yet delivered. It is, however, only fair to say that perhaps half the principal thus estimated is made up of interest claimed at 12 per cent and accumulated for several years. It is satisfactory to record that the debts due to British firms amount to only a small fraction, perhaps 5 per cent of the total, which would indicate that they carried on their operations with more caution than some of their rivals. About 60 per cent of the debts are believed to be due to German firms and about half that amount to Japanese. In connection with what has been said as to the change in the character of Chinese merchants, it is significant to note that the five principal old-established Chinese firms in Tientsin have kept free from debt, and are holding aloof from the schemes for relief which have been mooted by certain interested parties. Owing to the extensive credit system prevailing in Shanghai whereby native banks of good standing, financed in their turn by the foreign banks, advance money to native dealers in piece-goods to be repaid when the goods reach the consumer in the interior and are exchanged for native produce, the Shanghai foreign merchants have been in the fortunate position of getting cash for their goods five days after delivery, and have not been obliged to let the goods out of their hands on credit as at Tientsin. Still, goods piled in godowns

accumulating charges and at the risk of the cotton market do not form after all very much better security than if they had disappeared into the interior, and there is little doubt that the reckless trading of recent years at Tientsin has been more than equalled at Shanghai. The high price of cotton has saved Shanghai from disaster, but the large number of cases pending in the Mixed Court there, where relief is vainly sought against Chinese defaulters, afford a warning to all that more care must be exercised in the selection of clients.

Imports of Plain Cottons.

Plain cotton goods did not share in the general decline in cotton imports, the quantity imported in 1908 amounting to nearly 2,000,000 pieces more than in 1907. In view of the great over-stocking of such goods in 1905 and 1906, this increase is somewhat surprising, and points either to a satisfactory increase in consumption or to an unsatisfactory continuance of the practice of glutting the market. It is therefore interesting to watch the annual returns of stocks held in Shanghai, as published by the Shanghai General Chamber of Commerce, for the condition of things in the commercial metropolis may be taken as typical of the conditions in the other and less important centres. According to these returns the stocks of plain cotton, on December 31st 1908, amounted to 5,294,819 pieces against 6,959,275 pieces at the end of 1907. This is an improvement on the figures for 1905 and 1906, which came to over 10,000,000 and 11,000,000 pieces, respectively, but it still seems excessive for one port alone, especially as at the end of 1903 and 1904 the stocks of plain cotton goods came to only 3,500,000 and 2,500,000 pieces. Auction sales on a large scale were a prominent feature of the Shanghai import trade in 1908, and did a good deal in the way of clearing off surplus stocks, but the sale of goods without reserve at a time of depression is not a cheerful means of relieving the situation. Nor does it seem altogether effective, for at the time of writing, the returns of stocks in Shanghai on June 30th, 1909, have just been published, and the number of plain cottons amounts to 5,577,374 pieces. On the whole, therefore, the outlook as regards greys and whites is not encouraging, the only hope being that there may be an unusually brisk demand in the autumn from Manchuria and other consuming centres. It may be interesting to compare the total imports of British, American, Indian and Japanese plain cottons during the last four years:—

Nationality.	1905.	1906.	1907.	1908.
	Pieces.	Pieces.	Pieces.	Pieces.
British	13,548,025	10,785,227	8,224,951	8,993,534
American	12,566,093	8,544,165	578,647	1,586,989
Japanese	780,580	733,436	840,401	986,982
Indian	650,636	85,003	67,905	141,312

The American makes show a considerable recovery, for which, however, there is still ample room considering the collapse in 1907. The Japanese are the only ones that show a continued increase, due chiefly to drills. Not only in Manchuria but in North China

generally the competition of Osaka factories is making itself felt.

Fancy Cottons.

The trade in British fancy piece-goods has suffered from the depression perhaps more than any other branch. During 1906 forced sales of large quantities were made at low prices, and recovery will be slow. It is, however, satisfactory to see that the returns of stocks in hand at Shanghai on June 30th, 1909, show a diminution in nearly every branch as compared with the end of 1908; for example, printed cottons 220,648 pieces against 381,150 pieces; Turkey-reds, 37,423 pieces against 130,226 pieces; cotton fastings, Italians and Venetians, 1,125,554 pieces against 1,666,920 pieces; muslins, 182,396 pieces against 302,979 pieces. From centres in the interior also it is reported that stocks are under the average, and perhaps the way may now be clear for the resumption of increased imports to meet a fresh demand.

Cotton Yarn.

The total import of cotton yarn amounted to 243,631,067 lbs. in 1908 against 303,122,531 lbs. in 1907, a decrease of 60,091,464 lbs. chiefly marked in Indian yarns. The increasing competition of Japanese yarn has been noted by observers in several places, but as the table shows the total import of Japanese yarn shared in the general depression. The output of native cotton mills is constantly on the increase, and this tends to diminish the import of foreign yarn. The cotton mills in Shanghai were busy throughout the year and made good profits; a cotton mill established two or three years ago at Ningpo has a steadily increasing output, and a new cotton spinning and weaving factory was opened near Tsingtau in the autumn of 1908. His Majesty's Consul at Swatow reports that Japanese yarn is coming into favour there, being more suitable for the native hand looms than either the Indian or the Manchester variety.

Indigo.

The import of artificial indigo, although owing to the unsettled state of the market it was somewhat less in 1908 than in 1907, has increased greatly in recent years, and is gradually superseding the vegetable indigo of China. From Shantung in the north and from Pakhoi in the south comes the same complaint that the indigo-growing industry is being killed by the competition of the foreign artificial product. At Hankow, where the importation of indigo continues to increase rapidly, the introduction is noted of iron drums properly sealed, in place of the wooden casks which unscrupulous dealers used to open to add 20 or 30 per cent of water. His Majesty's Consul-General there observes that local prejudice prevents the substitution of a new form of the synthetic product which obviates the need for using a proportion of natural indigo in the dyeing vats.

Exports of Tea.

The production in 1908 was well over the average, but the trade was not generally profitable. The

returns from Hankow, the chief tea centre, show that the output of black tea and green tea increased, but that of all other kinds decreased. The crops there were of good average quality, quite equal to those of 1907. The Commissioner of Customs at Hankow remarks that for the last three seasons the selling has been on sounder lines, measures having been taken by the Tea Guild to secure the quality of the bulk being up to sample. Fine teas sold well in London, but there was little demand for common grades. The Commissioner of Customs points out that tea of the Hankow quality can only be obtained at Hankow, and that even when the crop is short the value is likely to remain high; also that if the public taste in the United Kingdom were once more educated to appreciate high-grade tea it would require a great rise in price to drive consumers back to the inferior products of other countries. At Kinkiang a fairly profitable trade was done both in black and green tea. The experience of the dealers at Foochow was more discouraging than at Hankow. At Foochow the tea trade of 1908 is described as having been disastrous to foreigners and in a lesser measure to natives, the evil being ascribed to over-production of China tea generally. The finest teas from the Foochow district realised high prices in Europe, but the demand was limited, and the medium and common teas were only disposed of when the low rate of exchange came to the notice of buyers abroad (chiefly in America) at prices which resulted in serious loss. The green tea trade of Chakiang did fairly well, in spite of bad weather, which caused scarcity in the finer grades at Ningpo. The Amoy tea trade has been diverted to Formosa, and the Canton tea trade with Europe is practically gone, tea from Canton being exported only to places abroad where Cantonese reside. The Acting Statistical Secretary of the Imperial Maritime Customs, summing up the situation in his annual report for 1908, states that the possibility of China teas recovering their lost position in the market of the United Kingdom against the energetic competitive methods of the Indian and Ceylon planters is almost hopeless, but points out the still great potentialities of expansion in America and Continental Europe (excluding Russia), where the consumption is at present small, but the taste for tea is spreading. He adds, however a warning: "If China is to share the profit of this expansion in competition with the planters of India, Ceylon and Java, it can only be by taking full advantage of modern scientific methods and by lightening to the utmost the burden of home taxation borne by the trade."

Thirty years ago the value of tea and silk together amounted to about 86 per cent of the total exports of China; in 1878 these staples came to 83 per cent, in 1888 to 67 per cent, in 1898 to 50 per cent, and in 1908 to 42 per cent of the whole.

Sesamum.

I must, however, here remark on the remarkable increase shown by the figures for sesamum seed, which rose from 874,657 cwts. in 1907 to 2,133,851

cwts. in 1908. The growth of its export is in great measure due to the facilities afforded by the Peking-Hankow Railway, for the export from Hankow rose from about 600,000 cwts. in 1903, before the railway was open, to about 900,000 cwts. in 1907, and to more than double that amount in 1908. His Majesty's Consul-General at Hankow remarks that sesamum has proved so profitable to the Honan farmers that it may partly replace poppy. Large quantities of this seed are exported direct to Europe, where it is said to be used for making the finest lucca oil. The production for 1909 bids fair to exceed that of 1908, and I understand the carriage of sesamum has had a phenomenal effect on the revenue of the Peking-Hankow Railway during the first half of 1909.

Soy Beans.

Although Japan is the destination of most of the beans and bean cake exported from China, one of the most interesting features of the trade of China in 1908 was the commencement of the export on a large scale of the soy beans of Manchuria direct to Europe. The first season of this trade only began in November, so that the full effect of the new development is not apparent in the customs figures. It is estimated that during the season, which began in November, 1908, and closed in June, 1909, over 152,000 tons of beans were shipped from Dairen to Europe, declared mostly for Liverpool, Hull and Bremen. During the same period the export of beans from Vladivostok is stated to have been over 143,000 tons, of which 55,000 tons were shipped in June. More than half the quantity shipped from Vladivostok went to the United Kingdom.

Bean cake is exported chiefly from Newchwang. The export there increased from some 4,300,000 cwts. in 1907 to some 5,400,000 cwts. in 1908, and in spite of an increasing export from Dairen, Japan took 78 per cent of this amount, the same as in the two previous years.

—H. M. Vice-Consul at Bushire (Mr. H. G. Chick) states that the ports in Southern Persia concerned with the export of wool are Bushire and Mohammerah. The following quantities of raw wool passed through the Customs at these places in 1906-07, 1907-08 and 1908-09 :—

	Bushire.	Mohammerah.
	Cwts.	Cwts.
1906-07	3,619	6,076
1907-08	2,249	5,098
1908-09	7,582	10,853

The months of heaviest export are, as a rule, April, May, June and July, but shipping begins at the end of March, and, in order to buy direct from the outlying districts, where the sheep are reared, cash advances have usually to be made rather before that time. In Bushire itself there is no open market for purchase, and the exporters are usually firms who have bought direct from these districts.

BRITISH CENSUS OF PRODUCTION.

Five Great British Industries.

A BLUE-BOOK has been issued from the Board of Trade containing preliminary tables summarising the results of the returns received under the Census of Production Act, 1906. It contains particulars relating to shipbuilding yards and marine engineering works (private and Government), engineering factories (including electrical engineering), cycle and motor factories, leather factories (tanning and dressing), and papermaking factories. About 13,000 schedules were issued to firms engaged in these in-

dustries, which employed in 1907 an average of over 750,000 persons, and produced a total output which represented a net addition of over 80 million pounds sterling to the value of the materials used. In the case of shipbuilding, information is also given with regard to the output of Government dockyards and the repairing shops under the control of public light-house authorities. The summary table gives the following interesting figures :—

	Gross out-put. Selling value. (1)	Materials used. Cost. (2)	Work given out. Amount paid to other firms. (3)	Net output, excess of col. 1 over cols. 2 and 3. (4)	Persons employed. T' al. (5)	Net output per person employed. (6)
	£	£	£	£		
Shipbuilding yards and marine engineering works (private firms)	41,660,000	17,895,000	6,087,000	17,678,000	184,557	96
Engineering factories (including electrical engineering)	101,599,000	48,323,000	3,851,000	49,425,000	455,561	168
Cycle and motor factories	10,643,000	5,063,000	181,000	5,399,000	46,800	115
Leather factories (tanning and dressing)	17,551,000	13,872,000	58,000	3,621,000	27,258	133
Papermaking factories	13,328,000	8,816,000	...	4,512,000	39,990	113
Total	184,781,000	94,927,000	10,177,000	80,635,000	754,166	...
Shipbuilding (Government yards)	6,450,480	3,061,412	...	2,489,068	25,058	99

It is explained that the figures now published are subject to correction when certain queries at present outstanding have been answered by the firms to whom they were directed, but they substantially represent the facts relating to the several industries. In this instance, the quantities and values of the principal products are shown in the classification

adopted in the official export and import lists. The result is that, in Part II, the Census of Production Department has found it possible to institute comparisons, being no longer hindered by the duplications characteristic of the textile trades which somewhat detracted from the practical uses of Part I.

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FOREIGN TRADE OF THE UNITED KINGDOM IN DECEMBER, 1909.

I.—GENERAL.

The trade returns for December, 1909, when compared with those for the corresponding month of 1908, show increases in the values of the Imports into the United Kingdom, and of the Exports both of the Produce and Manufactures of the United Kingdom and of Foreign and Colonial Merchandise.

The value of the Imports in December was 60,785,883*l.*, an increase of 3,959,899*l.*, or 7.0 per cent, as compared with December, 1908; whilst the total Exports amounted to 43,424,818*l.*, an increase of 5,836,716*l.*, or 14.9 per cent, as compared with December, 1908; whilst there is an increase of 1,448,395*l.*, or 17.7 per cent in the Exports of Foreign and Colonial Merchandise.

II.—IMPORTS.

The following table shows the value of the Imports for December, 1909, as compared with the corresponding month of 1908 and 1907, according to the different categories of merchandise:—

Imports of Foreign and Colonial Merchandise.*

	MONTH OF DECEMBER			Increase (+) or Decrease (—) in 1909 as compared with 1908.	Increase (+) or Decrease (—) in 1909 as compared with 1907.
	1907.	1908.	1909.		
I.—FOOD, DRINK, AND TOBACCO—					
A. Grain and flour	£ 5,827,375	£ 6,344,905	£ 6,931,283	+ 586,378	+ 1,103,908
B. Meat, including cattle, sheep and swine	4,058,412	4,416,602	4,184,495	— 232,107	+ 126,083
C. Other food and drink—					
1. Non-dutiable	5,628,016	6,092,040	6,355,654	+ 263,614	+ 727,638
2. Dutiable	4,648,208	4,186,739	5,522,927	+ 1,336,188	+ 874,719
D. Tobacco	575,508	564,608	417,633	— 146,975	— 157,875
Total, Class I	20,737,519	21,604,894	23,411,992	+ 1,807,698	+ 2,674,473
II.—RAW MATERIALS AND ARTICLES MAINLY UNMANUFACTURED—					
A. Coal, coke, and manufactured fuel	465	294	1,845	+ 1,551	+ 1,380
B. Iron ore, scrap iron, and steel	492,132	424,088	510,860	+ 85,772	+ 18,728
C. Other metallic ores	679,403	785,388	753,364	+ 33,924	+ 83,261
D. Wood and timber	1,769,451	1,427,044	1,569,778	+ 142,734	+ 199,673
E. Cotton	9,590,015	9,996,592	8,638,142	— 1,358,150	— 930,573
F. Wool	3,385,554	3,078,275	3,764,656	+ 686,381	+ 379,102
G. Other textile materials	1,778,072	1,775,550	1,644,784	— 131,766	— 134,288
H. Oil-seeds, nuts, oils, fats, and gums	2,174,261	2,385,473	2,856,613	+ 281,330	+ 371,011
I. Hides and undressed skins	736,520	820,001	1,101,531	+ 582,995	+ 682,352
J. Materials for paper making	549,039	465,669	532,995	+ 67,326	+ 16,044
K. Miscellaneous	2,027,577	2,950,649	2,874,383	+ 820,744	+ 843,806
Total, Class II	23,146,189	23,210,923	24,245,251	+ 1,035,228	+ 1,099,062
III.—ARTICLES WHOLLY OR MAINLY MANUFACTURED—					
A. Iron and steel and manufactures thereof	735,276	675,785	721,455	+ 45,669	+ 13,821
B. Other metals and manufactures thereof	2,160,042	2,039,835	2,252,442	+ 212,577	+ 152,370
C. Cutlery, hardware, implements (except machine tools) and instruments	410,888	337,161	373,772	+ 36,611	+ 37,116
D. Electrical goods and apparatus (other than machinery and telegraph and telephone wire)	101,772	136,139	147,569	+ 11,430	+ 45,797
E. Machinery	402,911	333,178	339,275	+ 6,097	+ 63,636
F. Ships (new)	160	340	121	— 219	— 39
G. Manufactures of wood and timber (including furniture)	162,817	155,883	192,383	+ 36,500	+ 29,566
H. Yarns and textile fabrics—					
1. Cotton	757,430	785,335	888,797	+ 103,462	+ 131,367
2. Wool	755,440	719,419	767,327	+ 47,908	+ 11,887
3. Silk	885,109	869,255	900,509	+ 31,254	+ 15,400
4. Other materials	504,255	551,328	611,365	+ 60,037	+ 107,110
I. Apparel	281,669	308,845	364,362	+ 55,517	+ 82,693
J. Chemicals, drugs, dyes and colours	941,265	875,226	928,601	+ 53,375	+ 12,064
K. Leather and manufactures thereof (including gloves, but excluding boots and shoes)	920,632	1,080,359	1,054,365	— 25,994	+ 133,683
L. Earthenware and glass	365,899	328,585	341,993	+ 12,568	+ 24,806
M. Paper	521,755	473,294	515,825	+ 42,531	+ 5,930
N. Miscellaneous	2,083,968	2,121,602	2,472,062	+ 350,460	+ 388,094
Total, Class III	11,931,338	11,791,570	12,871,293	+ 1,079,723	+ 9,995
IV.—MISCELLANEOUS AND UNCLASSIFIED (INCLUDING PARCEL POST)					
Total value	55,992,481	56,825,984	60,786,883	+ 3,959,899	+ 4,793,402

* The values of the Imports represent the cost, insurance, and freight; or when goods are consigned for sale, the latest sale value of such goods.

III.—EXPORTS.

The following table shows the value of the Exports of produce and manufactures of the United Kingdom for the month of December, 1909, as compared with the corresponding month of 1908 and 1907 and the increase or decrease in each principal category:—

Exports of Produce and Manufactures of the United Kingdom.*

	MONTH OF DECEMBER.			Increase (+) or Decrease (—) in 1909 as compared with 1908.	Increase (+) or Decrease (—) in 1909 as compared with 1907.
	1907.	1908.	1909.		
I.—FOOD, DRINK, AND TOBACCO—					
A. Grain and flour	£ 250,846	£ 268,005	£ 284,458	+ 16,453	+ 33,612
B. Meat, including cattle, sheep and swine	94,504	78,908	89,946	+ 11,038	+ 4,558
C. Other food and drink	1,400,603	1,508,063	1,532,371	+ 24,308	+ 131,768
D. Tobacco	116,814	134,344	163,209	+ 28,865	+ 46,395
Total, Class I	1,862,767	1,989,320	2,069,984	+ 80,664	+ 207,217
II.—RAW MATERIALS AND ARTICLES MAINLY UNMANUFACTURED—					
A. Coal, coke, and manufactured fuel	3,681,245	3,235,818	3,157,780	— 75,033	— 523,465
B. Iron ore, scrap iron, and steel	25,638	48,629	52,417	+ 3,788	+ 26,789
C. Other metallic ores	12,632	8,718	6,217	— 2,501	— 6,415
D. Wood and timber	9,726	6,964	6,241	— 723	— 3,285
E. Cotton	—	—	—	—	—
F. Wool	130,783	286,405	410,149	+ 123,654	+ 279,363
G. Other textile materials	22,081	16,425	23,845	+ 7,421	+ 1,765
H. Oil-seeds, nuts, oils, fats, and gums	259,311	246,784	352,057	+ 105,273	+ 92,746
I. Hides and undressed skins	104,668	146,080	214,744	+ 68,664	+ 110,176
J. Materials for paper making	50,534	54,321	70,896	+ 16,575	+ 20,362
K. Miscellaneous	195,370	262,461	257,220	— 5,241	+ 61,850
Total, Class II	4,491,681	4,312,695	4,551,567	+ 238,872	+ 59,886
III.—ARTICLES WHOLLY OR MAINLY MANUFACTURED—					
A. Iron and steel and manufactures thereof	3,235,358	2,965,273	3,487,322	+ 522,049	+ 251,964
B. Other metals and manufactures thereof	705,370	680,469	815,181	+ 134,712	+ 109,811
C. Cutlery, hardware, implements (except machine tools) and instruments	495,581	425,318	522,757	+ 97,439	+ 27,176
D. Electrical goods and apparatus (other than machinery and telegraph and telephone wire)	123,875	154,421	289,430	+ 135,009	+ 165,555
E. Machinery	2,751,959	2,355,890	2,163,893	— 191,997	— 588,066
F. Ships (new)	494,444	382,578	254,175	— 128,403	— 240,269
G. Manufactures of wood and timber (including furniture)	106,989	115,610	146,381	+ 30,771	+ 39,392
H. Yarns and textile fabrics—					
1. Cotton	8,822,757	6,763,755	8,214,954	+ 1,451,199	+ 607,803
2. Wool	2,555,886	2,425,108	2,960,877	+ 535,769	+ 404,991
3. Silk	144,052	136,925	175,115	+ 38,190	+ 31,063
4. Other materials	1,037,743	935,666	1,145,327	+ 209,661	+ 107,584
I. Apparel	704,337	700,994	917,766	+ 216,772	+ 213,429
J. Chemicals, drugs, dyes, and colours	1,246,974	1,293,282	1,507,394	+ 214,112	+ 260,420
K. Leather and manufactures thereof (including gloves, but excluding boots and shoes)	325,642	328,485	417,198	+ 88,713	+ 91,556
L. Earthenware and glass	311,879	270,385	321,577	+ 51,192	+ 9,698
M. Paper	189,561	200,992	239,683	+ 38,691	+ 50,122
N. Miscellaneous	2,594,055	2,403,743	2,851,985	+ 448,242	+ 257,930
Total, Class III	25,846,462	22,538,894	26,431,015	+ 3,892,121	+ 584,553
IV.—MISCELLANEOUS AND UNCLASSIFIED (INCLUDING PARCEL POST)					
Total value	540,826	560,667	737,331	+ 176,664	+ 196,505
Total value	32,741,736	29,401,576	33,789,897	+ 4,388,321	+ 1,048,161

Exports of Foreign and Colonial Merchandise.*

	£	£	£	£	£
Total value	6,719,972	8,186,528	9,634,921	+ 1,448,395	+ 2,914,949

* The values of the Exports represent the cost and the charges of delivering the goods on board the ship, and are known as the "free on board" values.

IV.—TRADE DURING THE TWELVE MONTHS, JANUARY—DECEMBER.

The following table shows the value of the Imports of foreign and colonial merchandise during the twelve months ended December, 1909, as compared with 1908 and 1907 :—

Imports of Foreign and Colonial Merchandise.*

	YEAR ENDED 31ST DECEMBER.			Increase (+) or Decrease (—) in 1909, as compared with 1908.	Increase (+) or Decrease (—) in 1909 as compared with 1907.
	1907.	1908.	1909.		
	£	£	£	£	£
I.—FOOD, DRINK, AND TOBACCO—					
A. Grain and flour	75,409,156	72,733,334	83,123,114	+ 10,389,780	+ 7,713,958
B. Meat, including cattle, sheep and swine	51,888,213	49,448,334	47,624,228	— 1,824,106	— 4,263,985
C. Other food and drink—					
1. Non-dutiable	67,400,299	68,576,894	67,850,958	— 725,936	+ 390,729
2. Dutiable	48,317,163	48,208,374	50,744,248	+ 2,535,874	+ 2,427,082
D. Tobacco	4,215,832	5,167,153	4,991,050	— 176,073	+ 775,248
Total, Class I	217,290,596	244,134,089	254,333,628	+ 10,199,539	+ 7,043,032
II.—RAW MATERIALS AND ARTICLES MAINLY UNMANUFACTURED—					
A. Coal, coke, and manufactured fuel	20,815	4,689	8,482	+ 3,793	— 12,363
B. Iron ore, scrap iron, and steel	7,359,649	4,971,723	5,076,109	+ 101,386	— 2,288,540
C. Other metallic ores	10,128,132	8,991,105	8,327,141	— 573,961	— 1,800,988
D. Wood and timber	27,093,054	24,306,169	23,591,810	— 714,359	— 3,501,244
E. Cotton	79,458,197	55,834,883	60,295,201	+ 4,460,318	— 10,162,996
F. Wool	36,409,820	39,746,990	35,044,943	+ 4,297,953	— 1,414,877
G. Other textile materials	18,011,524	13,698,178	12,129,981	— 1,568,197	— 5,881,543
H. Oil-seeds, nuts, oils, fats, and gums	39,637,416	28,514,967	31,043,087	+ 2,528,120	+ 345,671
I. Hides and undressed skins	10,752,733	9,422,965	11,618,180	+ 2,195,215	+ 865,447
J. Materials for paper making	4,363,297	4,610,997	4,499,247	— 111,750	+ 135,950
K. Miscellaneous	25,904,204	22,439,351	28,518,863	+ 6,079,512	+ 2,614,659
Total, Class II	241,248,871	203,455,017	220,153,047	+ 16,698,030	— 21,095,824
III.—ARTICLES WHOLLY OR MAINLY MANUFACTURED—					
A. Iron and steel and manufactures thereof	7,215,177	7,981,512	7,971,489	+ 298,977	+ 756,312
B. Other metals and manufactures thereof	28,932,812	24,659,602	24,316,326	— 313,276	— 4,586,486
C. Cutlery, hardware, implements (except machine tools) and instruments	4,072,372	3,750,177	3,719,509	— 30,668	— 352,863
D. Electrical goods and apparatus (other than machinery and telegraph and telephone wire)	1,247,650	1,263,762	1,321,709	+ 57,947	+ 74,059
E. Machinery	5,311,681	4,552,904	4,438,292	— 114,612	— 873,389
F. Ships (new)	27,015	18,199	23,926	+ 5,727	— 3,089
G. Manufactures of wood and timber (including furniture)	1,920,716	1,970,917	2,054,269	+ 83,352	+ 133,553
H. Yarns and textile fabrics—					
1. Cotton	9,871,076	9,475,795	9,837,871	+ 362,076	— 33,205
2. Wool	10,789,739	9,500,056	9,727,740	+ 227,684	— 1,061,999
3. Silk	13,572,049	12,536,224	12,759,935	+ 223,711	— 812,114
4. Other materials	7,168,975	6,102,863	7,324,931	+ 922,068	+ 155,956
I. Apparel	4,542,257	4,200,819	5,072,211	+ 871,392	+ 529,354
J. Chemicals, drugs, dyes, and colours	11,629,978	10,185,617	10,605,181	+ 419,564	— 1,024,797
K. Leather and manufactures thereof (including gloves, but excluding boots and shoes)	10,761,940	11,562,700	11,618,619	+ 55,919	+ 856,679
L. Earthenware and glass	4,052,434	3,685,330	3,757,504	+ 72,174	— 294,930
M. Paper	5,673,887	5,798,665	5,647,580	— 151,085	— 26,307
N. Miscellaneous	28,111,534	27,840,455	27,457,019	+ 1,616,564	— 657,515
Total, Class III	154,904,292	143,085,597	147,684,111	+ 4,598,514	— 7,220,181
IV.—MISCELLANEOUS AND UNCLASSIFIED (INCLUDING PARCEL POST)	2,364,183	2,278,784	2,569,731	+ 290,947	+ 205,548
Total value	645,807,942	592,953,487	624,740,517	+ 31,787,030	— 21,067,425

* The values of the Imports represent the cost, insurance, and freight; or when goods are consigned for sale, the latest sale value of such goods.

V.—EXPORTS.

The value of the Exports of home produce, and of foreign and colonial produce, during the twelve months ended December, 1909, as compared with 1908 and 1907, is as shown in the following table :—

Exports of Produce and Manufactures of the United Kingdom.*

	YEAR ENDED 31ST DECEMBER.			Increase (+) or Decrease (—) in 1909 as compared with 1908.	Increase (+) or Decrease (—) in 1909 as compared with 1907.
	1907.	1908.	1909.		
	£	£	£	£	£
I.—FOOD, DRINK, AND TOBACCO—					
A. Grain and flour	3,089,163	3,522,912	3,399,936	— 122,976	+ 310,773
B. Meat, including cattle, sheep and swine	1,309,218	1,952,701	1,070,928	+ 182,227	— 238,290
C. Other food and drink	17,068,769	15,962,044	17,478,346	+ 1,516,302	+ 409,577
D. Tobacco	1,262,498	1,339,994	1,678,248	+ 278,254	+ 415,750
Total, Class I	22,729,648	21,937,651	23,627,458	+ 1,689,807	+ 897,810
II.—RAW MATERIALS AND ARTICLES MAINLY UNMANUFACTURED—					
A. Coal, coke and manufactured fuel	42,118,994	41,615,923	37,129,978	— 4,485,915	— 4,989,016
B. Iron ore, scrap iron and steel	573,449	413,549	509,718	+ 96,369	— 63,731
C. Other metallic ores	183,685	71,777	95,575	+ 23,793	— 24,110
D. Wood and timber	111,841	98,218	108,395	+ 10,177	— 3,446
E. Cotton	—	—	—	—	—
F. Wool	3,207,904	2,662,151	4,259,619	+ 1,597,468	+ 1,051,715
G. Other textile materials	227,397	245,471	214,241	— 31,230	— 13,156
H. Oil-seeds, nuts, oils, fats and gums	3,429,748	3,091,825	3,399,697	+ 307,872	— 30,051
I. Hides and undressed skins	1,817,217	1,424,760	1,925,684	+ 500,924	+ 108,467
J. Materials for paper making	756,001	677,333	543,356	+ 133,356	— 75,668
K. Miscellaneous	2,573,845	2,215,048	2,462,539	+ 247,491	— 111,306
Total, Class II	55,003,081	52,382,499	50,782,779	— 1,599,720	— 4,220,302
III.—ARTICLES WHOLLY OR MAINLY MANUFACTURED—					
A. Iron and steel and manufactures thereof	46,563,386	37,406,028	38,267,690	+ 861,662	— 8,295,696
B. Other metals and manufactures thereof	11,674,131	8,856,472	8,725,048	— 131,424	— 2,919,083
C. Cutlery, hardware, implements (except machine tools) and instruments	6,434,002	5,492,453	5,413,640	— 78,823	— 1,020,362
D. Electrical goods and apparatus (other than machinery and telegraph and telephone wire)	2,469,927	1,943,104	2,240,586	+ 297,482	— 229,341
E. Machinery	31,743,253	30,999,516	28,088,956	— 2,910,560	— 3,654,297
F. Ships (new)	10,018,113	10,567,475	5,914,684	— 4,652,791	— 4,103,429
G. Manufactures of wood and timber (including furniture)	1,407,932	1,256,805	1,450,623	+ 193,818	+ 42,691
H. Yarns and textile fabrics—					
1. Cotton	110,437,092	95,055,513	93,435,627	— 1,619,886	— 17,001,465
2. Wool	34,158,857	28,391,922	30,922,366	+ 2,530,444	— 3,236,491
3. Silk	2,410,949	1,685,622	1,860,172	+ 174,550	— 550,777
4. Other materials	14,092,947	10,724,427	12,444,605	+ 1,720,178	— 1,648,342
I. Apparel	9,561,642	8,852,775	9,829,014	+ 976,239	+ 267,372
J. Chemicals, drugs, dyes and colours	17,052,755	16,271,069	16,807,323	+ 536,254	— 245,432
K. Leather and manufactures thereof (including gloves, but excluding boots and shoes)	4,559,037	3,826,258	4,246,150	+ 419,892	— 312,887
L. Earthenware and glass	4,048,883	3,700,637	3,689,277	— 10,760	— 359,616
M. Paper	2,344,230	2,314,967	2,558,135	+ 243,168	+ 213,905
N. Miscellaneous	33,048,127	29,616,943	31,409,916	+ 1,792,973	— 1,638,211
Total, Class III	342,025,273	296,955,416	297,303,812	+ 348,396	— 44,721,461
IV.—MISCELLANEOUS AND UNCLASSIFIED (INCLUDING PARCEL POST)	6,277,081	5,828,258	6,665,395	+ 837,137	+ 388,314
Total value	426,035,083	377,103,824	378,379,444	+ 1,275,620	— 47,655,639

Exports of Foreign and Colonial Merchandise.*

	£	£	£	£	£
Total value	91,942,084	79,622,697	91,365,465	+ 11,741,768	— 576,619

* The values of the Exports represent the cost and the charges of delivering the goods on board the ship, and are known as the "free on board" values.

SEA-BORNE TRADE OF INDIA.

The following is a summary of the accounts relating to the Sea-borne Trade and Navigation of British India for the month of December, 1909, and for the nine months, 1st April to 31st December, 1909, compared with the corresponding period of the years 1907 and 1908:—

	MONTH OF DECEMBER			NINE MONTHS, 1st APRIL to 31st DECEMBER		
	1907	1908	1909	1907	1908	1909
IMPORTS—						
MERCHANDISE, PRIVATE—						
Bengal	3,77,70,944	3,26,29,200	4,08,95,717	39,59,41,480	33,89,62,208	34,41,34,821
Eastern Bengal and Assam	2,42,157	5,37,527	2,84,524	39,92,827	43,76,942	44,41,619
Bombay	3,74,50,689	3,13,92,109	3,27,61,318	32,15,14,938	31,07,33,680	29,28,60,048
Sind	97,42,669	83,15,423	73,11,498	7,21,70,691	8,99,52,911	7,63,59,301
Madras	77,01,102	74,39,917	84,47,071	7,30,75,993	9,06,39,914	7,17,01,645
Burma	96,59,246	1,05,98,249	88,19,603	7,70,69,726	10,02,69,261	8,01,90,246
TOTAL	10,25,66,807	9,09,12,425	9,51,19,731	94,37,05,660	93,49,34,916	86,96,87,680
DITTO, GOVERNMENT STORES	48,35,378	57,88,991	37,20,409	4,73,36,320	5,95,33,150	4,56,62,786
TOTAL MERCHANDISE	10,74,02,185	9,66,51,356	10,22,40,140	99,11,01,980	99,44,68,066	91,53,50,466
TREASURE, PRIVATE—						
Bengal	28,34,213	32,21,544	72,04,785	6,15,77,689	2,67,49,431	3,94,14,608
Eastern Bengal and Assam	741	...	15,368	99,820	87,491	1,45,936
Bombay	1,12,86,886	49,62,711	6,33,93,597	17,32,54,151	13,85,53,498	17,49,86,695
Sind	3,84,537	3,18,805	7,66,475	55,24,023	44,99,690	55,56,189
Madras	3,55,194	5,65,499	7,45,599	64,90,753	49,01,041	96,78,732
Burma	24,230	4,51,723	10,14,326	2,02,035	9,89,451	...
TOTAL	1,49,14,459	90,92,789	7,25,77,547	24,79,60,762	17,50,53,186	23,07,69,611
DITTO, GOVERNMENT	1,60,000	52,000	...	9,46,40,685	9,41,900	9,73,999
TOTAL TREASURE	1,50,74,459	91,44,789	7,25,77,547	34,26,01,447	17,59,95,086	23,17,43,610
GRAND TOTAL OF IMPORTS	12,24,76,644	10,57,96,145	17,48,17,687	133,37,03,427	1,17,04,63,152	114,70,94,076
EXPORTS—						
MERCHANDISE, PRIVATE—						
(Foreign Merchandise)—						
Bengal	1,50,786	1,83,110	1,04,430	15,94,576	16,35,944	12,58,494
Eastern Bengal and Assam	200	...	95	750	8,739	725
Bombay	22,08,908	18,53,672	24,46,066	2,19,79,130	1,66,13,597	1,84,90,701
Sind	2,99,985	1,60,969	2,42,020	36,88,879	33,63,123	28,73,837
Madras	33,598	70,925	66,649	9,06,620	8,24,401	9,52,091
Burma	23,596	27,947	51,023	5,09,144	3,55,134	3,46,299
TOTAL	27,17,073	22,96,623	29,10,283	2,86,79,099	2,28,00,938	2,39,22,147
(Indian Merchandise)—						
Bengal	5,68,27,447	6,62,47,245	7,03,64,431	55,55,51,686	51,15,47,877	53,56,45,734
Eastern Bengal and Assam	50,96,024	30,99,133	35,65,255	3,24,06,936	3,79,34,556	3,41,99,784
Bombay	2,59,91,466	2,52,06,948	4,52,39,713	35,12,07,888	24,73,43,025	29,61,83,128
Sind	71,14,949	16,53,638	1,14,07,714	15,08,79,702	4,58,97,153	14,71,95,279
Madras	96,73,560	1,23,24,954	1,07,12,731	13,92,16,413	13,06,41,357	13,52,12,522
Burma	37,45,496	33,96,558	56,66,307	9,67,14,706	7,39,81,341	8,78,10,205
TOTAL	10,84,51,942	11,19,28,476	14,69,56,151	132,59,77,331	104,73,45,309	128,62,46,652
Total Foreign and Indian Merchandise exported—						
Bengal	5,69,78,233	6,64,30,355	7,04,69,681	55,71,46,262	51,31,83,821	53,69,04,228
Eastern Bengal and Assam	50,96,224	30,99,133	35,65,350	3,24,07,686	3,79,43,295	3,42,00,509
Bombay	2,82,03,374	2,70,60,620	4,76,85,779	37,31,87,018	26,59,56,622	31,46,73,829
Sind	74,14,934	18,14,607	1,16,49,734	15,45,68,581	4,92,60,276	15,00,69,116
Madras	97,07,158	1,23,95,879	1,07,79,380	14,01,23,033	13,14,65,758	13,61,64,618
Burma	37,69,092	34,24,505	57,17,330	9,72,23,850	7,43,36,475	8,81,56,504
TOTAL	11,11,09,015	11,42,25,099	14,98,66,434	135,46,56,430	107,01,46,247	126,01,68,799
DITTO, GOVERNMENT STORES	41,318	19,500	1,14,203	10,54,249	5,13,587	6,36,759
TOTAL MERCHANDISE	11,12,10,333	11,42,44,609	14,99,80,637	135,57,10,679	107,09,59,834	126,08,05,558
TREASURE, PRIVATE—						
Bengal	79,271	5,16,513	6,31,760	27,20,136	47,84,099	15,30,499
Eastern Bengal and Assam	...	...	...	...	...	...
Bombay	69,13,750	73,31,197	70,75,552	3,51,37,461	3,72,95,810	3,85,11,373
Sind	1,03,775	45,283	32,702	11,40,088	6,37,793	24,77,851
Madras	5,05,253	23,575	10,13,439	40,25,668	40,87,475	65,21,471
Burma	...	61,000	38,250	93,275	3,96,000	73,250
TOTAL	76,02,049	79,77,568	87,92,103	4,31,16,623	4,72,01,177	4,91,14,444
DITTO, GOVERNMENT	1,020	...	...	18,520	36,06,729	15,100
TOTAL TREASURE	76,03,069	79,77,568	87,92,103	4,31,35,148	5,08,07,906	4,91,29,544
GRAND TOTAL OF EXPORTS	11,88,13,402	12,22,22,177	15,87,72,740	139,88,45,827	112,17,67,740	130,99,35,102
GROSS AMOUNT OF IMPORT DUTY COLLECTED, including Salt	59,20,155	54,87,525	64,90,269	5,38,46,017	5,61,66,194	5,42,27,451
DITTO, EXPORT DUTY COLLECTED	3,23,329	3,58,494	3,60,337	56,19,329	42,26,785	52,07,932

WEEKLY TRADE MOVEMENTS.

For the week ending 29th January, 1910.

COTTON GOODS.			
Twist and Yarn.			
Foreign—Imports by sea into	{ Calcutta lba.	131,233	
	{ Bombay "	278,888	
	{ Madras "	51,200	
Indian—Exports by sea from	{ Calcutta "	210,400	
	{ Bombay "	3,985,280	
	{ Madras "	...	
Grey Piece Goods.			
Imports by sea from	{ Calcutta yds.	26,680,203	
	{ Bombay "	2,544,727	
	{ Karachi "	837,559	
Foreign ports into	{ Madras "	1,390,560	
	{ Rangoon "	45,410	
White Piece Goods.			
Imports by sea from	{ Calcutta yds.	7,904,205	
	{ Bombay "	2,833,589	
	{ Karachi "	3,219,209	
Foreign ports into	{ Madras "	583,799	
	{ Rangoon "	566,026	
Other Piece Goods.			
Imports by sea from	{ Calcutta yds.	2,671,314	
	{ Bombay "	4,209,196	
	{ Karachi "	3,155,853	
Foreign ports into	{ Madras "	1,397,608	
	{ Rangoon "	327,526	
Piece Goods.			
(Indian and Foreign)			
Despatches by rail from	{ Calcutta cwt.	20,272	
	{ Bombay "	4,270	
	{ Karachi "	18,127	
	{ Madras "	3,173	
Cotton, Raw.			
Imports into Bombay	{ By sea cwt.	682	
	{ Coastwise "	28,175	
	{ By rail "	317,273	
Imports into Karachi by rail	" " "	71,631	
" " Calcutta by rail and river	" " "	10,902	
JUTE.			
Arrivals by all routes in Calcutta	cwt.	445,395	
Exports by sea from	{ Calcutta { Gunny bags No.	13,219,270	
	{ " { cloth yds.	21,506,008	
	{ Chittagong—Jute "	374,629	
	" " "	35,639	
COTTON SEEDS.			
Exports by sea from Bombay	cwt.	375,647	
OIL SEEDS.			
Linseed.			
Imports into	{ Calcutta by rail and river cwt.	2,762	
	{ Bombay { By sea "	56	
	{ " { Coastwise "	179	
	{ Karachi by rail "	4,303	
	{ Calcutta "	1,003	
Exports by sea from	{ Bombay "	10,390	
	{ Karachi "	...	
Rape and Mustard Seed.			
Imports into	{ Calcutta by rail and river cwt.	26,533	
	{ Bombay { By sea "	240	
	{ " { Coastwise "	17,765	
	{ Karachi by rail "	227,000	
	{ Calcutta "	8,009	
Exports by sea from	{ Bombay "	3,509	
	{ Karachi "	265,650	
RICE.			
Arrivals by all routes in Calcutta	cwt.	412,725	
Exports by sea from	{ Calcutta "	192,825	
	{ Chittagong "	...	
	{ Bombay "	9,638	
	{ Karachi "	40,647	
	{ Madras "	15	
	{ Rangoon "	394,059	
TEA.			
Arrivals by all routes in Calcutta	lbs.	1,281,430	
Exports by sea from	{ Calcutta "	3,251,084	
	{ Chittagong "	...	
WHEAT.			
Imports into	{ Calcutta by rail and river cwt.	44,389	
	{ Karachi by rail "	99,353	
	{ Bombay { By sea "	240	
	{ " { Coastwise "	4,435	
	{ By rail "	19,113	
	{ Calcutta "	301	
Exports by sea from	{ Bombay "	2,265	
	{ Karachi "	216,621	

* B. N. Ry. figures not included.

EXPORTS—RUNNING TOTALS INCLUDING FIGURES RECORDED ABOVE.

	FROM APRIL		FROM JANUARY					
	1908.	1909.	1909.	1910.	1909.	1910.	1909.	1910.
	Wheat.		Linseed.		Rape and Mustard Seed.		Cotton Seed.	
Calcutta . . . Cwt.	48,203	3,376,946	59,022	11,443	9,132	62,279	Not reported.	
Bombay	79,030	2,646,222	38,524	40,481	7,355	71,087	1,014,759	2,030,779
Karachi	3,746,681	16,127,410	...	...	404,788	762,083	Not reported.	

KEROSENE OIL, WEEK ENDING 29th JANUARY, 1910.

Imports by sea into—	FROM			
	Russia.	America.	All other foreign countries.	TOTAL.
	galls.	galls.	galls.	galls.
Calcutta	...	...	...	...
Bombay	...	...	...	...
Karachi	...	...	...	...
Madras	...	...	...	...
Exports by sea from Burma to				
Bengal				762,200
E. B. & Assam				155,600
Bombay				268,908
Sind				392,100
Madras				887,492
Indian Ports, Non-Br.				...
Foreign Ports				195,436

IMPORTS OF SUGAR, WEEK ENDING 29th JANUARY, 1910.

Country of Shipment.	REFINED SUGAR IMPORTED INTO						TOTAL.
	Calcutta.	Chittagong.	Bombay.	Karachi.	Madras.	Rangoon.	
	owt.	owt.	owt.	owt.	owt.	owt.	owt.
United Kingdom	10	...	31	11	47	4	103
Germany	...	...	...	...	...	...	...
Austria-Hungary	...	...	3,403	4,171	3,100	...	10,674
Other European Countries	...	...	...	...	...	...	...
Java	63,459	...	2	82,857	48	37,999	184,365
Mauritius	5	...	19,289	76	...	...	19,370
Other Non-European Countries	...	...	1,146	...	...	...	1,146
Total refined							215,658
Total unrefined							...
Grand Total							215,658

RESULTS OF AUCTION TEA SALES IN CALCUTTA.

DISTRICTS.	SEASON 1909-10.				SEASON 1908-09.			
	Sold in sale of 28th January.		Sold to 28th January		Sold in sale of 22nd January.		Sold to 22nd January.	
	Packages.	Average price per lb.	Packages.	Average price per lb.	Packages.	Average price per lb.	Packages.	Average price per lb.
Assam	2,617	6 11-2	174,108	7 4-3	3,997	5 9-4	180,228	6 7-8
Cachar	3,216	5 11-8	153,832	5 10-2	3,420	4 7-6	131,903	4 11-7
Sylhet	3,456	5 9-1	106,497	5 9-9	2,496	4 5-3	104,092	4 11-9
Darjeeling	3	7 0	61,733	10 0-5	99	5 3-7	62,919	8 7-8
Dooars	1,105	7 4-1	190,604	6 10-8	3,213	5 7-6	183,782	6 0-3
Terai	11	3 0	17,980	6 3-3	7	2 10-7	25,006	5 1-6
Chittagong	415	5 10	7,821	5 10-5	377	4 3-3	7,647	4 11
Chota-Nagpore	81	7 0	1,759	6 7-3	29	2 10-3	1,732	5 2-8
Kumaon and Kangra	...	...	3,288	5 8-1	...	...	2,048	5 8-3
Madras	...	...	110	5 11-7	15	5 0	169	5 2-9
Dehra Dun	...	...	356	5 11-2	...	...	...	...
Nepal	...	...	608	6 2	...	...	756	4 10
All other places	...	...	76	5 5	...	...	...	...
TOTAL	10,904	6 3	718,772	6 10-3	13,653	5 2	700,282	6 0-2

(The above do not include second-hand Tea, damaged Tea and Dust from those concerns which sell only that grade on this market.)

Season 1909-10 Average price of 44,072 packages Dust* sold to 28th January As. P.
" 1908-09 " 40,285 " " 22nd " " 5 4-7
* On account of gardens which sell only that grade on this market.



PUBLISHED WEEKLY.

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age of loss high, and not a few stick to it that the original estimate of 10 per cent. on the expected crop will be near the mark. Should this gloomy forecast be realised, the season's harvest will be below the average of the past few years, if we are to suppose that the prospects were never at any time better than those of 1908-09. As a matter of fact, good authorities declared until the frost came that the yield would be heavier, notwithstanding the smaller area under cultivation. Thanks to the drought, sowings were late all over the country, and the consequence was that both wheat and maize in the early stages of their growth met with more favourable weather than they usually get. This has to be considered when estimating frost damage. Also another point, and a material one, has to be remembered, which is, that though the total area under wheat shows a decrease for the whole Republic, away to the south of the province of Buenos Ayres, towards the Pampa Central, a good deal of new land was sown. The crops on this were more backward than in the North, and when the cold nights came were the less liable to suffer damage from the frost. Making due allowance for the original better prospects and for the backward state of so much of the wheat, it seems that the market and railway estimate of the damage done may be too pessimistic. Certainly Senor Lahitte, Chief of the Agricultural Statistics Department of the Ministry of Agriculture, does not regard the loss, particularly that of wheat, as anything like so serious as the first statement suggested. The reports which have arrived from different parts of the country indicate that the wheat harvest this year will yield much about the same as last. With regard to maize the situation is not so easy to define. The damage in the North may have been minimized by the late sowings in the South and also re-sowings. If this proves to be the case the world may look to Argentina to furnish roughly some three and a half million tons of wheat and close on three million tons of maize as her quota of the supply of these cereals.

Captain Mark Syngé, Supply and Transport Corps, Rawalpindi, has published a useful book entitled *Certain Subjects taught to Officers at the London School of Economics*. The aim of the author is to show how far economic theories taught in the school in question may be applied to military work in India and especially to the work of the Supply and Transport Corps. The book is divided into five sections dealing with business accounts illustrative of business methods, statistical methods, Indian contract law, economic facts and their application to an army's supply and transport and railways. Each section seems to have been compiled with care and judgment. Of special interest to the commercial community is the section dealing with the various uses of curve-charts or graphs in analysing statistical data and of the methods of preparing them to bring out the essential facts. Graphs are not always

clearly understood by the outsider and Captain Syngé seems to have given weight to this consideration, for the method of preparing and using them is in every case illustrated by a diagram. The book is published by the Superintendent of Government Printing, India, Calcutta, at Rs. 2 or three shillings per copy.

We have received copies of Volumes I and II of the new edition of *Workshop Receipts* published by Messrs. E. & F. N. Spon, Limited, 57, Haymarket, London. The book has been known for many years as a source of sound practical information regarding technical and industrial processes and the new edition is founded on the new edition abridged and thoroughly revised. We understand that Volume III is in the binders' hands and that Volume IV completing the work will be ready shortly. The price is three shillings net per volume. The increased interest being taken in India in the exploitation of industrial processes not hitherto practised in this country is exemplified by the many enquiries on such subjects which are received in this Department; and an examination of the volumes received suggests that a wide demand for the work is likely to exist. One of the best tests of a book of this kind is to see how far it furnishes information that happens to be actually at the moment. Applying this test we turn to the article on **Drying and Desiccating** which has recently been discussed more than once in our columns. We find the article to consist of some twenty-eight closely printed pages with thirty-eight diagrams explanatory of the appliances and processes discussed. It begins by a statement of drying power of air at different temperatures and gives a table showing the quantity of water absorbed by a cubic foot of air under the varying conditions. It points out that for each increase of 27°F. the drying capacity of air is doubled. It lays down the main principles in the arrangement of air currents and application of heat, and then proceeds to discuss in more detail the structural characteristics of good drying rooms for diverse purposes, the proper size of air-ducts for chambers of various dimensions and the arrangements for disposing the articles or produce to be dried. The provisions for filtration and drying of the air admitted are indicated; and formulæ are given for the calculation of the velocity and volume of the requisite air supply. The apparatus and methods employed in certain specific industries and in chemical processes are dealt with and a description is given of the best known types of regulator for maintaining equality of temperature. The paragraph devoted to chemical drying agents such as calcium chloride is perhaps scarcely adequate; and under the heading of "abstracting water by cold" it is curious to find no reference to the familiar methods of using refrigeration to dry air that is intended for purposes of desiccation. With this exception, however, the various branches of the subject are outlined with sufficient clearness and

fulness; and on turning to the articles on such cognate matters as **Evaporating and Distilling** we find a similar terseness and lucidity.

In South Africa the wool year ended on December 31st, and according to Messrs. Holmuth, Schwartz and Co.'s annual circular the exports of wool from South Africa to the United Kingdom during 1909 amounted to 336,078, and to the Continent 63,772 bales, making a total of 399,850 bales. During 1908 the exports to the United Kingdom were 234,736 and to the Continent 56,581, or a total of 291,317 bales. The increase, it will be seen, is no less than 108,533 bales. This confirms the reports during the past twelve months and more as to the great improvements in the breed of sheep now going on all over South Africa, but especially in the Transvaal and the Orange River Colony. Those best able to judge are of opinion that the results already obtained are but the beginnings of much greater things, for it is well known that there are still millions of sheep depastured in South Africa which only cut fleeces worth two or three shillings each, though the country might just as well carry sheep cutting fleeces worth seven or eight shillings. As to another debatable supply of wool, it may be said that on January 12th and 13th at Antwerp about 8,300 bales of River Plate wool were offered. As usual at this centre about half the offerings were sold, although crossbreds sold at a moderate advance on November rates, whilst merinos could only be quoted fully firm. The trade was eagerly awaiting the opening of the first London auction for the present year in Coleman Street on January, 18th, when it was generally expected an advance of from 5 to 10 per cent would take place in crossbreds, whilst firm prices, it was thought, would be got for merinos, although public and private cablegrams from Australia reported a slight general weakness in the value of merinos, not excepting the best descriptions suitable for United States buyers. Since the lists were closed for the November auctions the arrivals in London have amounted to 495,500 bales, which are larger than any recorded for corresponding periods. Although the direct forwardings have amounted to 229,000 bales, there are 180,000 bales of new arrivals available for auction, to which must be added 2,000 or 3,000 bales Punta Arenas and River Plate wool. This does not look like a wool famine.

At the public auction of **raw and tanned hides** held in London on January 13th, fairly interesting supplies were available. Messrs. Flack, Chandler and Co. report: The demand was steady for all well-grown hides of heavy and extra weights at full values, but for light and spreading descriptions the enquiry was limited. Dry and dry-salted imports, such as Capes and Americans, met with fair competition, and on average were unchanged in values. Salted sold at full rates in heavy weights. Stocks

are not heavy. Altogether 104,491 Madras, Bombay and Ceylon were offered (including about 30,000 and calf) and 59,841 sold. There was a moderate attendance of buyers, and the demand proved limited except for the better class imports. Good to best Madras tannages realised very firm prices on average and fair to good about late rates. "Light" and "small" gained $\frac{1}{4}d.$ to $\frac{1}{2}d.$ per lb., and "third small" and "fourths" about $\frac{1}{4}d.$ per lb., "heavy" with few exceptions were $\frac{1}{4}d.$ easier, "extra heavy" and "third heavy" were generally $\frac{1}{4}d.$ to $\frac{1}{2}d.$ lower, while "thirds" sold firmly. Dull and inferior tannages were difficult to sell at $\frac{1}{4}d.$ decline, and rejections were neglected. Best calf skins advanced $1d.$ per lb., but "third calf" and inferior kinds declined $1d.$ to $2d.$ per lb. Buffalo hides and calf skins were scarce, and realised full values. Bombay mellow tannages sold at about December rates. Ceylons ranged from last sales' prices to $\frac{1}{4}d.$ easier.

The daily prices of opium per chest for the periods mentioned below were as follows:—

For the week ending 5th February, 1910—

In the Calcutta market—

Behar opium—Rs. 2,214; 2,214; 2,300; 2,370; 2,400; 2,398; 2,390.

Benares opium—Rs. 2,200; 2,200; 2,320; 2,450; 2,450; 2,450; 2,440.

The prices in the time bargains for the Behar opium of the 2nd and 3rd sale of 1910 were as follows:—2nd sale Rs. 2,214; 2,214; 2,300; 2,368; 3rd sale 2,400; 2,398; 2,390.

In the China market—

At Hongkong—(Exchange Rs. 131 to 133 per \$100.)

Behar opium—\$1,740; 1,700; 1,730 and 1,740; 1,780 and 1,800; 1,825; 1,840; 1,840.

Benares opium—On the 31st ultimo \$1,700; and on the 1st and 2nd instant \$1,730; \$1,780 and 1,850 respectively.

At Shanghai—(Exchange Rs. 175 per 100 taels.)

Behar opium—No quotations received.

Benares opium—No quotations received.

For the week ending 29th January, 1910—

In the Bombay market—

On the 23rd and 24th ultimo (new, 1909-10) Rs. 1,775; (new, 1908-09) Rs. 1,400 to 1,902; (old, 1907-08) Rs. 1,975 to 2,025.

From the 25th to 29th ultimo (new 1909-10) Rs. 1,850 to 1,960; (new 1908-09) Rs. 1,350 to 2,100; (old 1907-08) Rs. 2,050 to Rs. 2,246.

The latest prices at Hongkong and Shanghai were (new) Rs. 2,132 and 2,216; (old) Rs. 2,232 and 2,243 respectively.

Applications in respect of the following new inventions were filed in the Patent Office, Calcutta, during the week ending 31st January 1910:—F. W. S. Stokes, managing director, Messrs. Ransomes & Rapier, Ltd., 32, Victoria Street, London,—Improvements in or relating to falling or drop

shutters for weirs and the like. The Powell Wood Process Co. (India), Ltd., Home Street, Bombay—Improvements in or relating to the treatment of wood. R. J. W. Oates, mining engineer, Umari, Central India—Improvements in railway keys, or wedges. A. S. Desai, merchant, Moti Bazar, Bombay—Improvements in wire drawing. W. H. Milde, engineer, 46, Dover Street, Piccadilly, London—An improved safety venting device for use with cans, casks and other vessels for containing inflammable liquids. T. Trott, 122, Reinickendorferstrasse, Berlin—Improvements in sewing machines. H. E. Gresham, engineer, Ordsall Lane, Salford, England—Improvements in injectors. L. Gabillard, engineer, 129, Avenue Parmentier, Paris—Improvements in or relating to sand spraying or blasting apparatus.

It is understood, says the Paris correspondent of the *Times Financial and Commercial Supplement*, that the French Senate proposes to make every effort to secure the final adoption of the *Tariff Bill* before March 31st in order to place the French Government in a more favourable position to negotiate a commercial *modus vivendi* with the United States. The proposal to raise the duties on silk goods has been rejected, as these goods are specified in the Franco-Swiss Commercial Convention of 1906. Asiatic silks, such as Pongees, Corahs, and Tussores which are largely imported from Japan and British India, are, however, specially taxed, but with arrangements for temporary admission and refund of duty if re-exported. The clause regulating this article of the tariff provides that:—As an exception to the general rule, temporary admission shall be granted to Pongees, Corahs, and Tussores (*toile, serge, ou croises*), unbleached, or merely ungummed (*décru*), destined to be sold in France for re-exportation within one year. If consumed in France such goods shall immediately pay the usual duty with interest from day of import. The scale of duties has been fixed as follows:—Habutai and similar—Unbleached, general tariff, 600f. (£24), minimum tariff, 375f. (£15). Ungummed.—Bleached tissues (whitened otherwise than by simple ungumming), neither dyed, dressed, nor printed, per 100 kilogrammes, general tariff, 900f. (£36), minimum tariff, 600f. (£24). Shantung, Honan, Assam, and others—Unbleached or simply ungummed, neither bleached, dyed, nor dressed, general tariff, 600f. (£24), minimum tariff 375f. (£15). These extra-European silks hitherto have paid a general tariff of 1,500f. (£60), and a minimum tariff of 900f. (£36) per 100 kilogrammes, but have been allowed to enter duty free if unbleached, and neither dressed, dyed, nor printed. The new tariff is likely to prove a serious handicap to the import of these goods from Japan, China, and British India, unless the provision as to temporary admission will be found sufficient to permit free entry. Much opposition was shown by the Deputies representing silk-manufacturing districts to the

disjunction of the proposed changes in the other silk duties, but this was insisted upon by the Minister of Commerce. Artificial silk—Pure artificial silk which has hitherto paid as a *produit chimique a base d'alcool*, will be charged a general tariff of 1,350f. (£54) and a minimum tariff of 900f. (£36) (not including excise duty on alcohol used).

Persons interested in rhea fibre should read an article by Mr. Thomas Barraclough which appears in the *British Trade Journal* of 1st January, 1910. It discusses the causes of the comparative failure of the fibre and sums them up as follows:—"On the one hand, the producers at present offer an article not of the quality nor in the condition and quantity required by many would-be buyers. On the other hand, the would-be buyers not only decline to launch out into large undertakings for spinning and weaving the ramie fibre, as at present offered in the market, but realise that the present market supplies will be totally inadequate for their requirements." The second part of the article enters more fully into the nature of a process for the degumming of the fibre and promises to give in a succeeding article practical particulars regarding the machinery and practice and figures relating to the cost, etc. We offer no comment on the opinions expressed by the writer; but are aware that the matter is one that commands a good deal of puzzled interest in India.

The first sugar factory in the Gonda district, United Provinces, was opened on the 24th ultimo by Mr. R. Burn, I.C.S., Deputy Commissioner of the district. The establishment of this factory is due to Malik Sharif Hasan, of Itai-Rampur. Mr. Burn, in the course of a brief address, pointed to the increasing competition of foreign sugar in India, and urged the people to resort to scientific methods of cultivation which would have the desired effect of greatly increasing the yield of cane per acre.

The tonnage of vessels entered at ports in the United Kingdom from foreign countries and British possessions, with cargoes, during December, 1909, amounted to 3,332,461 tons, and the tonnage cleared to 4,770,917 tons, as against 3,333,426 tons entered, and 4,458,262 tons cleared, during December, 1908. With regard to the coasting trade, the tonnage entered with cargoes during December, 1909, amounted to 2,571,328 tons, and the tonnage cleared to 2,541,473 tons, as against 2,485,607 tons entered and 2,447,779 tons cleared in December, 1908. The tonnage of vessels entered at ports in the United Kingdom from foreign countries and British possessions, with cargoes, during the twelve months ended December, 1909, amounted to 40,315,942 tons, and the tonnage cleared to 57,194,486 tons, as against 40,189,965 tons entered and 56,609,083 tons cleared during 1908. With regard to the coasting trade,

the tonnage entered with cargoes during the twelve months ended December, 1909, amounted to 31,381,724 tons, and the tonnage cleared to 30,900,715 tons, as against 30,811,564 tons entered and 30,291,125 tons cleared during 1908.

NOTICES.

CALLS FOR TENDERS.

Railway Sleepers.

The Manager, Oudh and Rohilkhand Railway, Lucknow, is calling for tenders up to the 15th proximo for the supply of 250,000 9'6" x 10 x 5" timber sleepers.

Elephant Catching.

The Conservator of Forests, E. Circle, Eastern Bengal and Assam, is calling for tenders up to May 31st, 1910, for the right to catch elephants in the Chittagong Hill Tracts for two years from July, 1910.

Standing Timber.

Tenders are invited by the Extra Deputy Conservator of Forests, Sibsagar Division, Assam, for the sale of three plots of forest in the Holongapar Reserve near Jorhat, which are to be felled under the method of coppice with standards, the area of the plots being 112, 106 and 60 acres, respectively. The standards which vary in size from above 9 inches to below 6 feet in girth have already been marked at an average rate of about 33 per acre. The rest of the stock, excluding only saplings below 9 inches in girth, are to be cut and removed by the purchasers, those below 6 feet in girth being cut flush with the ground. It is estimated that the plots will yield 140 c. ft. of timber and at least 400 maunds of firewood per acre. Ample facilities for export already exist or will very shortly be completed. The plots can be sold separately or in one lot.

ENQUIRIES.

(For particulars address the Director-General of Commercial Intelligence, 5, Olive Street, Calcutta.

An asterisk (*) preceding an enquiry indicates that bank references are offered.)

Fish Manure.

(592).—A concern in Paris desires the addresses of firms in a position to supply fish guano or manure.

Dry Pigment Colours.

(593).—A British limited liability company manufacturing dry pigment colours desires the addresses of large importers.

Printing Paper.

(594).—A Calcutta firm is desirous of taking up the agency of a British or Continental paper manufacturer for the sale of cheap white printing papers suitable for newspaper work.

Centrifugals.

(595).—A Glasgow firm manufacturing a type of centrifugal which has been adopted in seed-crushing mills in England for dealing with the residue known as "foots", desires the addresses of engineering firms interested in this kind of machine.

Wood-Working Machinery.

(596).—A firm in Kashmir desires to be placed in communication with firms in a position to supply machinery for making pen-holders and rulers.

Abrasives.

(597).—A London limited liability company is desirous of appointing distributing agents in India for the sale of certain abrasive substances and machinery.

BOOKS OF REFERENCE.

The following publications have been received and may be consulted by any desirous of studying them at the Office of the Director-General of Commercial Intelligence, 5, Clive Street, where they will be displayed in the ante-room till Wednesday, the 16th February, 1910:—

Parliamentary Publications.

Colonial Reports—Annual Series—No. 629—Leeward Islands, 1908-09. Colonial Reports—Miscellaneous Series—No. 66—Gold Coast—Report on Forests. Foreign Trade and Commerce—Monthly Accounts for December, 1909. Statistical Abstract for the Several British Colonies, Possessions, Protectorates in each of the year from 1894 to 1908.

Foreign and Colonial Publications.

Austria-Hungary—Annual Trade Accounts, 1908; —Monthly Trade Accounts, November 1908. Belgium—Monthly Trade Accounts December, 1909. Canada—Weekly Trade Report, dated 3rd and 10th January, 1910; Labour Gazette, December, 1909. Egypt—Monthly Trade Accounts, December, 1909. Italy—Monthly Trade Accounts, November, 1909. Netherlands—Bijdragen tot de Statistiek van Nederland. Russia—Monthly Trade Accounts, November, 1909. United States—Monthly Summary of Commerce and Finance, October, 1909; —Crop Reporter, December, 1909.

Indian Publications.

General Catalogue of Government Publications—Corrected to 30th June 1909—Part I—All publications except Acts and Regulations and Publications which are not for sale.

BUSINESS NOTICE.

All correspondence and remittances relating to the supply of the "INDIAN TRADE JOURNAL" should be forwarded to the Superintendent, Government Printing, India, Calcutta, to whom all bills are payable.

Correspondence regarding advertisements in the "INDIAN TRADE JOURNAL" should be addressed to Reuter's Telegram Co., Ltd.; but all advertisements, blocks, etc., must be approved by the Director-General of Commercial Intelligence before insertion.

Retail trade advertisements cannot be accepted.

A full index is published as a quarterly supplement and should be filed for reference.

The annual rates of subscription to the "INDIAN TRADE JOURNAL" including quarterly index, are Indian, without postage, Rs. 12; with postage, Rs. 13; Foreign, Rs. 18. Single copies, 4 annas.

Subscribers and advertisers in the United Kingdom may remit either through a bank or by money order. For the purpose of postal remittances, one penny should be taken as the equivalent of one anna, and 1s. 4d. as the equivalent of one rupee.

Back numbers, when available, may be had at a cost of Re 1, for any number more than a week old.

The Indian agents of the "INDIAN TRADE JOURNAL" are:—Messrs. Thacker, Spink & Co., and Newman & Co., Calcutta; D. B. Taraporevala, Sons & Co., Bombay; Higginbotham & Co., G. A. Natesan & Co., and Kalyanarama Iyer & Co., Madras; Thacker, Spink & Co., Simla; Rai Sahib M. Gulab Singh & Sons, Lahore; and A. M. & J. Ferguson, Ceylon.

The Indian Trade Journal.

THURSDAY, FEBRUARY 10, 1910.

CENTRAL SUGAR FACTORY METHODS.

In response to an enquiry for literature relating to the general plan of a sugar estate working on the central factory system, a leading firm at home has forwarded a copy of the Proceedings of the Institution of Mechanical Engineers in London for December, 1902. It contains a paper in which Mr. J. N. S. Williams described the design, construction and operation of raw cane-sugar factories in the Hawaiian Islands. The paper itself is supplemented by notes of the discussion, oral and written which followed the reading and by a note by Mr. Williams upon the points raised in that discussion. We quote from the paper certain passages that may be useful to persons who are now considering the applicability of the central factory system to India; and we collate with such passages those parts of the discussion which brought out further facts upon the several points:—

The rise of the cane-sugar industry in the Hawaiian Islands may be dated from the year 1876,

when a reciprocity treaty between the Governments of the United States of America and the Kingdom of Hawaii permitted the entrance of Hawaiian raw sugars into the United States free of duty. About that time the labour laws of the Hawaiian Kingdom facilitated the entry of Asiatic labourers under contracts to the plantations for terms of years, whereby plantation owners and managers were enabled to produce cane very cheaply.

The sugar-houses of that date were not designed to secure a maximum return of finished product from the canes ground, mainly for the reasons that the raw material was cheap, and the price of sugar was high; so that satisfactory returns on invested capital were obtained, in spite of manufacturing losses which would be ruinous at the present day. The expansion of the industry was rapid, but in later years the price of labour increased, making the cane cost more; and the price of sugar declined, reducing the margin of profit; this compelled an improvement in the processes of manufacture, and at the same time in the methods of cultivation, as can be readily seen from the following comparison.

Twenty years ago the average yield of commercial sugar was about 9 lbs. per 100 of cane, and the average yield of cane per acre was about 25 tons. At the present day the average yield of commercial sugar is about 12 lbs. per 100 of cane, and the average yield of cane per acre is about 40 tons. The above averages are taken over the whole group, but there are individual plantations of great size, where the average yield far exceeds the above figures.

In 1882 the average yield of sugar per 100 of cane was about 9 lbs. and the average yield of cane per acre was about 25 tons, the 'net proceeds to the plantation' of commercial sugar, after all marketing charges, freights and commissions had been paid, was about \$75.00 say £15 10s. per ton of 2,000 lbs. In 1902 the average yield of sugar per 100 of cane had been about 12 lbs. and the average yield of cane per acre had been about 40 tons, the net proceeds of commercial sugar after all marketing charges, etc., were paid did not exceed \$50.00, say £10 10s. per ton of 2,000 lbs.

The cost of cane per ton of 2,000 lbs., delivered on the cane carrier in 1882, was not less than \$3.00, say 12s. 6d.; and the cane last year (1901) did not cost less on an average than \$4.50 per ton, say 18s. 9d. The above were average figures, and were not far

from the truth, for the whole group comprised in the Hawaiian Islands.

Replying to the surmise of Mr. Abel (page 955) respecting the progress made during twenty years in manufacture of sugar and cultivation of cane in the Hawaiian Islands, Mr. Williams stated that the improvement in yield of sugar per 100 of cane was almost entirely, if not fully, due to improved machinery and methods of manufacture, while the increase in tonnage of cane per acre was entirely due to a scientific application of high-class fertilizers. Cane could not be grown upon four-fifths of the sugar lands of the Hawaiian Islands without irrigation, which had been practised much the same from the earliest days of the industry as at the present time. Intensive cultivation of cane had only reached its present stage in that country within the last few years, and the results on certain lands had been almost beyond belief, as much as 110 tons of cleaned cane ready for milling having been produced per acre from large sections of land, the cane yielding 12½ per cent. of commercial sugar on its weight. Such favoured spots, however, were scarce and the yields from them in no way affected the statements as to general averages.

A detailed history of the steps in improvement in cultivation and manufacture of cane and sugar in the Hawaiian Islands during the past twenty-five years is beyond the scope of the present paper, which describes the design, construction, and operation of the new sugar factory for the Hawaiian Commercial and Sugar Co., incorporated in San Francisco about twenty-five years ago. This company acquired from the Hawaiian Government an immense tract of land with its pertaining water-rights on the Island of Maui, and erected a sugar factory, which was then one of the finest in operation, making upwards of 100 tons of raw sugar daily.

Mr. Andrew Brown said that had the author been present he would have liked to ask him what was the area of ground under cultivation. In order to keep the plant described in the Paper going at the rate of 3,600 tons per day, five or six square miles of territory would be required per month; and if the factory worked for six months of the year some idea would be gained of the immense quantity of land which had been given to them.

Mr. Williams, in replying to the discussion, wrote that to keep this factory going at the rate of 3,600 tons of cane ground per twenty-four hours would

require the harvesting of 60 to 70 acres per day during daylight, since field work at night was not practicable. This meant a field yield of 50 to 60 tons of cane per acre (a fair yield for this plantation); there was a crop acreage of 9,000 to 12,000 acres, and a total acreage under cultivation of from 30,000 to 35,000 acres, since three crops were in hand at once. One of the points aimed at in the construction of so large a sugar works was the ability to reap an immense crop during the months the cane was at its best; experience had conclusively shown that the increase in the sugar yield from the cane due to reaping at the right time, and the reduction in the manufacturing cost of the sugar bagged due to a highly organised plant of great capacity, far outweighed the loss of interest on the heavy investment of capital represented in buildings and machinery idle during the remainder of the year.

With the lapse of years and change of conditions, it became necessary to remodel the systems of work to meet the altered circumstances, and the old factory being no longer adapted to handle the greatly increased crops, the task of designing and constructing the new sugar-house was undertaken. The factory is designed to grind a maximum of 3,600 tons of cane per day of twenty-four hours, which quantity of cane, when at its best, will yield about 550 tons of commercial sugar of about 96 per cent pure sugar. The amount of cold water required for the condensers of the vacuum evaporating and grain-ing apparatus in the plant will reach 9 million gallons per day; as this amount of water is sufficient to irrigate some 800 acres of cane, it became necessary to so situate the buildings that this water, after having been used in the factory, could be turned into the irrigating ditches below the mill site.

The handling of 3,600 tons of cane during daylight necessitated special arrangements of railroad tracks for storage of cane for night service, and so placed that the full cars would descend towards the scale houses, thus requiring the minimum of effort to move them. The immense quantity of cane to be handled required that the storage yard be approached from all sides; and the great area of the cane lands indicated a central position so as to reduce the average length of haul of cane. Since the finished product amounts to only one-eighth of the weight of the raw material, the question of shipment of sugar was a secondary one, and, the other conditions being satisfactorily met, the sugar shipments were found to have been well provided for.

Mr. Robert Graham of Ponce, Porto Rico, wrote that Mr. Andrew Brown was quite right in saying that to supply such a factory with canes required a large acreage, and it was now beyond a doubt to those who had had the experience in both large and small sugar properties, that, with fixed and portable railways, as were now in use on the larger sugar properties, there was less time and money lost in carrying canes 20 miles than in carrying them 1 mile on smaller properties by old methods. It was just as easy to put 3,000 tons of cane through the mill, within 24 hours of cutting as it was to put 100 tons. All depended on the management and appliances.

Mr. Howard Marsh, of Derby, wrote that having been connected with the manufacture of cane-sugar-producing plant for upwards of twenty-two years, the subject was a most interesting one to him. The first point referred to in the discussion was the acreage necessary to produce the quantity of cane dealt with at the factory described by the author, and the difficulty likely to be experienced in getting the cut canes delivered alongside the milling-plant expeditiously. He himself did not see that there was necessarily any great difficulty in this direction. It was pointed out by the author that the factory was situated in the centre of the cane-fields, so that given sufficient and efficient rolling stock and a sufficiency of hands in the cane-cutting and carrying gangs, capable management would accomplish the task. Of course, if the factory were placed in a locality where the canes had to be conveyed to the mills by punts, or where the land was otherwise than level, the case would be different; but even in places where the ground was too uneven to admit of easy transport by means of rails, a good deal could still be accomplished by means of aerial railways, etc.

—An American inventor has patented a new wood filler and primer compound, composed substantially as follows:—A quantity of linseed oil is boiled for about four hours; then a quantity of litharge is added and perfectly mixed with the boiled oil; the mass is then boiled for another hour, when a quantity of sugar of lead is mixed in and the mass is boiled until it becomes of the consistency of honey; then it is removed from the fire and benzine added until the mass is of the consistency of varnish. Then add and mix in a quantity of talc. The proportions are as follows:—One gallon of raw oil to be boiled to the consistency of thick honey; litharge, one-half pound; sugar of lead one-quarter pound, and talc about 4 lbs., with the necessary quantity of benzine for reduction.

CHAMBERS OF COMMERCE.

UNITED PROVINCES.

THE particulars below are taken from the abstract of the proceedings of the Upper India Chamber of Commerce during the month of November, 1909, just published:—

Education of Factory Children.

Unfavourable replies have been received from the four manufacturing concerns who were asked whether they were prepared to contribute to the establishment of a joint school for the education of factory children, and the Magistrate of Cawnpore was informed that under the circumstances the Committee did not consider any good purpose would be served by proceeding with the scheme as formulated.

Interference with Traffic at Level Crossings.

In connection with the obstruction to public traffic which takes place at the level crossings on the Grand Trunk Road, the Municipal Board have signified their intention to take observations with the object of determining the number of times the different gates are closed and opened daily to road traffic, and the period during which road traffic is delayed under the present conditions.

Through Bills of Lading to the United States.

Some months ago the Committee were asked by certain members of the Chamber engaged in the hide and skin trade, to approach the railway administrations concerned with the view of inducing them to grant through bills of lading to the principal ports in the United States, and correspondence on the question has been proceeding for some time past. A letter has been received from the Agent of the East Indian Railway stating that the question would depend upon whether up-country consignors would agree to execute a Risk Note in Form B in respect of such consignments.

It has been decided that no further action can profitably be taken towards the attainment of such facilities until an amendment of the Risk Note in question, at least to the extent recommended at the Conference of the Indian and Ceylon Chambers of Commerce held at Calcutta in January, 1905, can be secured.

Arbitration Court.

The report of the Sub-Committee, appointed to consider Mr. Austin Kendall's proposals with reference to the establishment of an Arbitration Court by the Chamber, was considered by the Committee. The Sub-Committee had arrived at the conclusion that the employment of effective arbitration could not be encouraged unless the Arbitration Act were applied to Cawnpore and the other principal cities in the United Provinces. The Committee concurred in this view and the Government of the United Provinces, Judicial (Civil) Department, has been addressed accordingly. Government was again reminded that it was at the instance of this Cham-

ber in concert with those of Rangoon and Karachi, that the Indian Arbitration Act of 1899 had been introduced, and yet notwithstanding a strong protest, its operations have been confined to the Presidency towns. A résumé of the correspondence which had passed between Government and the Chamber on the subject was given, and reference made to the independent representations submitted by Mr. Kendall, District and Sessions Judge of Cawnpore, to the High Court, and to the pronouncement of the Sub-Committee that the arbitration clauses of the revised Civil Procedure Code cannot be regarded as an effective substitute for the legislation which is now in force in the Presidency towns. The Local Government has been urged to recommend that the refusal to make the Arbitration Act operative in these Provinces should be re-considered.

Fraudulent Practices in the Goldsmiths' and Silversmiths' Trades.

The Committee of the Bengal Chamber of Commerce, replying to the Committee's representations on the above subject, stated that they had been guided in this matter by the Calcutta Trades Association who are apprehensive of the effect which any coercive measures might exercise, especially on the Native banking business, which in the metropolis is closely connected with the trades in gems and the precious metals. The Association also considers that the compulsory licensing of these trades would not constitute any safeguard to the public. Nor do they regard with favour the proposal to introduce special Government weights although this objection would not apply to the compulsory marking of the ordinary weights in use amongst the trade.

The Committee, replying to the Bengal Chamber, said that they fully recognised the objections to any interference with long established trade customs, but they pointed out that consideration should be given to the fact that conditions in the capital, and probably in other Presidency towns, are far from identical with those prevailing in centres such as Cawnpore and Delhi. The bulk of the Calcutta population is of a relatively higher standard of intelligence than is the case in the mofussil, and they are therefore less liable to be imposed upon, a fact which may be taken to account for frauds being more extensively practised in up-country centres than in Calcutta.

BURMA.

At a meeting of the Committee of the Burma Chamber of Commerce held on Thursday, 16th December, 1909, the following among other items were considered:—

Method of dealing with Insolvency Cases in Rangoon.

Read letter dated 23rd November, 1909, from the Rangoon Import Association regarding the official method of dealing with insolvency cases in Rangoon, and requesting the Chamber to make some representation to Government in the matter.

Resolved—That a letter be addressed to the Local Government asking to be informed the actual amount of the fees received annually by the Official Assignee, and at the same time pointing out that, in the opinion of the Chamber, the office staff of the Official Assignee is inadequate, and desiring to know if it is the intention of Government to increase it.

Liability of Merchants on Goods sold but not delivered in the event of a Fire.

Considered letter from the Rangoon Import Association, dated 1st December, 1909, regarding the liability of Merchants on goods sold in the event of a fire, when such goods have not been delivered.

Resolved—That the matter be referred to the Import Sub-Committee for report. And to ask the Sub-Committee if they considered there is any other change in the Contract form besides the one suggested by the Import Association which should be made. Also to ask the Sub-Committee to consider the advisability of inserting a clause in the form regarding fines for late-delivery.

Appointment of retired Government Officials on the Legislative Council.

Read letter dated 14th December, 1909, from Messrs. J. W. Darwood & Company, regarding recent nominations by the Lieutenant-Governor of Burma of the four Burman Members on the Legislative Council. Messrs. Darwood & Company suggest that a letter of protest be sent in to Government regarding the nomination of these four Members.

Resolved—That a letter be addressed to the Local Government stating that the Chamber regrets to notice that all the four Burmese Members appointed to the Legislative Council are retired Government Officials and that no member of the Burmese Mercantile Community has been chosen.

TARIFF CHANGES AND CUSTOMS NOTIFICATIONS.

THE *Board of Trade Journal*, published on the 20th ultimo, in the section relating to Tariff Changes and Customs Regulations, gives particulars about:—

DOMINION OF CANADA.—Amended Certificates of Origin on Invoices.

COMMONWEALTH OF AUSTRALIA.—Commerce Act: Assay Marks on gold Watch Cases.

SOUTH AFRICA.—Customs Decisions.

NYASALAND PROTECTORATE.—Importation of Potatoes permitted under certain conditions.

GREENADA.—Free Importation of Personal Effects of Foreign Consuls, etc.

RUSSIA.—Cards imported for Carding Machines.

NORWAY.—List of Machines, Apparatus, and Parts thereof admitted Duty-free.

NETHERLANDS.—Exemption from Excise Duty of Wine for the Manufacture of Distilled Beverages for Exportation.

MADAGASCAR.—Export Duty on Rubber.

ROUMANIA.—Customs Decisions.

PANAMA.—Notice to Exporters. Rates of Import Duty on Beverages, etc.

RESEARCH WORK AT PUSA.

Report for 1907-09.

THE Report of the Agricultural Research Institute and College at Pusa for the years 1907-09 has recently issued from the office of the Superintendent of Government Printing, India, Calcutta (price As. 4). We give below a summary of the excellent introduction by Mr. Mollison, the Inspector-General of Agriculture, which will have great interest for the mercantile community, which is necessarily much concerned with agricultural development.

It has been definitely settled, Mr. Mollison states, that the Pusa College, which was established in July, 1903, shall chiefly be a higher teaching institution with post-graduate studies principally for selected graduates of provincial agricultural colleges and distinguished science graduates of Indian universities. Arrangements have, however, been made, for the time being, to give in agriculture, economic botany and entomology, short courses particularly in regard to the practical application of these sciences to everyday agriculture or horticulture in India. Nineteen students in all the various sections were admitted for training in 1908-09.

Agriculture and Live Stock.

The more important crops under trial at Pusa include wheat, barley, oats, maize, rice, various pulses, oil-seeds, sugarcane, jute, flax, and tobacco. Efforts are being made to obtain and acclimatise the best indigenous and foreign varieties of these crops. Cotton varieties have been given up, as nearly all are unsuitable to Behar.

Perhaps the most important line of working the Agricultural Section at Pusa refers to the breeding and rearing of farm live stock. A very select herd of Montgomery cattle, the premier milk breed of India, is maintained. A record of the milk yield of each cow is kept. It is hoped to raise the milking standard (which is now very high) by selection on the basis of these records, and to breed these cattle of one colour and of one type. Attention is drawn to an illustrated article in the October number of the *Agricultural Journal of India* for 1909 referring to a large and remunerative export trade in Indian cattle which has recently arisen. Last cold weather 80 Bikanir ewes were purchased. These are a white-fleeced breed with a high reputation for yield and quality of wool. They are being crossed by *dumba* rams to give them hardiness and obtain improvement in the crosses as mutton and wool sheep.

Poultry breeding is now conducted on a fairly large scale. During the last year 19 breeding pens of fowls representing 10 pure breeds and 3 crosses have been maintained including turkeys, geese and ducks. The experience so far gained indicates that the breed of fowl fully suited to India will have to be developed by crossing. With this aim in view various experiments are being tried at Pusa. Some of the pure and cross breeds reared at Pusa are

being tried experimentally in the hills to determine how they stand the climate.

Botanical Experiments.

The most important work done by Mr. Howard, Imperial Botanist, during the period under report is in relation to wheat. He has nearly completed the botanical survey of the wheats of India. The results are given in the first section of his *Monograph on Indian Wheats*. Samples of wheat were sent to Mr. Humphries in England for milling and baking tests, the results of which are published in a bulletin. At Pusa several promising wheats have been isolated by selection and are now being tested for yield, agricultural characters and grain qualities. The plant-breeding work in wheat is now being conducted on a fairly large scale, and the separate cultures, many hundreds in number, extend over several acres. The main objects of this hybridization work are to improve the grain, straw and rust resistance of the Indian wheats. Considerable progress has been made in the investigation into the influence of soil, climate and moisture on the character of the grain in wheat.

Fruit cultivation on an extensive scale has been successfully established. Most of the fruit trees are coming into bearing. The fruit experiments at Pusa have already yielded results of considerable practical importance. They have proved the suitability of the soil and climate in Behar for growing certain important varieties of fruit. Preliminary experiments with high class fruit regarding sun-drying, evaporating, and refrigerating, have been carried out. A method was devised and successfully tested for sending peaches long distances by rail in India.

During the past year a considerable amount of preliminary work was accomplished by Mr. Howard on oil seeds of the genus *Brassica*, and a general study of the oil seeds of India will be undertaken.

The races of both *Nicotiana rustica* and *Nicotiana tabacum* isolated at Pusa, have been studied. Arrangements have been made with the Peninsular Tobacco Company of Monghyr to conduct experiments at Pusa to ascertain the best varieties and the best means of growing tobacco suitable for the manufacture of cigarettes.

Selection experiments with flax, *Hibiscus cannabinus*, and *Crotalaria juncea* were continued, and some promising races isolated. Three varieties of sisal hemp (*Agave rigida sisalana*) have been established on a small scale.

Progress has been made in the investigation work with barley, *ganja* and opium. The study of the varieties of cassava has been completed, and Mr. Hector is preparing a final report on this subject.

Agricultural Chemistry.

The work in the pot-culture house has led to important field experiments, the results of which are likely to benefit cultivators at least in Behar in

a very substantial way. These field experiments are devised to show that phosphatic manure can, with economy and great advantage, be used for certain soils and many crops, particularly in parts of the Gangetic alluvium and especially in Behar.

The Imperial Agricultural Chemist has a very important investigation in progress on the effect of soil or manure on the composition of certain seeds. The results already obtained are remarkable. In conjunction with the Imperial Entomologist, Dr. Leather is investigating the prevention of injury by weevils to wheat and other grains when stored in bulk. This enquiry is of great importance, particularly as it is probable that the American "elevator system" of storing grain may be introduced into India at least on an experimental scale. The results of an enquiry by Mr. Annett into the cause of the dark colour of the black cotton soil are about to be published.

Mycology.

The fungi hitherto recorded from India have been in great part identified, and the information has been made readily accessible. The research work includes the examination of the life history and general biology of parasites and their effects on the attacked plants.

The wilt diseases of cotton, indigo, pigeon pea and gram were selected for special study, and the results already obtained will largely help Indian agriculture. A memoir on the work is now in the press. The experiments at the Poona farm to raise a strain of pigeon pea resistant to the wilt disease have been in progress for four years and are promising well.

Renewed experiments were made to elucidate the methods of infection of the red-rot disease of sugarcane which in India has been for a considerable period a very disastrous disease to this important crop. It is hoped that the new results will be published during the year, and advice of importance given. The study of the life history of other sugarcane parasites has not yet reached the publication stage.

In regard to palm disease in the Godavari delta successful inoculations with the parasite were secured during 1908, and a further study of its life-history was made. The campaign against this disease has been particularly successful, and is still being prosecuted earnestly by means of the special staff sanctioned by the Madras Government. Mr. Mollison, Imperial Mycologist, notes the fact that the results of this enquiry by Dr. Butler are so valuable to India that they are equivalent to saving the cost of his section to India for many years to come. A report on the coccanut palm disease in Travancore has been published.

The Imperial Mycologist visited Kashmir in 1908 during the months of July, August and September, and enquired into diseases of mulberry and of imported fruit trees. The results of part of this work has been published and recommendations made for dealing with mulberry diseases. The

problem is very important, as many poor people in Kashmir derive much benefit from the silk operations and from the cultivation of good kinds of fruit. Dr. Butler will complete in a short time the text of a book on Indian plant diseases. It will be of great value to students of agriculture in India.

Entomology.

Attention has been given in provinces to the study of the life-histories and habits of injurious insects. In the Punjab the effects of cotton boll-worm and its parasites has been closely watched. The work on the insects of the plains of India was continued. Assistance was given to firms dealing with *mohwa*, with brush-making and with cheroots in regard to insects damaging these articles. Valuable results have been obtained in the cultivation of *eri*-silk during the past year on a small scale at Pusa, and it is intended to continue this as the basis of a small cottage industry in several parts of India. This industry is being taken up in Tirhoot and Guzarat. The purely experimental work on *eri*-silk is almost completed. The cultivation of mulberry silk has been taken up.

The cultivation of lac was continued at Pusa as a demonstration to students and for much wider practical application in villages. Some owners of indigo factories in Behar have taken up lac cultivation on a fairly large scale. These men were supplied with seed and information, and their assistants were trained in lac culture. Assistance was also given to the Bikanir State in regard to the possibilities of lac culture there.

A report on the natural enemies of mosquitos was furnished to the Director of Agriculture, Bengal. A comprehensive investigation of the several species of fruit flies which attack mangoes, peaches, etc., is in progress. The life-histories of several of these have been worked out, and methods of destroying the mango fly have been tested with success.

Cotton.

Mr. G. A. Gammie, who has done much useful work in cotton, was appointed Imperial Cotton Specialist in December, 1907. His report is separately published with those of the heads of sections at Pusa. The principal lines of improvement attempted have been (a) selection and distribution of cotton seed, (b) introduction of superior indigenous varieties and better methods of cultivation, (c) hybridization and (d) trial of exotic varieties.

(a) *Selection and Distribution of Seed.*—The distribution of seed of selected pickings from cultivators' fields, has been in progress for more than four years in several provinces, but without any marked result. It is urged that, by separating types and continued plant-to-plant selection, real improvement can be effected, and this line of work is now being followed on Government experimental stations with very encouraging results. On the Surat farm, the different types found mixed in Khar cotton have been isolated and have been sown separately.

to determine the comparative value of each. Similar experiments are in progress in Madras. At Akola in the Central Provinces promising work is in progress in the separate cultivation of the four distinct varieties of cotton which are now grown mixed by the *ryots* under the names *jari* and *kali vilayati*. Of these the *malvensis* seems to be a distinctly superior variety, and special attention is being directed towards selection from it.

Eight cotton seed farms were worked by private agencies in the Central Provinces in 1908 under the guarantee of the provincial department against loss. Such farms have been in existence for the last four years. They grow the ordinary *jari* and *bani* varieties of cotton, but are situated in districts which have special reputation for the high quality of their cotton. The seed of first and second pickings is purchased by the provincial department at more than market rates for distribution. In the Punjab, Bengal and United Provinces, selection of cotton seed is in progress.

(b) *Introduction of Superior Indigenous Varieties and Better Methods of Cultivation.*—There has been a marked extension of this line of work, especially in Bombay and Madras. The introduction of Broach cotton into the Dharwar district has been attended with considerable success. This cotton is superior to the locally grown *Kampta* variety not only in quality, but also apparently in average yield per acre and in lint percentage. In 1908 sixteen thousand pounds of seed of Broach cotton from Navsari were sown in these parts in addition to some of the seed of this crop grown locally in 1907. Efforts to introduce Broach cotton under irrigation in the Deccan were not successful. Attempts have been made to improve the quality of Broach cotton in northern Gujarat by introducing seed of the superior Navsari variety from the south of the district. In the Tinnevely district of Madras the *karungani* variety has been found to be superior in quality and yield to the *uppani* variety. Arrangements were, therefore, made by the provincial department to sell pure *karungani* seed sufficient to sow about 8,000 acres in 1908. This work was partly helped by the grant from the British Cotton-Growing Association. The Madras Agricultural Department has also made successful efforts to improve the *ryots'* methods of cotton cultivation.

(c) *Hybridization.*—Experiments in hybridization were continued at several centres. They have brought to light some new ideas which, however, require confirmation. The crosses at the Surat farm have been found to be undergoing considerable variation. Although their lints have a relative advantage in quality over the ordinary Surat cotton, the ginning percentage is steadily falling. (The percentage has fallen from 36.9 to 30.3 during the last five years). The crosses have not yet been grown on a sufficiently large scale to properly test the outturn per acre. The lints of 21 hybrids grown on the Surat station were valued from 5 to 10 per cent above fine Broach. At Dharwar some encouraging results have been obtained by crossing, *inter se*, newly

introduced varieties from America and Egypt. Work on similar lines is being done in the Central Provinces and Madras.

(d) *Trials of Exotic Varieties.*—Trials of exotic varieties on Government farms and in cultivators' fields were continued. It is disappointing to have to record a set-back in the expectations previously formed regarding Egyptian cotton in Sind. Up to 1907 the area under this cotton was increasing, but last year, owing to several causes, the area decreased, and the quantity and quality of the produce much deteriorated. Further, the produce was so inferior that great difficulty was experienced in disposing of it. There were no bidders at the three auctions held in November, December and January last. The cotton was ultimately sold to a Bombay firm who wanted it for a particular trade purpose and paid only Rs. 9 per maund for *abassi* and Rs. 8-6-0 for *metajili* as against a minimum of Rs. 11 per maund secured in the previous years. The average outturn per acre of Egyptian cotton in Sind has been during the last four years much lower than that of the hardier indigenous variety and much less than was originally expected, mainly due to bad cultivation on the part of *ryots*. Unless cultivation is improved and sufficient irrigation is obtained as early as March-April, there is no likelihood of Egyptian cotton being established as a general field crop in Sind, and the Government of Bombay are taking steps to secure these conditions. It is disappointing, however, to record that this year (1909) no sowings in Sind of Egyptian cotton have been made on account of the difficulties of water supply.

Some promising results have been obtained from the trials of American and Cambodia cottons in parts of the Southern Maratha country. The area sown with American cotton in the Jhelum colony of the Punjab increased in 1907, but, on account of the scarcity of labour due to the epidemic of plague, the area was restricted last year. The cultivators, however, obtained an adequate price for their produce. The trials with Egyptian cotton in the Punjab have not yielded any satisfactory results. The Economic Botanist has now imported a new variety which he considers better suited to the Punjab. Acclimatised American cotton was successfully grown in 1907 by many cultivators in the Aligarh district of the United Provinces, and there was a large increase in the demand for seed for the next year's crop. It is anticipated that the quantity of this cotton will soon be sufficient for putting it on the market on a commercial scale and the prices offered will determine whether it will be permanently established in these provinces.

In the Central Provinces and Bengal *burhi* cotton (an acclimatised variety of American type) has continued to give successful results. Efforts are being made to extend the area under this cotton and to improve the quality and outturn by selection. In Madras and Burma, experiments with Egyptian and other varieties of cotton are in progress.

Mr. Mollison concludes his introduction by stating that further trials with tree cottons have confirmed

the opinion which he had previously expressed, *viz.*, that they will never enter into regular cultivation in India. Some success has been obtained with the Bourdon variety in the Bombay Presidency and favourable results have been obtained here and there in Assam and Burma, but the place of tree cottons as a field crop in Indian agriculture is very limited.

INDIAN FOREST REVENUE.

The particulars below are taken from the Review of Forest Administration in British India for the year 1907-08:—The following statement shows the gross revenue, expenditure, surplus and the proportion of expenditure to gross revenue for the last five financial years:—

Years.	Gross Revenue, Annual.	Expenditure, Annual.	Surplus, Annual.	Proportion of Expenditure to Gross Revenue.
	Rs.	Rs.	Rs.	Per cent.
1903-04	2,27,67,747	1,21,66,993	1,06,00,754	55
1904-05	2,40,29,950	1,29,67,856	1,10,62,094	54
1905-06	2,66,74,593	1,42,58,521	1,24,16,072	53
1906-07	2,64,91,486	1,40,63,800	1,24,27,686	53
1907-08	2,58,62,979	1,45,12,933	1,13,50,046	56

The gross revenue was Rs. 6,28,507 less than in the previous year and the expenditure Rs. 4,49,133 more, so that the surplus was less by Rs. 10,77,640. The above figures for revenue do not include the estimated value of the timber and other produce granted free or at reduced rates, which, during the year under review, amounted to 49½ lakhs of rupees compared with 34 lakhs in the previous year.

The following statement shows the financial results of the working of the forests after deducting capital expenditure not yielding an immediate return:—

	Rs.
Gross Revenue	2,58,62,979
Value of produce granted free or at reduced rates	49,53,319
Total value of yield	3,08,16,298
Gross expenditure	1,45,12,933
Deduct expenditure not yielding an immediate return:—	
(a) Roads and Buildings	12,60,238
(b) Cultural operations	6,54,422
(c) Working-Plans	65,997
(d) Settlements	79,756
(e) Surveys	2,18,915
(f) Demarcation	1,36,369
Total	24,15,697
Balance of direct revenue producing expenditure	1,20,97,236
Surplus of revenue over expenditure directly chargeable to Revenue	1,87,19,062

BURMA-YUNNAN TRADE.

Tariff Charges on Goods.

The following particulars of the tariff charges on goods proceeding from Burma to Yunnan (China), compiled by a correspondent, may prove of interest to the commercial community:—The city of Tengyueh (Momi) was opened to foreign trade as a "Treaty Port" by the Chinese Government under the Burma Convention of 1897. British merchants are therefore permitted to reside and carry on business there and all trade proceeding from Burma to China by the overland route is greatly advantaged by direct delivery at the port, thus obtaining Treaty privileges under the Chinese Imperial Maritime Customs' Tariff in place of the irregular exactions leviable under local regulations. Foreign goods, for which these advantages are desired, should enter China by the Bhamo-Tengyueh, Namkam-Lungling-Tengyueh or the Myitkyina-Tengyueh roads, all of which are officially open to trade. It is hoped that the Lashio-Kunlong Ferry-Tengyueh route will shortly be added to this number, but goods entering by other roads do so at their own risk and are liable to delay and provincial taxation including likin.

In addition to the Imperial Maritime Customs' Tariff (with certain special reductions referred to below) a Mule Tax, for road repair and trade protection, of 50 tael cents a head on import animals and 25 tael cents a head on export animals is collected on the Bhamo roads; the Myitkyina route is free of Mule Tax; and on the Namkam-Lungling route goods passing through the territories of the Shan Sawbwas are charged regular dues (under a band) at the following rates:—

Chefang Import	35 tael cents:	Export	15 cents.
Mangshih	5 "	"	5 "
Meungmao	10 "	"	25 "

No other charges are leviable on goods crossing the frontier to Tengyueh and efforts are being made to commute the dues on the Lungling road for a regular Mule Tax. The exchange value of the Tengyueh tael varies slightly from time to time, but is generally worth about Rs. 2.

Customs dues are levied on cargo at the head office at Tengyueh; the Mule Tax is collected at branch offices in Lungchance Kai (new road) or Manwyne (old road). If goods are intended for local consumption before reaching Tengyueh they may pay duty at the branch offices as a special privilege.

In addition to the branch offices mentioned, the Customs have barriers or checking-stations at Manhsien on the new and at Pengsa on the old road; no charges, however, are leviable at these places.

Customs procedure in respect of goods coming from or leaving for Burma is briefly as follows:—

Imports.

When passing Manhsien (or Pengsa, as the case may be) each caravan reports at the Customs

barrier, where the number of animals with and without loads is checked, and a "pass" issued which has to be presented at Lungchang Kai (or Manwyne), and exchanged there for a Mule Tax receipt.

On arrival at Tengyueh all caravans report at the Customs House, where a small percentage of the cargo is examined and the duty collected. The tariff in force at Tengyueh is the old or General Tariff of 1858, which, as far as imports are concerned, has been replaced at all the maritime ports of China by the much heavier tariff attached to the Commercial Treaty of 1902. Moreover, in accordance with the stipulations of Article IX of the Burma Convention of 1894, imports pay only seven-tenths, exports six-tenths, of the rates given in the old Tariff.

Exports.

The head office of the customs at Tengyueh collect both duty and Mule Tax on all outward cargo. No charges whatever are leviable elsewhere on this side of the Frontier; but at Lungchang Kai (or Manwyne) caravans must produce the documents issued to them by the Tengyueh Customs if required to do so, and must finally deliver them on their way through Manhsien (or Pengsa) to the barrier there for cancellation.

Transit Inwards.

When sending foreign imports into the interior, i.e., beyond the Treaty Port to Yungchang, Talifu, Yannaifu, etc., a merchant has the option of paying the charges demanded at the different taxing stations *en route* (likin, etc.) or of clearing his goods right through to their destination by the single payment of one-half the tariff duty at the Imperial Maritime Customs. In the latter case, a transit pass is issued which protects the articles mentioned therein against all further charges whatsoever to any specified place in the interior. As a further privilege, sale of goods *in transit* is also permitted under certain easy conditions.

Applications for transit passes may be made at any time within one year from date of importation of the goods concerned, but must be accompanied by the original import documents. Ail but an infinitesimal quantity of the foreign goods imported into Tengyueh leave for the interior under Transit Passes issued by the Imperial Maritime Customs.

The procedure at the Lungling Branch of the Imperial Maritime Customs (i.e., for goods entering Yunnan *via* Namkham) in respect to import and export cargo, and the issuing of inward transit passes, is in every way similar to that at the Tengyueh Head Office. Transit passes cannot be obtained, however, at Lungchang Kai or Manwyne. I may also draw attention to the fact that all applications to pass cargo must be in English and Chinese, or in Chinese and the language of the applicant.

Transit Outwards.

Any merchant desirous of purchasing native produce in the interior may free such produce from all inland charges by taking out what is known as an Outward Transit Pass, which will be issued to him by the customs at Tengyueh against a deposit in advance of three times the amount of the Export Duty on the goods which it is his intention to purchase. Outward Transit Passes are valid for six months from date of issue, but the period is extended by the customs authorities in exceptional circumstances in order to facilitate trade. On arrival of the goods at the port of shipment (e.g., Tengyueh) one-half of the sum previously deposited by the merchant is refunded to him. The other half is retained by the Customs; it represents—

- (a) one full export duty, and
- (b) one-half " " equivalent to transit dues.

Large quantities of musk have been exported from the interior of Yunnan during recent years under these transit passes, the exceptionally favourable tariff in force at Tengyueh offering inducements for this route as opposed to the journey by Chungking and the Yangtse.

Rebate by Burma Customs on Goods for Yunnan.

A rebate is allowed by the Burma Customs authorities on all goods entering Rangoon which are destined for Yunnan, the procedure being as follows:—

- (1) Goods intended for transport, in whole or in part, to Tengyueh *via* Bhamo, pay full duty on importation into Rangoon, but are specially registered at the Customs House there.
- (2) When any of these goods are shipped to Bhamo, the Rangoon Customs issue a document giving particulars of the packages, amount of duty paid, etc.
- (3) This document is exchanged at the Bhamo Customs House for a certificate which accompanies the goods to Tengyueh.
- (4) If, on examination of the goods at the Tengyueh Customs, everything is found in order, the Commissioner endorses and seals the certificate, which is returned by the consignee to his agent in Bhamo, who subsequently obtains a refund of seven-eighths of the Burma Import Duty originally paid at Rangoon.

—The British Vice-Consul at Nuremberg (Mr. S. Ehrenbacher) reports that, according to the *Munchner Neueste Nachrichten* of 15th January, the great majority of the German match factories have formed a combine, under the name of the "Deutsches Zundholzsyndikat (G. M. B. H.)" (German Match Syndicate, Ltd.), for the sale of their output. The syndicate, which will have its registered offices at Dresden, will begin operations on 1st April.

GRAIN FUTURES IN ARGENTINA.

REFERENCE was made in our pages a year ago to the report that the adoption of grain elevators in the Argentine had brought with it a movement for the establishment of a futures market in Buenos Ayres. It was understood at that time that while the proposal was favoured by most members of the Bolsa de Comercio or Exchange, it was opposed by certain large exporters who had previously had the trade to a large extent in their own hands and who were more keenly concerned about the maintenance of their advantages than about any other aspect of the matter. In the absence of any further information regarding the progress of the movement, enquiries have recently been addressed to an authority on the grain trade in Buenos Ayres. The reply just received is to the effect that the grain futures market at Buenos Ayres is now a going concern as a limited company under Government authorization and in affiliation with the Bolsa de Comercio. Our informant, having been concerned in the preparation of the Rules and Regulations, points out that he might perhaps not be regarded as a fair judge of the success attained. He claims however that it fulfils a valuable purpose by enabling the grower to know what he can get for his crop at such period as it may suit him to deliver and he believes that the market is largely used for this purpose. "Of course," he adds, "there is active speculation as well, and, for a good many months past, the transactions have been on a large scale. I think that it is accepted as a necessary part of the machinery for moving the crops into the hands of the consumer whether domestic or foreign. There was very persistent opposition to it on the part of two or three large exporters who had been previously able to buy up country at practically their own price, and who, naturally, object to the publication of actual current quotations, for present or future delivery, at every railway station."

As bearing upon his remarks about the functions of speculation in the moving of produce it is interesting to quote here, from the Report published in June, 1909, the opinion of the Committee appointed by Governor Hughes of New York to consider the nature of speculation in the United States:—

Speculation consists in forecasting changes of value and buying or selling in order to take advantage of them; it may be wholly legitimate, pure gambling, or something partaking of the qualities of both. In some form it is a necessary incident of productive operations. When carried on in connection with either commodities or securities it tends to steady their prices. Where speculation is free, fluctuations in prices, otherwise violent and disastrous, ordinarily become gradual and comparatively harmless. Moreover, so far as commodities are concerned, in the absence of speculation, merchants and manufacturers would themselves be forced to carry the risks involved in changes of prices and to bear them in the intensified condition resulting from sudden and violent fluctuations in value. Risks of the kind

which merchants and manufacturers still have to assume are reduced in amount, because of the speculation prevailing; and many of these milder risks they are enabled, by "hedging", to transfer to others. For the merchant or manufacturer the speculator performs a service which has the effect of insurance.

LAC EXPERIMENTS.

It appears from the Progress Report of Forest Administration in Eastern Bengal and Assam for the year 1908-09, that experiments to propagate lac on *Arhar* (*Cajanus indicus*) through the forest villagers were tried in Jalpaiguri, Buxa, Goalpara, Cachar and Sylhet Divisions. The attempt proved a failure in Jalpaiguri and Goalpara. In the former Division the forest villagers did not take much care of the *Arhar* plants which were damaged by wild pigs; besides, the inoculation of the plants was insufficient, only a small quantity of the seed lac being obtained. The Divisional Forest Officer, Goalpara, considers the failure in his Division to be chiefly due to the plants not being properly thinned out. In Buxa 10 seers of lac were obtained from 5 seers seed lac propagated on "*Albizia lebbec*," and the *Arhar* plants raised last year in different forest villages were inoculated with 5 seers of seed lac. Though the insects are said to have suffered much from the unusual heat and drought, they are reported to be now swarming. The *Arhar* plants raised in forest villages in Sylhet Division were inoculated during the year. Great damage is reported to have been done by ants, squirrels, and monkeys. A further area of 50 acres has been sown with *Arhar* during the year, and the seedlings are reported to be growing well. The lac propagated on the *Arhar* in the Balisari Forest village plantation started last year in the Cachar Division is reported to be doing well, but the crop at Loharbund was a failure, though slightly damaged by a small moth, owing, it is believed, to the drier site at this place. The above two plantations were extended by 2½ *bighas*, and a new plantation of 4½ *bighas* was started at Dhalai Rest House compound at a cost of Rs. 147.

Attempts are being made in the Lushai Hills to extend the cultivation of lac, and the Superintendent considers that there should be no obstacles to the growing of lac becoming general, if the industry can be successfully started.

Rubber-Tapping.

The total area worked over in the Kulsi plantation, Kamrup, was 66 acres, compared with 88 acres in the previous year. Three thousand nine hundred and fifty-five trees were tapped, yielding 2,573 lbs. rubber, or 39 lbs. per acre, against 46 lbs. per acre in 1907-08, the decrease being attributed to the employment of Hazaribagh coolies, who had no experience in the work. The cost of tapping and harvesting amounted to Rs. 1,016, or Re. 0-6-4 per

lb. as compared with Re. 0-5-6 in the previous year. The entire yield of the plantation was sold locally at Rs. 2-11-1 per lb. The previous years outturn (4,071 lbs.) sent to London for sale as alluded to in paragraph 52 of last year's report, realised Rs. 9,317 in the London market, or Rs. 2-4-7 per lb., against a total expenditure of Rs. 2,883, inclusive of transit and agency charges, or annas 11-4-per lb., the net profit being Re. 1-9-3 per lb.

In the Charduar Rubber Plantation, Darrang Division, 417 acres were worked over, against 642 acres in 1907-08. The number of trees tapped were 4,734, which yielded 7,560 lbs. of rubber or 18.1 lbs. per acre, as compared with 13 lbs per acre in the previous year. The percentage of loss in drying and cleaning was 3.6, as compared with 3.3 in 1907-08. A sum of Rs. 3,290 was spent for the tapping operation during the year, the cost per lb. being annas 6-9, against annas 11 in the previous year. The cost is not so high as in 1907-08, and appears to be normal, as compared with that incurred on similar work in the Kulsi plantation. The whole outturn was sold locally at Rs. 2-11-1 per lb. The previous year's crop, less shrinkage (8,256 lbs.) sent to London for sale fetched Rs. 20,289, or Rs. 2-7-4 per lb., against a total outlay of Rs. 8,126, inclusive of transit and agency charges, or annas 15-9 per lb., the net profit per lb. being Re. 1-7-7.

The total value of produce extracted departmentally and disposed of during the year was Rs. 4,26,824 (as compared with Rs. 3,46,144 in 1907-08), of which Rs. 3,61,760 was on account of major produce, including lapsed drift, and Rs. 65,064 from minor produce.

Timber.

The total outturn of timber and fuel exploited by purchasers was 11,412,573 cubic feet, against 9,633,873 cubic feet in the previous year. The increase is due mainly to the removal of larger quantities of firewood to meet the increased requirements of Tea-garden Managers from the reserved forests in the Jalpaiguri and Buxa Divisions, to the larger sales of garuati permits in the Garo Hills Division as shown in paragraph 66, and to greater demand for dead-wood posts and poles in the Buxa and Goalpara Divisions.

The number of tea-boxes sold during the year was 484,403, against 441,104 in the previous year. The increase is due mainly to the fact that two additional saw-mills in the Lakhimpur Division, which had in previous years paid royalty according to tree rates, were brought during the year under the box-royalty system.

The number of sleepers worked out by purchasers from first class timber for supply to railways in the Province was 27,337 as compared with 24,210 in the preceding year.

The value of minor forest produce extracted by purchasers was Rs. 3,37,984, against Rs. 3,18,160 in 1907-08. The increase is mainly attributable to better receipts from elephant mahals and royalty on elephants captured in the Nowgong and Lakhimpur Divisions and increased revenue from grazing.

VEGETABLE OILS IN 1909.

The *Oil and Colour Trades Journal* of January 1st contains an article on this subject. It says:—In looking back over the year which has just closed, one notices that a very general rise in most of the products in which this journal is interested has taken place; but in no department is the advance more striking than in the vegetable oil group, although even here there is an exception to prove the rule. The course of linseed oil was downwards until the third week in March, and the lowest prices of the year (£20 2s. 6d. in London, and £19 in Hull) were touched on 23rd of the month. Since then the upward movement has been steady, slow at first for only £3 per ton was gained between March and June, but latterly more rapid. It was in May that the first signs of falling off in the supplies of foreign seed were visible, the four montas' supply up to the end of April having been slightly in excess of the figures for the previous year, viz., 696,719 qrs. against 625,171 qrs. At the end of July it became clear that this country would not receive its usual quota from the Argentine, and the market for oil was firm at round about £24 in London. The sharpest rise took place in October when the market moved from £25 10s. to £30, and after that there was a little reaction, so that prices at the end of November were £1 per ton lower than on October 31st. Since then, and up to the time of writing, a further £2 has been gained, so that the total rise of the year amounts to about 50 per cent on the prices of January. Although there have been times when linseed oil has stood between £30 and £35 per ton for long periods, yet the market now looks with suspicion upon anything over £30 per ton as an abnormal figure, which is not likely to last, and manufacturers have been so long accustomed to base their calculations upon prices between £22 and £25, that they hesitate to buy their usual quantities when the market is over £30. The former period of high prices for linseed oil occurred in 1901 and 1902 and lasted some fifteen or sixteen months; resulting in a great extension of the cultivation of linseed, and a glut which drove values down to about £12, or only about one-third of the top prices; but it is noticeable that about eighteen months elapsed between the high-price period and the glut of seed, although the effect of its coming was to be seen in falling markets for a long time. At the present moment, however, there is an element in the situation which did not exist in 1902, and those of our readers who are interested in the market should take due note of it. The high prices of linseed in 1901-02, stimulated cultivators, because there was then no alternative crop; but now the steady rise in the value of wheat and all feeding stuffs, offers the agriculturist a choice, so that he may not be tempted to devote too much acreage to the cultivation of linseed. It is rather difficult to gauge the situation; the present high prices will, of course, check buying to a certain extent, at any rate for stocking purposes, although some linseed oil buyers as the large varnish makers, must maintain their stocks of matured oil, and hence

must replace promptly what is consumed from these stocks. Paint manufacturers will probably curtail their operations as much as possible, and if supplies of seed begin to increase with the new year we may see a check to the upward movement. It is clear that caution in buying is needed, but nothing else is particularly obvious.

In cottonseed-oil two main factors have been at work during 1909; first, the shortage in the cotton crop; second, the advance in the edible fat group, or, in other words, the materials for artificial butters. With regard to the American crop, it does not, of course, affect very seriously our supplies of cotton seed, which come almost entirely from Egypt and India. The Egyptian seed supply is only about 5 per cent under that of last year, and the Indian supply has been about 10 per cent greater, so that up to date we have rather more cotton seed than in 1908; but the pressure of American shortage, and the consequent "bull" speculation in American edible cotton oils, has been sufficient to raise our price very considerably. At the beginning of the year cotton oil was much dearer than linseed oil, but it declined in value for a longer period, and did not begin to move upwards again until September. The total gain in value during the last three months of the year has been about £8 per ton; but the increase on the year, comparing December with December, is only about £6 10s. against £9 in linseed oil. The position now, however, is reckoned to be stronger than in linseed, because the rise is connected with the general upward movement in all food-stuffs. All the materials which compete with cotton-oil are now on a higher plane of values, and it is probable that a general decline all round will be necessary to affect cotton-oil prices adversely. Even the competing soap-making materials are much stronger than they were, palm-oil by about £5, tallow by about £4 10s. and other greases proportionately. Any relief to the consumer must come either through a much larger supply of seed, or by means of competition of the soya bean oil. The former influence can scarcely be expected to be felt during the first three months of the year, unless the high prices for cottonseed should induce Indian cultivators to save and ship a larger proportion. We have, on former occasions, pointed out the possibility of a very much greater supply of Indian seed, as it is clear that only a small part of it is yet saved for the market. This development looked like coming two years ago, but the imports fell off again. In any case it is probable that a price between £9 and £10 per ton for seed will do something to convince the Indian grower of its value, and this phase of the matter will have to be carefully watched during 1910.

Castor oil, maize oil, bean-oil, and almost every seed oil with the exception of rape, have made progress during the past year. The last named, on the other hand, has fallen. The year closes with English refined rape oil quoted at £27 10s. against £30 quoted on December 31st, 1908. Stettin colza

has also been depressed during the year, and at times it has been sold at about the same price as rape oil. It is not easy to trace the causes of the depression in this class of oil; but it is clear that the rate of consumption cannot have been up to an average. Rape oil is to-day £3 per ton cheaper than linseed, and £2 per ton cheaper than cotton oil. A year ago it was about £8 dearer than linseed, and £6 dearer than cotton oil. There is nothing in the imports of seed which accounts for this, they being practically what they were last year, although, of course, imports do not affect this market so much as in the case of either cotton or linseed.

The olive-oil market has been particularly interesting, although consumers have been greatly inconvenienced at times. The almost universal failure of the 1908 crop led to a scarcity such as has not been known for many years, and at one time the price of good olive oil threatened to reach £70 per ton. Such a figure naturally caused a decline in the rate of consumption, but nevertheless there are certain processes, especially in our great cloth-making districts, which must have olive oil, and thus the price had to be paid. The extreme pressure was over in the course of the summer, but prices came down at first rather slowly, and as they fell merchants sold in the hope of being able to buy more cheaply later on. It is not until the end of November that the earliest portions of the new crop can reach this market; but in October it was known that the yield would not again be so meagre, and for shipment against the new crop prices came down until £37 per ton was reached. This appears to have been low-water mark, and, indeed, if the price had fallen much more it would have been below that of edible cotton oil. As it is, the finer qualities of cotton oil are practically on a par with olive. In December foreign sellers of olive oil began to pull themselves together, and to realise that they were giving away their product at rate unnecessarily low, and the year closes with an upward tendency. The output of olive oil both in Crete and in Spain, will be moderately good, but it would seem that the prices of other edible oils must keep the value above £40 in any case. All the nut oils have increased very seriously in value during the year. It is reported that the supply of arachide nuts will be very small, and the better qualities of this oil are already dearer than olive. The same may be said of cocoanut oil, which has advanced by some £7 per ton. British makers are doing their best to cope with the demand, but the imports are comparatively small, and the present price seems likely to be maintained, if not to be improved upon.

Bean oil has come into great favour during the year, and there is no doubt that it will quickly become a serious rival to other soap-making oils, if not, in a highly refined state, to edible oils. As to the latter, at present the sample we have tried are not devoid of a flavour which would put them out of the market in comparison with American refined

cotton-oil, as salad-oil or as butter-making materials; but, no doubt, this flavour will be extracted by better means of refining. For soap-making purposes it is said that the crude bean oil is equal to the ordinary refined cotton oil. It is now only a question of quantity, if the bean can be supplied in large quantities the markets for soap-making materials are bound to feel the effects sooner or later.

THE MANUFACTURE OF PASTE.

An approved method of making paste is as follows:—Take wheaten flour and mix in cold water to the consistency of thick cream: then boil it until it is glutinous. This ought to keep satisfactorily for a long time if not exposed to the air, but a little powdered alum added before boiling will have the effect of a preservative as well as giving strength to the paste. For a very strong paste for thick cardboard, etc., a little powdered rosin will give greater tenacity. A capital paste for mounting photos may be made by mixing common starch with cold water to a thin cream, and pouring on to it just sufficient boiling water to bring it to a jelly. This will not keep and must be freshly mixed each time it is required.

If the ordinary "Fish Flour" (so called because it is used by the fried fish vendors) is mixed with water kept boiling very hard just 3 minutes, an excellent paste can be made at an insignificant cost. If boiled furiously for the specified time and reasonably protected from the air this paste will probably keep, but the addition of a very little formaldehyde will make this absolutely certain. Carbolic acid—say 1 oz. to 2 gals.—will also act as a preservative, and imparts a fresh smell to the paste, especially if a little oil of cloves (another preservative) is available in addition. A gelatinous photo mountant is made by dissolving gelatine in water by heat (gently) and when cooling add a little glycerine and methylated spirit, say one-fifth as much spirit as glycerine. Whereas 1 oz. gelatine should be dissolved in, say, one pint of water.

Many excellent pastes have been made of "Dextrine" or British gum, with a preservative, such as thymol, acetic acid, borax, etc. These are somewhat troublesome, however, for anyone to make on a small scale.

There is a substance sold under the name of "Fixol." Fixol and water carefully incorporated can be made into an excellent paste adhesive, of great power and neutral in effect. Moreover, a paste which will keep. Fixol is so inexpensive that a gallon of good paste can be made for 3d. prime cost of materials; whereas many users of paste in large quantities will pay 4s. 6d. per gal. (and 1s. on the jar).

If it is desired to make paste for filling out into small bottles to sell retail at 1d. to 1s. the following points should be carefully considered. Attention must be paid to corks and corking. (It is essential to exclude the air if the paste is to keep.) The bottles or pots must be quite dry before being filled.

Tins are unsuitable on account of rust. The best shape of bottle is conical with a suitable neck, and a wooden cap with hole in top to place on when cork is removed; but this can only be afforded in sizes above 3l. in retail value. There is undoubtedly room for a good bottle of paste to sell to the public at 1d. and it can easily be produced for 3s. 9d. per gross, packed, by any enterprising member of the trade.

Subjoined are directions with approximate recipes from which the experimenter may select one to produce. All have been found workable and can be relied on, but the seeker after perfect paste may make a combination or modification of the following, and achieve a success in producing a novelty.

Strong office paste: Flour from wheat, 1 lb.; gum arabic (not ghatti), 12 oz.; gum tragacanth, 3 oz.; salicylic acid, $\frac{1}{2}$ oz.; cloves (oil of) liquid, $\frac{1}{2}$ oz.; water, 1 $\frac{1}{4}$ gals. Heat the water, then dissolve the gums in part of it. Make a batter of the flour with another portion of the water. Stir well and mix with the gum water; then add the acid and cloves dissolved in water, and just bring to the boil altogether and strain while hot.

Very strong paste: Water, 1 gal.; flour, 2 $\frac{1}{4}$ lbs.; rice flour, 1 $\frac{1}{2}$ lb.; alum, 4 oz.; cloves, oil of, $\frac{1}{4}$ oz.; Mix flours in one-half the hot water to a batter and dissolve alum in other half of the water. Add acid, boil ten minutes, and add cloves whilst getting cool.

A cheap strong paste: White dextrine, 4 lbs.; carbolic acid liquid, $\frac{1}{2}$ oz.; cloves, $\frac{1}{2}$ oz.; pure (fair) water, 1 gal. Mix dextrine with water; heat but not to the boil. Stand to cool for 3 days. Stir in acid and cloves and fill out.

The following are used as preservatives:—Hydro-naphthol, salicylic acid, formalin, creosote oil, oil of cloves, alum, nitric acid, borax, lime water, thymol. Whilst the bases can be flour (wheaten), rice flour, fish flour, starch, dextrine, glucose, gelatine, and glycerine, in conjunction, of course, with water.

EASTERN BENGAL AND ASSAM.

Crop Reports.

(By Telegram.)

Shillong, Feb. 8th.

The following is a summary of the weather and crop reports of Eastern Bengal and Assam for the week ending 7th instant:—

The weather is seasonable. There has been no rain except light showers in parts of the Assam Valley.

Transplanting of spring rice, gathering of mustard and pressing of sugarcane are in progress.

Ploughing for jute and other *bhadra* crops is going on.

The prospects of wheat, tobacco, sugarcane tea and mustard are good.

The average price of common rice has fallen about one per cent.

Cattle disease is reported in Dacca, Darrang and Sibsagar.

FOREIGN SEABORNE TRADE IN DECEMBER 1909.

The trade returns for December 1909 show increased values in imports, exports and re-exports in comparison with the returns for December, 1908. The following tables show the values of imports and exports of private merchandise for December and for the nine months ending December together with the increase or decrease compared with the corresponding periods of 1908:—

	December, 1909.		
	Rs.	Rs.	Per cent.
Imports	9,85,19,731	+ 76,07,306	+ 8.4
Exports	11,69,56,151	+ 3,50,27,657	+ 31.3
Re-exports	29,10,283	+ 6,13,660	+ 26.7

Nine months ending December 1909.

	Rs.	Rs.	Per cent.
Imports	86,96,87,680	— 6,52,47,236	— 7.0
Exports	1,23,62,46,652	+ 18,89,01,343	+ 18.1
Re-exports	2,39,22,147	+ 11,21,209	+ 4.9

In the following remarks the returns for December, 1909, are contrasted with those of December, 1908.

IMPORTS—PRIVATE MERCHANDISE.

Animals living.

There was a fall in the total value of Rs. 3,27,791 (—48.2 per cent) owing mainly to smaller imports of horses from Australia (including New Zealand).

Articles of Food and Drink.

The total value under this head was smaller by Rs. 17,82,021 (—10.2 per cent). Imports of provisions and liquors rose by Rs. 3,93,021 (+13.2 per cent) and Rs. 1,61,433 (+10.5 per cent) respectively, whereas those of grain and pulse, sugar and spices receded by Rs. 12,42,283 (—89.4 per cent), Rs. 8,90,703 (—11.0 per cent) and Rs. 1,44,445 (—11.2 per cent), respectively. In the imports of grain and pulse the decrease was mainly in rice not in the husk and wheat flour; the former declined by 135,218 cwt. (—99.2 per cent) in quantity and Rs. 9,54,239 (—99.2 per cent) in value and the latter by 20,279 cwt. (—78.3 per cent) in quantity and Rs. 1,55,011 (—76.2 per cent) in value. Austria-Hungary which sent 150,979 cwt. of refined sugar valued at Rs. 19,02,604 in December, 1908, shipped 41,063 cwt. valued at Rs. 4,41,805 in the month under review; on the other hand the contribution of Java increased from 406,589 cwt. valued at Rs. 38,35,403 to 523,104 cwt. valued at Rs. 51,78,769. Imports of cloves from British East Africa fell by 198,774 lbs. (—26.5 per cent) in quantity and Rs. 1,19,970 (—41.1 per cent) in value.

Metals and Manufactures of Metals.

The total value decreased by Rs. 14,35,900 (—6.5 per cent). Imports of iron and steel combined and of copper increased by Rs. 13,05,960 (+20.2 per

cent) and Rs. 9,19,688 (+48.3 per cent) respectively, whereas those of machinery and millwork and railway plant and rolling stock declined by Rs. 22,22,741 (—40.8 per cent) and Rs. 16,53,080 (—31.2 per cent) respectively. Imports of iron sheets and plates (galvanised) received chiefly from the United Kingdom were higher by 84,063 cwt. (+52.4 per cent) in quantity and Rs. 6,58,703 (+41.1 per cent) in value. The increase under copper was mainly brought about by larger consignments from Germany of copper wrought; the figures are 13,792 cwt. valued at Rs. 699,800 as against 4,561 cwt. valued at Rs. 2,38,695 in December, 1908. Of the decrease under the head machinery and millwork textile machinery accounted for Rs. 12,50,463 (—53.9 per cent).

Chemicals, Drugs, etc.

The total value was higher by Rs. 5,85,704 (+22.1 per cent). Towards this amount dyeing and tanning materials contributed Rs. 3,88,347 (+53.4 per cent), the share of aniline and alizarine dyes in the contribution being Rs. 2,57,568. The fluctuations in the other articles falling within this class do not call for special notice.

Oils.

The total value decreased by Rs. 2,33,777 (—7.4 per cent). The item solely responsible for the shrinkage was kerosene oil, arrivals of which amounted to 4,994,825 gallons with a declared value of Rs. 22,68,626 as contrasted with 7,037,453 gallons valued at Rs. 25,08,880 in December, 1908,—a decline of 2,042,628 gallons or Rs. 2,40,254 (—9.6 per cent). There were no imports during the month from Russia, Roumania and Borneo. The United States of America increased her shipments by 1,188,071 gallons (+35.0 per cent) in quantity and Rs. 7,56,906 (+55.8 per cent) in value. Sumatra sent 413,242 gallons of kerosene oil valued at Rs. 1,54,966 against nil in the previous year, while the Straits Settlements had a negligible consignment of 144 gallons to her credit against 2,070,523 gallons in December, 1908. Of the receiving provinces, Bengal took smaller quantities by 3,519,821 gallons valued at Rs. 10,91,826, and Sind 482,698 gallons valued at Rs. 1,89,262, Bombay on the other hand received 2,077,667 gallons more valued at Rs. 10,70,600.

Raw Materials and Unmanufactured Articles.

The total value fell by Rs. 7,59,482 (—17.6 per cent). The contraction in the imports of silk from Rs. 12,94,049 to Rs. 7,51,971 (—41.9 per cent) is the marked feature of this class. China is the principal supplier of this commodity and her share fell from Rs. 12,14,572 to Rs. 6,62,395 (—45.5 per cent). The item in which the next largest decline is noticed is wood (timber), the fall being one of Rs. 1,91,951 (—31.7 per cent).

Articles Manufactured and Partly Manufactured.

There was an increase in the total value of Rs. 1,15,60,573 (+28.6 per cent). The improvement was

shared by almost all the articles in this class; but the item most prominent in this respect is manufactures of cotton alone with an increase of Rs. 1,11,08,793 (+46.4 per cent), contributed almost wholly by the United Kingdom. The increases next in importance are those under silk manufactures of Rs. 3,58,557 (+20.1 per cent); glass and glassware of Rs. 2,51,264 (+32.1 per cent); matches of Rs. 1,64,279 (+33.3 per cent); paper and pasteboard of Rs. 1,39,671 (+22.0 per cent); and wool manufactures of Rs. 1,05,432 (+7.4 per cent).

Treasure.

Imports of both gold and silver are marked by a large increase. Gold rose from Rs. 65,88,582 to Rs. 5,63,71,550 (+755.6 per cent) and its large import is the striking feature of the December trade returns. Consignments of silver improved from Rs. 25,04,207 to Rs. 1,62,05,997 (+547.1 per cent). The bulk of the increase was derived from the United Kingdom and was received by Bombay.

Government Stores.

The value decreased by Rs. 20,18,522 (-35.2 per cent). The falling off is almost entirely due to reduced imports of railway plant and rolling-stock.

EXPORTS.

Articles of Food and Drink.

The total value advanced by Rs. 73,67,119 (+37.9 per cent). The items responsible for this improvement with their respective shares are: Wheat, Rs. 36,12,129 (+4,933.2 per cent); tea Rs. 29,71,960 (+30.5 per cent); and gram, Rs. 7,47,186 (+2,749.3 per cent). Shipments of rice receded in value by Rs. 2,17,081 (-3.2 per cent). The total exports of wheat amounted to 638,805 cwt. valued at Rs. 36,85,350; of this quantity 160,218 cwt. valued at Rs. 9,28,942, were taken by the United Kingdom. Exports of black tea to the United Kingdom rose by 2,421,358 lbs. (+15.6 per cent) in quantity and Rs. 15,14,191 (+21.4 per cent) in value; to Ceylon by 2,320,155 lbs. (+323.6 per cent) in quantity and Rs. 11,57,330 (+291.4 per cent) in value; and to Russia by Rs. 4,30,590 (+67.1 per cent) in value.

Metals and Manufactures thereof.

The value showed an increase of Rs. 1,65,623 (+19.5 per cent). It is noticeable that the contribution of manganese ore rose from 926,020 cwt. to 1,015,310 cwt.

Chemicals, Drugs, etc.

There was an advance of Rs. 14,82,421 (+26.4 per cent) in the trade of articles under this class due to increased exports of opium (Rs. 12,17,176 or 27.4 per cent) and indigo (Rs. 2,93,736 or 158.1 per cent). Exports of opium to the Straits rose by Rs. 4,37,575 (+30.9 per cent); to Java by Rs. 4,83,650 (+637.2 per cent); to Hongkong by Rs.

1,62,050 (+6.2 per cent); and to China (excluding Hongkong and Macao) by Rs. 3,91,986 (+510.2 per cent). There were no shipments of opium to Indo-China which received Rs. 2,53,000 worth of the article last year.

Oils.

In the trade in oils there was a net increase of Rs. 3,16,863 (+42.3 per cent) resulting chiefly from an expansion in the shipments of mineral oils, including paraffin wax the combined value of which increased from Rs. 2,95,566 to Rs. 6,42,717 or +117.8 per cent.

Raw Material and Unmanufactured Articles.

In this class there was an advance of Rs. 2,51,22,568 (+44.9 per cent) in value. The exports of cotton increased by 476,718 cwt. (+117.2 per cent) in quantity and Rs. 1,90,06,082 (+165.1 per cent) in value; seeds by 1,307,251 cwt. (+118 per cent) in quantity and Rs. 70,73,517 (+87.3 per cent) in value; hides and skins by 32,296 cwt. (+44.2 per cent) in quantity and Rs. 24,69,921 (+52.1 per cent) in value; wool by 3,249,362 lbs. (+206.9 per cent) in quantity and Rs. 14,85,185 (+180.7 per cent) in value; and coal and coke by 46,559 tons (+120.8 per cent) in quantity and Rs. 3,85,401 (+112.2 per cent) in value. Raw cotton was the largest single item of export in the month under review. Of the increase noticed above 83 per cent in quantity was contributed by Bombay and 17 per cent by Sind, and the shipments were taken by the following countries as follows:—Japan 353,907 cwt. (40 per cent); Austria-Hungary 116,722 cwt. (13.2 per cent); Germany 118,548 cwt. (13.4 per cent); Italy 121,065 cwt. (13.7 per cent); United Kingdom 55,494 cwt. (6.3 per cent); and China 39,403 cwt. (4.5 per cent). Towards the increase in the exports of seeds Bombay contributed Rs. 50,39,814 or 71.2 per cent; Sind Rs. 7,34,074 or 11.1 per cent; Madras Rs. 7,57,459 or 10.7 per cent; and Bengal Rs. 4,84,147 or 6.8 per cent. Of the increase in the exports of hides and skins, skins are responsible for nearly 66 per cent, and the increased shipments found their way chiefly to the United States. Nearly the whole of the increased exports of wool was taken by the United Kingdom which took 4,693,054 lbs. valued at Rs. 22,66,106, against 1,551,12 lbs. and Rs. 8,18,793 in December, 1908, the increase was one of 202.5 per cent in quantity and 176.7 per cent in value.

Articles manufactured and partly manufactured.

The total value increased by Rs. 4,76,637 (+1.6 per cent). Lac (principally shellac) was responsible for Rs. 11,12,334 (+46.2 per cent); jute for Rs. 6,32,490 (+4.5 per cent); cotton piece-goods for Rs. 2,17,769 (+16.8 per cent); and skins for Rs. 1,04,340 (+5.9 per cent). The increase under these heads was counterbalanced by a decline of Rs. 9,10,855 (-14.2 per cent) in the exports of cotton yarn and of Rs. 6,37,790 (-43.6 per cent) in those of hides. Of shellac the

United States took a larger quantity by 19,930 cwt. (+95.9 per cent) and Rs. 5,79,915 (+39 per cent) in value and the United Kingdom by 9,673 cwt. (+528 per cent) in quantity and Rs. 4,25,812 (+303.9 per cent) in value. The increase in the exports of jute goods was due to larger shipments to Australia, United Kingdom and Siam. It is worthy of note that out of the total shipments of 85,534,362 yds. of gunny cloth valued at Rs. 75,68,479, the United States received 75,584,122 yards valued at Rs. 64,89,329 or 83.4 per cent. The exports of cotton yarn to China fell off by 2,741,218 lbs. (-20.6 per cent) in quantity and Rs. 10,73,694 (-19.8 per cent) in value and this is the principal reason for decline in the trade of this article. In hides the United Kingdom reduced its demands by 8,396 cwts. (-45.1 per cent) in quantity and Rs. 6,33,844 (-43.9 per cent) in value which nearly accounts for the fall in the exports of this article.

Treasure.

Exports of both gold and silver increased by Rs. 1,67,417 (+5.76 per cent) and Rs. 6,47,118 (+12.76 per cent) respectively due mainly to larger exports of gold to the United Kingdom and of silver to Ceylon and the Straits.

Re-Exports.

The total value of the exports of foreign merchandise increased by Rs. 6,13,660 (+26.7 per cent). Metals and hardware showed an increase of Rs. 1,98,280 (+147 per cent) and raw wool of Rs. 1,69,160 (+1,118.8 per cent).

Miscellaneous.

There was an improvement in the import duty collected of Rs. 10,02,744 (+18.3 per cent) and in the export duty of Rs. 1,843 only.

—We learn from a return just received from the Statistical Department, Egypt, that the total number of Suez Canal transits of vessels of all nationalities was 1,000 during the third quarter of last year as against 896 during the corresponding period of the previous year. The total net tonnage during the same period was 3,690,224, against 3,257,639 during the corresponding quarter of 1908. The total number of passengers, was 25,442, as against 24,064. Of the total number of transits during the third quarter of last year, 434 were vessels from north to south and 566 from south to north, as against 399 and 497 during the corresponding period of 1908. The number of transits from the beginning of last year to September 30th were 3,044, the total tonnage 11,080, and the number of passengers 98,695 as compared with 2,774, 9,994,768, and 97,586, respectively, during the corresponding period of 1908. It will be seen from the figures quoted above that in all respects they record an improvement over those of the year before, and they indicate an appreciable expansion of trade between the west and the east.

COMMERCIAL PROGRESS IN THE UNITED PROVINCES.

It appears from the Administration Report of the United Provinces for 1908-09 that the year was remarkable for the growth of public interest in the scientific development of agriculture. The rapid rise of wages owing to the high price of food grains has awakened landowners and the larger cultivators to the merits of labour-saving machinery. The agricultural department received large orders at the Cawnpore workshop for water-lifts, sugar machinery and tillage implements, and should soon be able to hand over to private enterprise a well-established industry. Public confidence in the department has steadily increased, as evidenced by the number of correspondents asking for advice and by the demand for the departmental pamphlets on subjects of agricultural interest. The seed depots, which have acquired considerable popularity, are eventually to be handed over to co-operative societies and are being managed on lines which will render the transition an easy one. The scheme of organising a trained staff of well-borers has made a successful start and has attracted the attention of other provinces. A special class was held at the Lucknow gardens to train students for the post of district board supervisors of arboriculture. The Government gardens at Lucknow had a prosperous year, but the botanical gardens at Saharanpur suffered from a premature stoppage of the rains. It has been decided to abandon the commercial management of these gardens and devote them entirely to experimental work.

The general depression, caused by the recent famine, curtailed the supply of capital available for investment in new enterprises and hampered industrial progress. There was however a considerable growth in the number of cotton mills, though the short yield of cotton reduced the number of hands employed. A similar check was experienced in the sugar-refining industry where the high price of the raw material caused a serious loss to refiners and actually prevented the working of a large factory lately erected at Unao. The efforts made by Government to introduce improvements in handloom weaving have met with some success, and the reports from the weaving schools instituted in several districts are encouraging.

The import trade of the province diminished very largely both in bulk and value. Within a month or two of the close of the famine, the large imports of grain had ceased and the normal balance of trade re-asserted itself with the customary export of agricultural produce. The exports of cotton and oil seed declined owing to an unfavourable season, but sugar was exported in large quantities. Trade with Tibet diminished both in imports and exports, borax being the only one of the chief imports in which there was not a decline. The present trade with Tibet is not of great commercial importance to this province, except as regards wool, and it is not possible to anticipate any important development of

it until communications, which are at present very poor, are improved. The imports from Nepal increased considerably owing to the demand for grain, while the exports, though less in bulk, rose by £15,000 in value in consequence of an improved trade in cotton goods.

LINSEED AND COTTONSEED OILS.

IN its issue of January 22nd, the *Chemist and Druggist* says:—The unusually marked and rapid advance which has taken place in the value of linseed and cottonseed oils since last autumn, and especially within the last month or two, has aroused much interest in commercial circles, while prices of other descriptions of competitive materials have also benefited to some extent. The importance of the advance may be seen from the following record of prices, compared with this time last year, and the extreme figures touched in 1909:—

	1909.		1910. January, 18.	Rise against a year ago.
	Highest.	Lowest.		
Linseed oil, London spot per ton . . .	£32 0s.	£20 10s.	£32 10s.	£10 15s.
Cotton oil, crude, London pot, per ton	£29 15s.	£22 5s.	£28 10s.	£4 15s.

There are various reasons to account for this remarkable rise, while there have been growing evidences of a shortage of supplies of raw material on both sides of the Atlantic. The receipts of seed for the past year in Great Britain show a considerable falling-off (especially in the case of linseed) as compared with the previous two years, the figures being as follows:—

Imports.	1907.	1908.	1909.
Linseed (qrs.)	2,071,534	2,067,105	1,097,428
Cottonseed (tons)	756,152	616,923	600,377

Taking linseed first, it will be seen that the decline last year amounted to about 370,000 quarters, which is chiefly accounted for by smaller shipments from the River Plate, although more seed was received from India. Apart from this, which necessarily made for a much reduced output of oil by British crushers, there are indications of a probable further substantial falling-off in fresh supplies for the current year from the Argentine, where the export surplus may not exceed 550,000 tons, thus showing a big reduction against original estimates. In former years, practically the entire Argentine surplus came to Europe, but this season it is anticipated that fully 150,000 tons of the export surplus will go to non-European ports chiefly the United

States. This novel feature, added to an already tight situation, has, of course, aroused considerable anxiety among European crushers and accelerated the recent rapid rise in values, inasmuch as United States shippers during the last two months were compelled to cancel their engagements for shipment to Europe, the crop there having fallen much below early expectations. There is now a serious scarcity of seed in the United States, especially in the face of enhanced trade requirements, and prices there have risen to a greater extent than here, so that the European market for seed and its by-product is largely affected by developments in the American situation. Home crushers find considerable difficulty in covering their needs, while America has lately been purchasing substantial quantities of seed for shipment direct from the River Plate. The demand for linseed oil has been lately very brisk, supplies being in narrow compass and firmly held. Prices have reacted but little from the extreme figures realised, while the premium on summer delivery, which some time ago amounted to several pounds per ton, has been reduced about half-way. The worst of the scarcity has been possibly already largely discounted, as the demand should be to some extent curtailed by the high prices. There is, however, but little doubt that the product will continue very dear all through the current season.

As to cottonseed oil, developments in the American trade have also played an important part in the recent rise in values up to £30 per ton for forward delivery of crude oil in London—an advance of some £9 per ton from the lowest record in 1909. While the position in the United States appears to be very strong speculation there has been stimulated by the extraordinarily high prices ruling for lard oil and the apprehension of a serious shortage of raw material as a result of a small cotton crop. The situation on this side is rather peculiar. There has been so far a fairly liberal supply of seed, thanks to the increased quantities received from India, but oil is relatively scarce, which is due to the fact that home crushers have devoted more attention to soya beans, the consumption of which has assumed huge proportions. The scarcity of oil and the high value of cottonseed, enhanced by a "corner" in Egypt, and reports that America has made attempts to purchase oil from this side, were strengthening factors. The exports of oil from this country for some time past have been much reduced, while, on the other hand, important quantities of soya oil have been shipped abroad from Hull. It is well to bear in mind, too, that the exports of American oil to Europe have, since last summer, shrunk to a considerable extent (especially material used for soap-making purposes), the total shipments since July 1st to date showing a deficit of about 115,000 barrels. Other kinds of fats used by soap-makers being also dear, cotton oil may be maintained at a pretty high level of values this year, with general trade more active, while a falling-off in the supply of Egyptian seed is now looked for.

THE RECOVERY OF GLYCE INE.

THE following paper on the "Recovery of Glycerine by the Twitchell Process compared with the Recovery of Glycerine by Waste Soap Lye Method," by O. T. Joslin, is reprinted from the *American Journal of Industrial and Engineering Chemistry*, September, 1909, the figures being altered from U. S. A. to British currency:—

As the Twitchell process has now been used on a manufacturing scale for ten years in one factory, for eight years in a half-dozen or more factories and in many others for a lesser period, there are ample figures to show very closely what advantages this process possesses over waste soap lye methods. I will give a schedule of the operations involved and the costs and credits of the two methods. Cost of Twitchell process to work 8,000 lbs. fat per day, including glycerine evaporating plant, £560; cost of waste soap lye glycerine plant for 8,000 lbs. fat per day, £780; cost of working 8,000 lbs. fats or oils in the kettle by the old process; cost of boiling kettle through six changes, killing change, three glycerine changes, one strengthening change and one settle, steam, labour, etc., at 8s. per change, £2-8s.; cost of salt for three changes at $\frac{1}{2}$ d. a lb., 1,920 lbs., salt equals 20s., four-fifths of salt recovered gives salt cost 4s.; cost of saponifying with caustic 18.58 per cent of 60 per cent, caustic at 8s. 5d., £6 4s. 8d.; total, £8 16s. 8d. All other costs will remain same in both instances. Cost of working 8,000 lbs. fats or oils by the Twitchell process:—Steam (coal at 12s. per ton) 4s.; labour, 4s.; sulphuric acid (at 2s. 4d. per 100 lbs), 3s. 4d.; barium carbonate, 3s.; reagent (at $\frac{7}{8}$ d. per lb.), £1 8s. 9d.; total £2 3s. 1d. Expense (insurance, repairs, deterioration) 20 per cent of cost of Twitchell plant, £290 equals £58 for the year, divided by 250 days, equals 4s. 8d.—£2 7s. 9d.; cost of working 100 lbs. of stock 7d. Entire cost of working 8,000 lbs. fats or oil by Twitchell process and through the kettle:—Twitchell process cost £2 7s. 9d.; cost of boiling kettle through four changes, killing change, one salt change, one strengthening change and one settle, steam, labour, etc., at 8s. per change, £1 12s.; cost of 640 lbs. salt at $\frac{1}{2}$ d. a lb. (no salt recovered), 6s. 6d.; cost of alkali for saponifying—95 per cent soda ash at $\frac{1}{2}$ d. for 48 per cent, £3 10s. 8d.; 5 per cent soda caustic at 8s. 5d. for 60 per cent, 6s. 4d.; total, £3 3s. 3d. Cost of saponifying with 95 per cent ash and 5 per cent caustic, £3 16s. 10d. or £6 4s. 10d.—£3 6s. 10d. equals £2 8s., or $\frac{7}{8}$ d. per 100 lbs. stock saved by soda ash saponification. Cost of working waste soap lyes from 8,000 lbs. stock per day, 18,000 lbs. lye:—Acid, 2s.; chemicals, 4s.; labour, two men all day, 14s.; expense (insurance, repairs, deterioration)—20 per cent of £780 equals £156 per year of 250 days, equals 12s. 6d. a day, 12s. 6d.; steam for heating and handling lyes aside from evaporating 6s.; steam for evaporating equivalent to 1,500 lbs. coal at 12s. a ton 9s.; water, 26,000 gals. per day at 5d. a 1,000 gals.,

10s. 10d.; total, £2 18s. 4d. Maximum amount of glycerine obtainable by waste soap lye methods is 8 lbs. absolute glycerine per 100 lbs. neutral fat. On stock containing 5 per cent free fatty acids the amount of glycerine would be reduced to 7.5 lbs. On 8,000 lbs. this gives 600 lbs. at 6 $\frac{1}{2}$ d. a lb., equals £16 5s. Cost of working Twitchell process glycerine:—8,000 lbs. stock per day, 5,200 lbs. glycerine water; lime, 2d.; no other expenses of treatment; labour, one man a day, 7s.; expense (insurance, repairs, deterioration) 20 per cent of £276 equals £54 per year of 250 days, 4s. 4d.; steam for evaporating 433 lbs. coal at 12s. a ton, 2s. 4d.; water, 12,500 gals. per day at 5d. a 1,000 gals., 5s. 2d.; total, 19s. Maximum amount of glycerine obtainable 95 per cent of the glycerine in the fat, at 5 per cent, free fatty acids in the fat, would give 9.5 lbs. glycerine in the water per 100 lbs. stock and allowing 5 per cent loss of glycerine in process of working up the glycerine water, would give 9 lbs. of absolute glycerine on the fat. On 8,000 lbs. this gives 720 lbs. glycerine at 7d. a lb., equals £21. Old method (cost):—Making soap, £8 16s. 8d.; glycerine recovery, £2 18s. 4d.; total, £11 15s. Twitchell process (cost):—Making soap, including cost of Twitchell process, £8 3s. 3d.; glycerine recovery, 19s.; total, £9 2s. 3d. Profit of £2 12s. 9d. due to manufacturing. Value of glycerine recovered by Twitchell process, £21; value of glycerine recovered by waste soap lye process, £16 5s.; profit due to glycerine, £4 15s. Profit due to manufacturing £2 12s. 9d.; profit due to glycerine, £4 11s. 4d.; profit on 8,000 lbs. stock, £11 18s. 10d.; profit on 100 lbs. stock, 1s. 10d.; additional profit per day due to the Twitchell process, £7 3s. 10d.

The advantages mentioned in the preceding portion of this article are described as being due to the following difference between the two processes:—First, the fact that almost all the glycerine is separated from the stock before it goes to the kettle avoids the loss due to glycerine remaining in the soap, and the loss due to the complicated and lengthy process necessary in recovering glycerine from waste soap lyes. Second, the fact that the Twitchell process liquors contain from 15 per cent to 20 per cent of glycerine, while waste soap lyes run between 3 per cent and 5 per cent, results in a saving of glycerine on account of the very much less evaporation required in the case of Twitchell liquors. Third, the greater strength in glycerine of the liquors reduces the amount of water to be removed by evaporation to $\frac{1}{2}$ or $\frac{1}{3}$ of what is necessary to be removed from waste soap lyes. This of course makes a commensurate reduction in the amount of steam, condensation water, labour and time, and consequently expense. Fourth, the absence of salt from the glycerine liquors is a most important advantage, which, while readily recognised by all who have used the waste lye methods, is not fully appreciated until both methods have been used and compared. The presence of salt from the glycerine

lyes makes a larger, more complicated and more expensive evaporator necessary. It also causes the evaporator and all other parts of the plant to corrode and wear out much more rapidly. It necessitates salt strainers and an extra pump, and a considerable extra amount of labour, while some glycerine always remains in the salt, and sometimes much. This glycerine salt should, of course, go back to a kettle which is having the glycerine extracted from it, but it does not always go this way, and even when it does there is some loss of glycerine anyway, as mentioned above.

Fifth, the much greater purity of Twitchell liquors over waste soap lyes makes several additional savings. The treatment necessary is simple and cheap in the extreme, both in regard to materials and labour required. The waste material separated as a result of this treatment is so much smaller in amount that there is a saving of glycerine here, as such residues can never be completely free of glycerine. The absence of salts and other impurities causes the glycerine liquors to evaporate much more easily, with a consequent saving similar to that accruing from the less amount of water to be removed as above mentioned. Sixth, a crude glycerine containing 90 per cent of glycerine can be obtained with much more ease and certainty than an 80 per cent crude can be obtained from waste soap lyes. This makes an appreciable saving in drums, labour of handling and freight. Seventh, the greater strength and purity of the crude glycerine puts it in a special class known as saponification crude. Saponification crude should have 88 per cent of glycerine or more and 5 per cent or less of ash. This standard is easily reached by Twitchell liquors. Saponification crude usually brings one cent a pound or more on the absolute glycerine contained than soap lye crude. This advantage accrues to the producer when the glycerine is sold as crude. If a plant distils its own crude it derives the advantage in the form of greatly increased capacity of a still of a given size for this crude over waste soap lye crude, less steam and labour and a greater yield, and a purer product with one distillation, as C. P. glycerine can be made with one distillation. Finally, I never heard of any one finding glycols in Twitchell glycerine. Another important advantage is the saponification with sodium carbonate instead of sodium hydroxide. This makes a saving of 7d. or 7½d. on every 100 lbs. of stock saponified in this way. For a good many years there was strong prejudice against the Sodium carbonate saponification. The prejudice was without reason and during the last few years it has almost entirely disappeared. It is a fact that the soap made by carbonate saponification is the same in every way as soap made from the same stock by caustic saponification. There is also no difficulty in making the carbonate saponification in the kettle, except the slight difficulty which always accompanies a new method of procedure. This fact was first demonstrated in Europe, but is now

accepted by all the experienced American soap-makers.

There are in addition said to be several lesser advantages which the Twitchell process possesses. One is the decrease in the odour which the process occasions in the case of many strong smelling stocks. In some cases this becomes a matter of great importance. Corn oil, for instance, was formerly of little value for soap and was but little used for this purpose; but since the introduction of the Twitchell process its use has been greatly increased, as the process diminishes the odour so greatly that corn oil becomes available for soap and soap powder, when worked by the Twitchell process, while it is entirely out of the question when not so worked. The process removed the heavy disagreeable odour of this oil to such an extent that it is not noticeable in the finished soap product, even when unperfumed. The odour of animal fats is also greatly diminished, and this is a great advantage in the manufacture of toilet soaps. There is a class of soaps known as cold-made or half-boiled in the manufacture of which the glycerine has heretofore been lost as it remained in the soap. There are several special reasons why soaps of this nature should be made, and they are made in large quantities. These soaps can be made from Twitchell fatty acids, and large quantities are now being so made, the glycerine being previously removed and saved. As glycerine has no apparent detergent qualities and as it sometimes comes out on the soap, to its detriment, the soap is really better without the glycerine than with it, aside from the great money-saving. Although many persons claimed that the glycerine made some difference in the appearance of the soap, it has been demonstrated to the satisfaction of a great many soap men, including the writer, that this is not so. The writer remembers one instance in particular where four soaps were prepared, one without glycerine, and the other three with 5, 10 and 15 per cent of glycerine respectively, and it was impossible to tell them apart by appearance, feeling or trial washing. Also in the case of soft soaps there is no other way of saving the glycerine than by making them of fatty acids. Large quantities of soft soaps have been made in Europe by the Twitchell process for several years past. There has been ample demonstration, both in this country and Europe, that the removal of the glycerine from soft soaps makes no apparent change in the appearance of other properties of these soaps, nor in the washing properties. In fact, it requires a careful chemical analysis to distinguish between the soaps with glycerine and those without. While some soft soaps are being made by the Twitchell process in this country, the matter has not been taken up in this respect to the extent that it should be, although it looks as if there would be an advance in this respect in the near future, especially since the price of glycerine has become so high.

PRICES OF COMMODITIES.

In the following table the *Times* give the highest, lowest, and opening and closing prices of a number of the leading commodities:—

1909.		Commodity.	Dec. 30, 1908.		Dec. 31, 1909.	
Highest.	Lowest.					
28/2	23/11	BARLEY—Eng. Gaz. aver. . . p. 400 lb.	26/8	26/1		
22/6	19/3	Do., Odessa. Nicol. ex. ship . . . p. 400 lb.	21/0	19/0		
30/6	26/0	MAIZE—Mix. Am. ex. ship . . . p. 480 lb.	26/3	25/10½		
32/8	24/0	Do., La Plata, c. l. f. par . . . p. 480 lb.	26/3	27/0		
...	...	Do., Dec. in Chicago p. bush.	61½c.	61½c.		
22/11	14/8	OATS—Eng. Gaz. aver. . . p. 312 lb.	17/2	17/4		
19/3	14/8	Do., Russian Com. p. 304 lb.	15/3	15/3		
7/0	6/7½	RICE—Bassien carg. N. Crop, c. l. f. p. cwt.	7/3	6/7½		
44/0	31/8	WHEAT—Eng. Gaz. aver. . . p. 480 lb.	32/2	33/3		
40/6	39/6	Do., No. 1 N. Manitoba . . p. 496 lb.	41/0	41/3		
47/0	39/5	Do., La Plata p. 496 lb.	...	...		
...	...	Do., Dec. in Lpl. p. 100 lb.	...	8/2½		
...	...	Do. Dec. in Chicago p. bush.	...	112c.		
34/6	28/0	FLOUR—Ldn. hshds. p. 280 lb.	28/6	30/0		
36/0	31/0	Do., Am. Top. Spg. Pats. ex. qv. p. 280 lb.	31/0	33/0		
...	...	HAY—per load . . .	...	80/0		
£9 5 0	£7 3 9	COTTONSEED—Egypt. Hull sp. p. t. r.	£7 8 0	£9 5 0		
50/6	42/6	LINSEED—Cal. spot. p. 410 lb., Lon.	46/0	58/0		
50/0	39/0	Do., La., Pl. spot. p. 410 lb., Hull	43/0	59/0		
41/9	38/6	RAPESEED—Br. Call p. 416 lb., Hull	...	41/9		
61/6	54/0	COCOA—Trinidad med. p. cwt.	61/0	56/0		
...	...	COFFEE—E. Ind. B. Size . . .	noml.	noml.		
...	...	Do., Santos, g. av. Dec. London p. cwt.	...	noml.		
...	...	Do. do., March Havre . . p. 50ks.	...	47½l.		
3,950r.	3,200	Do., type 7, Spot Santos . . p. 10ks.	3,200r.	3,850r.		
...	...	Brasil,—type 7, Dec. N. York . . p. lb.	...	6.75c.		
4d.	3½d.	PEPPER—Singapore black . . p. lb.	3½d.	4d.		
7½d.	4½d.	Do., do., white . .	4½d.	7d.		

1909.		Commodity.	Dec. 30, 1908.		Dec. 31, 1909.	
Highest.	Lowest.					
16/9	14/9	SUGAR—West Ind. cryst. duty pd., spot p. cwt.	15/0	16/0		
4.45c.	3.61c.	Raw cent. N. York p. lb.	3.67c.	4.02c.		
...	...	Do., beet, 88½, Dec. p. cwt.	...	12/3		
...	...	Do., do., eur. mo., Hamb'g p. 50 kilo.	...	12.37½		
13.95m.	10.00m.	Do., do., cash, f.o.b. Hamb'g p. 50 kilo.	...	12.37½		
36.62½f.	29.62f.	Do. No. 2 crystals, spt. p. 100ks.	29.75f.	36.37½		
21/3	18/3	Do., refined, Tate's cubes, spot, p. cwt.	18/3	20/10½		
6½d.	5d.	TEA—Indian com. leaf p. lb.	6d.	6½d.		
1/9	1/6	CAMPHOR—1oz. tablets, spot . . .	1/7	1/7		
11/0	9/9	NITRATE OF SODA spot . . p. cwt.	10/6	9/9		
19/0	18/6	SALTPETRE—Bengal, 5½% . . p. cwt.	19/0	18/6		
£11 12 6	£10 18 9	SULPHATE OF AMMONIA, sp. p. ton.	£11 3 9	£11 3 9		
82/0	64/0	SHELLAC—T. N. Orange, spot, p. cwt.	82/2	68/0		
£41 10 0	£28 5 0	COCOA NUT OIL—Ceylon, in brls., spot p. ton.	£31 0 0	£41 10 0		
£45 0 0	£33 10 0	Cochin, do., p. ton.	£34 0 0	£45 0 0		
£23 0 0	£17 5 0	COPRA—f. m., Manila, spot . . .	£17 15 0	£22 17 6		
£29 15 0	£22 5 0	COTTON OIL—Crude, in casks, spot p. ton.	£23 7 6	£29 15 0		
£33 10 0	£25 10 0	Refined, best spot p. ton.	£26 5 0	£33 10 0		
73/9	49/3	LARD—Amer. ref. pails p. cwt.	50/3	66/3		
£32 0 0	£20 10 0	LINSEED OIL Spot, in brls. p. ton.	£22 0 0	£31 15 0		
£28 0 0	£19 15 0	SOYA OIL, naked, p. ton.	...	£28 0 0		
6½d.	5½d.	PETROLEUM—Russian, spot p. gal.	6½d.	5½d.		
7½d.	6½d.	Do., American, spot.	7½d.	6½d.		
38/0	32/6	TALLOW—Austria, mut., sp. p. cwt.	33/6	39/0		
36/9	30/6	Do., do., beef, spot, p. cwt.	32/6	36/9		
43/3	25/6	TURPENTINE—Amr. Ref. sp. p. cwt.	29/0	40/9		
8.50d.	4.93d.	COTTON—Amr. mld. s. Lpl. p. lb.	4.99d.	8.50d.		
16.15c.	9.25c.	Do., do., do., N. York p. lb.	9.20c.	16.15c.		
7½d.	4½d.	Do., E.I. Broach, fine, sp. Lpl. p. lb.	4½d.	7½d.		
...	...	Do., Futures Amer., Jan.-Feb., Liverpool p. lb.	...	8.29d.		

1909.		Commodity.	Dec. 30, 1908.	Dec. 31, 1909.
Highest.	Lowest.			
...	...	COTTON—Fut. Am., Dec., N. York p. lb.	...	15.78c.
14d.	77 ³ / ₄ d.	Do., Egyptian, E.G.F. Brown, spot Liverpool p. lb.	87 ¹ / ₂ d.	14d.
...	...	Do., Futures, Dec. Liverpool p. lb.	...	13.50d.
...	...	Do., do., Jan., Alex. p. entr.	...	26.14T.
£28 0 0	£21 0 0	FLAX—Russian, Riga, Livonia, crowns, new crop, c.l.f. p. ton	£22 0 0	£26 15 0
£27 10 0	£22 0 0	HEMP—f.c. Manila, spot p. ton	£24 10 0	£26 15 0
...	...	JUTE—Native marks, ship 1st p. ton	...	£13 17 6
£15 12 6	£12 5 0	Do., Spot p. ton.	nom.	£13 15 0
12d.	10d.	WOOL—Aust., med. greasy comb. p. lb.	10d.	12d.
9 ¹ / ₄ d.	77 ³ / ₄ d.	Do., Lincoln wether, p. lb.	77 ³ / ₄ d.	9d.
...	...	Do., La Plata, 36 ³ / ₄ Havre, June 100ks.	...	1.86 ¹ / ₂ f.
...	...	Do., do., tops, Antwerp, Aug. p. kilo.	...	5.00f.
9.2	5/0 ¹ / ₂	INDIARUBBER—Fine Para p. lb.	5/2 ¹ / ₄	7/7 ¹ / ₂
£33 10 0	£29 0 0	ANTIMONY p. ton.	£33 0 0	£30 0 0
£64 3 9	£54 10 0	COPPER—Lond., stand., cash p. ton.	£63 16 3	£61 15 0
14.50c.	12.25c.	Do., N. York Lake ing., cash p. lb.	14.43 ¹ / ₂ c.	12.42 ¹ / ₂ c.
£67 5 0	£57 10 0	Do., London, do., cash p. ton.	£66 15 0	£63 10 0
68/0	52/0	IRON, Pig—Scotch Wnls., cash p. ton.	55/3	57/3
52/7 ¹ / ₂	45/7	Do., Cleveland Wnls., cash p. ton.	40 2	51/1 ¹ / ₂
62 3	55/0	Do., Hematite Wnls., cash p. ton.	57/6	62/0
£8 0 0	£8 0 0	Do., Stafford Marked Bars p. ton.	£8 0 0	£8 0 0
£8 10 0	£6 10 0	Do., do., "Crown" Bars p. ton.	£6 10 0	£6 10 0
£6 5 0	£5 15 0	Do., Common Bars p. ton.	£6 2 6	£6 0 0
\$10.00	\$15.25	Do., Pig., N. Yk. North, No. 2 p. ton.	\$17.00	\$18.50
20/0	15/9	Do., Ore. Rubio p. ton.	15/9	19/6
£9 0 0	£7 15 0	Ferro-Manganese, 80 p.c. f.o.b. p. ton.	£9 0 0	£8 10 0
...	...	Manganese ore—Indian per unit.	9 ¹ / ₄ d.	9 ¹ / ₄ d.
£5 12 6	£5 5 0	STEEL Rails (Heavy) p. ton.	£6 0 0	£5 5 0
£6 7 6	£5 17 6	Do., Ship Plates (Scotch) p. ton.	£6 7 6	£6 0 0
£6 0 0	£5 15 0	Do., do., do. (N.E. coast) p. ton.	£6 0 0	£6 0 0
£14 2 6	£13 18 9	LEAD—English, spot p. ton.	£13 17 6	£14 0 0

1909.		Commodity.	Dec. 30, 1908.	Dec. 31, 1909.
Highest.	Lowest.			
£13 15 0	£12 6 3	LEAD—Foreign, soft cash p. ton.	£13 1 3	£13 13 9
£6 0 0	£4 11 6	PLATINUM p. oz.	£5 0 0	£6 0 0
247 ¹ / ₂ d.	231 ¹ / ₂ d.	SILVER p. oz.	231 ¹ / ₂ d.	247 ¹ / ₂ d.
£23 6 3	£21 1 0	SPELTER G. M. B. Silesian p. ton.	£21 2 6	£23 3 9
£152 10 0	£124 0 0	TIN—London—English, cash p. ton.	£131 10 0	£151 10 0
£154 5 0	£123 10 0	Do., do., Straits, cash p. ton.	£131 10 0	£153 5 0
31.87 ¹ / ₂ c.	27.15c.	Do., N. York, spot p. lb.	28.97 ¹ / ₂ c.	33.77 ¹ / ₂ c.
8/6	5/3	CEMENT—f.o.b., Lond., stand. casks, house, Durham Sea p. ton.	5/6	5/3
18/6	16/0	Do., Barnsley, best steam p. ton.	18/0	18/6
10/0	8/6	Do., Cardiff, best steam p. ton.	9/0	9/3
17/0	13/0	Do., Durham, unsecd. bunker p. ton.	14/4 ¹ / ₂	16/4 ¹ / ₂
10/7 ¹ / ₂	8/6	Do., best gas (N.E. Coast) p. ton.	9/3	10/7 ¹ / ₂
11/6	10/3	Do., Buenos Ayres, bunker p. ton.	10/6	11/4 ¹ / ₂
£1 17 6	£1 6 0	COKE—Blast furnace p. ton.	£1 17 0	£1 8 3
19/6	14/6		15/0	18/0

NEW REFERENCE BOOK.
THE BOOK ON WHEAT.
An Economic History and Practical Manual of the Wheat Industry. By P. T. DONDLINGER, Ph. D.
(London: Kegan Paul, Trench, Trubner and Company, Limited; New York: Orange Judd Company.)

—Writing on finance and trade in 1909 in its issue of January 14th, the *Times Financial and Commercial Supplement* says:—When writing last January we had to deal with a period of trade contraction; this year it is pleasant to note the signs of a natural revival in business throughout the world. The improvement did not begin in earnest until the autumn, and it came too late to make the year prosperous. Some industries, indeed, have not yet regained their normal health. Thus at home the cotton industry has been smitten hip and thigh by the recoil of previous heavy production and by the high cost of raw material—due to prospects of a poor American crop. Shipowners experienced another bad year, ironmasters did less well than they expected, and the South Wales coal trade has been endeavouring to adjust itself, apparently with meagre success, to the altered conditions imposed by the Mines (Eight Hours) Act. Further, politics have been rampant. But though the general tone was dull there were bright spots, and the recovery in wool was an especially vivid one. Others were in the shipyards, where in the later months the wisely-held beliefs in a revival of trade have been taking practical shape.

JOINT STOCK COMPANIES. Number and particulars of Joint Stock Companies registered in each Province in British India in the month of December, 1909.				
No.	Class and Name.	Situation of Registered Office.	Object.	Nominal Capital.
I.—BANKING, LOAN, AND INSURANCE. (a) <i>Banking and Loan.</i>				Rs.
1	Credit Bank of India, Ltd.	Bombay	Banking business	1,00,00,000
2	Ja paiguri Lakshmi Loan Office	Jalpaiguri, E. B. and Assam	Money lending	50,000
3	Navalpattu Deshabhimani Bank	Trichinopoly, Madras	Banking	19,980
4	Satyamangalam Karpaka Nidhi	Coimbatore, Madras	Money lending	1,00,000
5	Idigarai Majira Govinda Naickenpalayam Sri Kodandarama Kripa Vilasa Nidhi	Ditto	Ditto	1,00,000
6	N. G. C. I. & Co.	Tanjore, Madras	Ditto	1,75,000
Total, Banking, etc.				1,04,44,980
II.—TRADING. (a) <i>Co operative Assocations.</i>				
7	Deccan Co-operative Porcelain Works	Dharwar, Bombay	Manufacturers of Porcelain Works, etc.	20,000
8	Bartabaha	Sylhet, Eastern Bengal and Assam	Printing and publishing newspapers, etc.	20,000
(c) <i>Others.</i>				
9	Noakhali Swadeshi Store and Loan Co.	Noakhali, Eastern Bengal and Assam	Trade in indigenous goods	20,000
10	Misquith	Rangoon, Burma	Dealers in Musical instruments, pianofortes, etc.	2,25,000
11	Agricultural Developments	Lahore, Punjab	To acquire the patents rights of "Butler's charas lifter"	1,00,000
12	Soap and Candle Manufacturing Company	Karhad, Bombay	Manufacture of soap, candle, etc.	5,000
13	Chokshi Pearl Trading Co.	Bombay	Dealers in pearls, etc.	25,00,000
14	Fisheries	Madras	Dealers in fish and fishoils	20,000
15	Tohill Sharp and Co.	Bombay	General merchants	2,25,000
16	Optical Society	Calcutta, Bengal	Manufacturing eye-glasses and spectacles	1,00,000
Total, Others				31,95,000
Total, Trading				32,35,000
III.—MILLS AND PRESSES. (a) <i>Cotton Mills.</i>				
17	Trinnevelly Weaving Factory	Tinnevelly, Madras	Manufacturing and selling cotton goods	20,000
(b) <i>Jute Mills.</i>				
18	Albion Jute Mills Company	Calcutta, Bengal	Spinning, weaving, etc., of Jute, Hemp, etc.	15,00,000
(c) <i>Mills for Wool, Silk, etc.</i>				
19	Ramdas Mills	Bombay	Manufacture of wool, silk, etc.	12,00,000
(d) <i>Other Mills and Presses.</i>				
20	Lalljee Oil Mill Company	Calcutta, Bengal	Manufacture and sale of oils, oil-cakes, etc.	2,00,000
Total, Mills and Preases				29,20,000

JOINT STOCK COMPANIES—contd.

No.	Class and Name.	Situation of Registered Office.	Object.	Nominal Capital.
	VII.—TEA AND OTHER PLANTING COMPANIES.			Rs.
	(a) Tea Companies.			
21	National Tea Company	Calcutta, Bengal . . .	Cultivators and manufacturers of tea	60,000
	MINING AND QUARRYING.			
	(a) Coal.			
22	Northern India Coal Company . . .	Amritsar, Punjab . . .	Coal miners and workers, etc.	10,00,000
	(b) Others.			
23	India Prospecting Company	Bengal	Prospecting and Mining	25,000
	Total, Mining . . . . .	.....	.....	10,25,000
	V.—OTHERS.			
24	Tripura Matsya Sambardhain Company .	Comilla, Eastern Bengal and Assam.	To preserve fish in tanks and to excavate tanks, etc.	20,000
	GRAND TOTAL . . . . .	.....	.....	1,77,04,980

ABSTRACT TABLE OF COMPANIES REGISTERED IN THE MONTH OF DECEMBER, 1909.

6 Banking and Loan Companies	Rs.
1 Co-operative Association	1,04,44,980
1 Printing, Publishing and Stationery Company	20,000
8 Trading Companies (other than specified above)	20,000
1 Cotton Mill Company	31,95,000
1 Jute Mill Company	20,000
1 Wool, Silk, etc., Mill Company	15,00,000
1 Oil Mill Company	12,00,000
1 Tea and other Planting Company	2,00,000
1 Coal Mining Company	60,000
1 Mining and Prospecting Company	10,00,000
1 Company (other than those specified above)	25,000
	20,000
GRAND TOTAL	1,77,04,980

—Anti-fouling paints are all applied in three separate forms, priming, second coat, and finishing. Thus, for priming, make a varnish of 7 lbs. resin to each gallon of mineral naphtha, dissolved by shaking. One cwt. of red oxide of iron (reduced with 28 lbs. Paris white, if desired) is now mixed with 1 gal. of boiled oil, and enough of the above varnish to make it easily workable. For the second coat 1 cwt. of best French verdigris is spread on a large tray, and 1 gal. 75 per cent carbolic acid sprinkled over it. Now stir it about until it is black. Let it stand twenty-four hours to dry; then mix with ½ cwt. of red oxide of iron, 7 lbs. of red oxide of mercury, 2 gal. of boiled oil, 1 gal. of Japan varnish, and enough resin varnish to thin for use. Finish with a

mixture as follows:—(1) 2½ lbs. of shellac dissolved in 1 gal. of wood naphtha or methylated spirit, and 1 pint of resin varnish added; (2) melt over a fire 1 lb. of resin, ½ lb. of Burgundy pitch, and ½ lb. of tallow; allow this to cool a little, and then pour in 1 quart of boiled oil and 1 pint of tar spirit. Now add to the shellac varnish and mix thoroughly. The iron oxide as follows may be added gradually until perfectly homogeneous: 7½ lbs. of iron oxide and 1½ lbs. of arsenic. In some cases, as for vessels going East, particularly to the China waters, a quantity of red oxide of mercury is put in to destroy animalculæ. To above quantities is added ¼ lb. to 1 lb. of red oxide of mercury.

FOOD-GRAINS AND SALT.

Retail Prices of certain Food-grains and Salt at selected stations for the first half of January, 1910. (Prices are stated in annas and pies per seer of 2·06 lbs.)

	Rice, common	Wheat	Barley	Jawar	Bajra	Ragi	Gram	Salt
	a. p.	a. p.	a. p.	a. p.	a. p.	a. p.	a. p.	a. p.
BURMA—								
Rangoon	1 5	...	...	...	...	...	...	1 2
Toungoo	1 3	...	...	...	...	...	...	1 2
EASTERN BENGAL AND ASSAM—								
Rangpur	1 5	2 1	...	...	...	...	...	0 11
Backerganj . . .	1 4	...	...	...	...	...	...	0 10
BENGAL—								
Calcutta	1 10	1 10	...	...	...	...	...	0 10
Patna	1 2	1 5	0 9	...	...	...	...	0 10
UNITED PROVINCES—								
Cawnpore	...	1 9	0 11	0 11	1 0	...	0 11	0 9
Fyzabad	...	1 8	0 11	0 11	1 0	...	1 2	0 10
Meerut	...	1 7	0 10	0 11	1 0	...	0 11	0 9
PANJAR—								
Delhi	...	1 7	0 10	0 10	1 1	...	1 0	0 9
Amritsar	...	1 4	0 9	0 10	0 11	...	0 10	0 7
Rawalpindi . . .	...	1 5	0 10	0 11	1 1	...	0 11	0 7
SIND—								
Karachi	...	1 10	...	1 2	1 3	...	1 3	0 7
BOMBAY—								
Belgaum	...	1 7	...	1 1	1 1	...	...	0 9
Ahmadnagar . . .	...	1 10	...	0 11	0 11	...	...	0 11
Bombay	...	2 6	...	1 5	1 5	...	...	0 1
Ahmadabad . . .	...	1 8	...	1 1	1 3	...	...	0 7
CENTRAL PROVINCES—								
Jubbulpore . . .	...	1 8	...	0 11	...	...	1 1	0 11
Nagpur	1 4	1 8	...	1 2	...	...	1 2	1 0
Raipur	1 3	1 8	...	...	...	...	1 2	1 0
MADRAS—								
Bellary	1 10	...	...	1 1	...	1 0	...	0 10
Madras	2 3	...	...	...	...	1 3	...	0 6
Salem	2 2	...	...	1 4	1 6	1 2	...	1 0

—The following table gives in thousands of tons the cargo export of coal from the United Kingdom to the principal foreign countries in 1908 and 1909:—

Country.	Exports in 1909.	Increase or decrease compared with the two preceding years.
	Tons.	Tons. Tons.
Russia, Sweden, Norway, and Denmark	12,057	—479 +1,064
Germany and Low Countries	13,637	+79 —1,789
France	10,408	—7 —286
Italy	9,981	+339 +764
Spain and Portugal	3,749	+17 +56
South America	5,454	+205 +404
Egypt	2,606	+111 —323
Total to all countries, including above	63,076	—529 —524
Bankers (foreign)	19,713	+239 +1,095

The disturbed state of the trade at different periods of the year made its influence felt on current market prices, but less on the prices of coals produced chiefly for home consumption than on those of coals produced largely or mainly for export purposes. British coalowners have a monopoly of

the home market, and for this reason inland prices maintained a steady level throughout the 12 months. This steadiness is particularly shown in the values of house coals. In the fluctuations of these qualities, which depend mainly and in some cases exclusively on the home demand, there has been nothing very exceptional. Immediately, however, we carry our review into that sphere of trade where British coal prices are dependent largely or mainly on foreign demand, and on the conditions of international commerce, a very different situation is disclosed. Between the year's top and bottom market quotations of best Welsh steam coal there has been a difference of something like 7s. a ton, and in best Newcastle steam coals a margin of 3s. per ton. In January best Cardiff Admiralty large steam coal was quoted at from 14s. 6d. to 15s. f. o. b., and best North Country coal at 10s. 6d., in February best Cardiff coal fell to 13s. 6d., and Newcastle coal to 11s. 6d. This disparity of 2s. per ton between the two most competitive British coals in foreign markets was the smallest of the year; and as it was about 1s. per ton less than the normal difference in the prices of the two qualities, it reacted to the advantage of South Wales and led to a large increase in exports from the Bristol Channel ports.

INDIAN CUSTOMS REVENUE.

The following statement shows the Total Gross Indian Sea and Land Customs Revenue (excluding Salt Revenue) in thousands of rupees:—

SEA CUSTOMS.	IN THE TEN MONTHS, APRIL TO JANUARY, OF									
	1900-01	1901-02	1902-03	1903-04	1904-05	1905-06	1906-07	1907-08	1908-09	1909-10
IMPORTS.										
<i>Special Import Duties.</i>										
Arms, ammunition, and military stores	2,35	2,87	2,92	2,79	3,53	3,41	3,71	4,63	4,38	4,19
Liquors—										
Ale, beer, porter, cider and other fermented liquors	1,68	1,80	2,04	2,12	2,35	2,46	2,60	2,87	4,33	4,24
Spirits and liqueurs	53,13	53,91	58,04	61,59	63,02	66,49	63,70	76,56	78,31	77,79
Wines	2,93	2,89	3,31	3,69	3,05	3,29	3,17	3,32	3,28	3,20
Opium	2	3	3	3	3	3	3	4	3	3
Petroleum	39,46	44,83	44,07	34,52	37,81	31,80	30,25	36,81	42,95	38,37
Sugar (countervailing duties, 1899)	15,72	29,79	16,80	2,10	11	1	1	...	...	...
Sugar (countervailing duties, 1902)	—	—	3,26	18	9	1	...	...	...	...
<i>General Import Duties.</i>										
Articles of food and drink (excluding sugar)	13,89	12,96	12,20	12,89	15,04	16,16	16,59	20,86	22,49	20,39
Sugar (ordinary duties)	24,39	25,78	21,60	24,06	27,47	30,15	39,79	38,07	44,85	48,49
Chemicals, drugs, medicines and narcotics, and dyeing and tanning materials	8,94	9,90	9,88	11,39	11,23	11,91	12,56	15,36	13,85	15,60
Cotton manufactures—										
Piece-goods, grey	39,74	42,84	43,83	36,98	46,77	53,53	54,16	56,44	43,70	51,61
" white	15,97	23,30	13,86	16,20	22,73	24,15	20,55	32,41	23,49	20,46
" coloured	16,60	20,21	18,87	22,86	26,40	27,72	28,01	31,57	29,45	24,55
Other goods	2,20	2,48	2,05	3,19	4,46	4,97	5,30	5,56	5,19	5,39
Metals and manufactures of—										
Silver, bullion and coin	9,88	25,37	31,92	32,64	33,59	22,05	33,76	40,41	57,42	47,99
Other metals and manufactures of metals	18,05	19,44	25,10	27,24	30,01	25,79	28,74	35,69	40,01	37,11
Oils (excluding petroleum)	1,29	1,60	1,22	77	80	1,08	1,67	2,33	1,17	1,03
Manufactured articles	48,80	51,90	51,10	58,96	69,32	69,52	70,66	82,90	81,61	77,52
Raw materials and unmanufactured articles	8,57	7,89	7,52	7,55	8,40	9,99	9,57	12,15	13,93	12,47
TOTAL IMPORTS	3,23,61	3,79,79	3,69,62	3,61,55	4,06,21	4,04,52	4,24,83	4,97,98	5,10,44	4,90,43
EXCISE DUTY ON COTTON GOODS	9,67	14,29	14,11	16,21	18,24	21,45	21,23	25,64	26,64	27,86
EXPORT DUTIES—										
Rice and Rice-flour	58,59	61,46	82,85	78,45	89,23	78,55	66,13	64,61	47,97	61,16
LAND CUSTOMS AND MISCELLANEOUS	6,15	7,10	6,93	7,65	8,20	7,38	7,89	8,33	7,32	8,35
GRAND TOTAL	3,98,32	4,62,64	4,73,51	4,63,86	5,21,88	5,11,90	5,20,08	5,96,56	5,92,37	5,87,80

—A Sydney correspondent states that an Australian invention for planing street car and other rails, without disturbing the permanent way, has just been accepted by certain street-railroad companies in that country as well as by the railroad authorities in at least one of the States. The new invention is known as the Woods-Gilbert rail planer. It is a self-contained machine and travels on the rails so that it can be worked at night without interfering with the traffic. The claim of the inventors is that, by restoring a rail to its original level and evenness of surface, the cost of putting down a new rail is postponed for many years, and the inconvenience that follows the tearing up of the track is obviated. It is estimated that it would cost about Rs. 25,000

per mile to relay a mile of a street-car track and, as only a small proportion of that cost is involved in the remodelling, it is clear that by restoring the rail to its original shape and efficiency a great saving of capital outlay will be ensured. In the case of the street-car rails, the inventors are under a contract to deepen the cut in the rail in which the flange runs; also to reduce the narrow outside lip to the level of the rest of the rail. This work will be done by a high-speed steel cutter, driven from the machine, in one operation, as it moves forward on the line. The great difficulty that had to be overcome was to ensure accuracy of cut with a moving machine on an uneven track. This has been secured by the adoption of self-adjusting machinery.

SPINNING AND WEAVING RETURNS.

The following statistics of cotton spinning and weaving in Indian mills in December, 1909, compared with the corresponding period of 1907 and 1908, are published by the Commercial Intelligence Department:—

No. 1.—Abstract Statement of the Quantity (in pounds) of Yarn Spun.

	MONTH OF DECEMBER			NINE MONTHS, APRIL TO DECEMBER		
	1907	1908	1909	1907	1908	1909
British India.						
Bombay	38,950,940	41,582,382	36,591,322	345,180,131	347,510,416	330,889,768
Madras	3,042,826	3,558,193	3,234,008	27,912,439	29,343,292	31,119,375
Bengal	3,602,285	4,294,381	3,760,300	30,876,335	29,772,270	25,397,513
United Provinces of Agra and Oudh (also Ajmer-Merwara)	3,380,160	3,649,221	3,567,700	27,392,256	28,689,223	29,871,717
Panjab	1,130,100	1,203,706	1,059,353	9,547,567	9,952,366	7,813,809
Central Provinces and Berar	2,272,115	2,598,909	2,439,007	20,642,828	21,813,852	23,236,566
TOTAL	52,358,426	56,886,792	50,651,690	461,551,556	467,081,419	448,328,748
Foreign Territory.						
Native States of Indore, Mysore, Baroda, Nandgaon, Bhavnagar, Hyderabad, Wadhwan, Quilon (a), Kishengarh, Ujjain and Pondicherry (b)	2,031,676	2,365,862	2,764,902	18,328,775	20,732,698	25,751,379
GRAND TOTAL	54,390,102	59,252,654	53,416,592	479,880,331	487,814,117	474,080,127

(a) Mill closed since October, 1909.

(b) Including the production of one mill only from April, 1909.

No. 2.—Abstract Statement of the Quantity of Woven Goods Produced.

[N.B.—The weight in pounds represents the weight of all woven goods; the measure in yards represents the equivalent of the weight of the grey and coloured piece-goods.]

	MONTH OF DECEMBER			NINE MONTHS, APRIL TO DECEMBER		
	1907	1908	1909	1907	1908	1909
British India.						
Bombay	15,793,307 pounds 67,691,797 yards 67,236 dozens	16,169,48 69,460,075 64,593	18,239,792 76,491,287 70,136	120,283,494 524,574,584 539,071	119,182,415 523,741,683 462,891	145,248,127 624,565,485 496,174
Madras	597,521 pounds 1,954,201 yards 1,047 dozens	655,150 2,130,469 1,072	702,767 2,130,364 1,357	5,775,333 18,892,407 10,810	5,523,269 18,070,587 8,692	5,880,660 18,056,101 11,924
Bengal	791,297 pounds 897,027 yards 851,819 dozens	3,426,697 851,819 851,819	2,060,319 910,289 910,289	5,670,931 6,302,650 7,143,055	13,499,688 6,302,650 7,143,055	11,076,359 8,476,903 31,350,928
United Provinces of Agra and Oudh (also Ajmer-Merwara)	3,394,512 pounds 1,477 yards 36,772 dozens	3,111 49,312 49,312	4,251 22,672 22,672	31,614 329,230 907,494	24,736 369,270 922,643	40,477 293,348 716,734
Panjab	649,164 pounds 2,686,219 yards 304 dozens	866,121 3,326,319 322	1,059,549 3,844,841 324	5,824,403 23,870,375 6,205	6,650,022 26,453,680 3,775	7,912,637 30,123,388 4,543
Central Provinces and Berar	18,158,121 pounds 76,622,670 yards 70,178 dozens	18,932,462 81,454,158 69,506	21,370,178 87,069,458 76,101	139,908,519 598,690,362 588,797	141,071,614 609,614,344 508,872	170,059,168 715,888,995 555,217
Foreign Territory.						
Native States of Indore, Mysore, Baroda, Nandgaon, Bhavnagar, Hyderabad, Wadhwan and Pondicherry (a)	727,434 pounds 2,845,620 yards	807,984 3,094,937	1,274,967 5,162,280	5,674,938 21,800,382	6,147,110 23,237,685	9,543,154 38,062,634
GRAND TOTAL	18,885,555 pounds 79,468,290 yards 70,178 dozens	19,740,396 84,549,095 69,506	22,645,145 92,231,738 76,101	145,583,487 620,490,744 588,797	147,218,724 632,852,029 503,872	179,602,322 753,951,629 555,217

(a) Including the production of one mill only from April, 1909.

SEA-BORNE TRADE OF INDIA.

The following is a summary of the accounts relating to the Sea-borne Trade and Navigation of British India for the Calendar year 1909, compared with the years 1907 and 1908:—

	1907	1908	1909
IMPORTS—			
MERCHANDISE, PRIVATE—			
Bengal	£	£	£
Eastern Bengal and Assam	33,439,325	31,287,299	29,836,325
Bombay	313,448	375,062	406,387
Sind	28,399,427	29,158,637	25,762,732
Madras	6,496,171	8,199,964	6,638,782
Burma	6,378,002	8,007,511	6,434,625
	6,611,759	8,979,540	7,415,183
TOTAL	81,638,132	86,008,013	76,494,034
DITTO, GOVERNMENT STORES	4,619,973	5,241,737	4,083,611
TOTAL MERCHANDISE	86,258,105	91,249,770	80,577,645
TREASURE, PRIVATE—			
Bengal	4,977,214	2,656,078	3,226,893
Eastern Bengal and Assam	9,263	6,833	10,754
Bombay	14,104,313	13,279,123	14,235,945
Sind	500,381	517,275	461,839
Madras	568,278	486,762	771,100
Burma	122,240	73,710	92,799
TOTAL	20,581,689	17,019,781	18,802,330
DITTO, GOVERNMENT	8,857,658	62,793	77,016
TOTAL TREASURE	29,439,347	17,082,574	18,879,346
GRAND TOTAL OF IMPORTS	115,697,452	108,332,344	99,456,991
EXPORTS—			
MERCHANDISE, PRIVATE—			
(Foreign Merchandise)—			
Bengal	167,107	145,929	140,301
Eastern Bengal and Assam	70	583	175
Bombay	1,915,731	1,578,410	1,660,881
Sind	330,728	296,492	275,683
Madras	75,696	64,216	77,153
Burma	44,631	34,020	34,374
TOTAL	2,533,963	2,119,680	2,188,567
(Indian Merchandise)—			
Bengal	50,785,522	43,631,624	45,708,274
Eastern Bengal and Assam	2,627,032	2,498,259	2,904,157
Bombay	32,954,094	23,674,351	29,789,587
Sind	13,066,706	4,740,176	12,181,346
Madras	12,514,873	11,840,069	12,386,699
Burma	11,024,700	10,232,213	9,505,992
TOTAL	122,972,927	97,076,682	112,476,055
Total Foreign and Indian Merchandise exported—			
Bengal	50,952,629	43,777,553	45,848,575
Eastern Bengal and Assam	2,627,102	2,898,842	2,904,332
Bombay	34,869,825	25,252,791	31,450,468
Sind	13,397,434	5,036,658	12,457,029
Madras	12,590,569	11,904,285	12,463,852
Burma	11,069,331	10,326,293	9,540,366
TOTAL	125,506,890	99,196,362	114,664,622
DITTO, GOVERNMENT STORES	91,222	68,878	65,012
TOTAL MERCHANDISE	125,598,112	99,265,240	114,729,634
TREASURE, PRIVATE—			
Bengal	231,789	419,634	113,655
Eastern Bengal and Assam	2,785,077	3,079,494	3,366,496
Bombay	76,006	69,899	172,763
Sind	268,876	306,762	437,903
Madras	16,406	27,333	7,850
Burma	3,378,154	3,903,122	4,098,667
TOTAL	1,235	240,729	2,940
DITTO, GOVERNMENT	3,379,389	4,143,851	4,101,607
TOTAL TREASURE	128,977,501	103,409,091	118,831,241
GRAND TOTAL OF EXPORTS			
GROSS AMOUNT OF IMPORT DUTY COLLECTED, including Salt	4,787,002	5,048,800	4,769,189
DITTO, EXPORT DUTY COLLECTED	691,143	589,409	610,780

WEEKLY TRADE MOVEMENTS.

For the week ending 5th February, 1910.

COTTON GOODS.		
Twist and Yarn.		
Foreign—	Calcutta lbs.	371,482
Imports by sea into	Bombay "	281,190
	Madras "	144,525
Indian—	Calcutta "	182,000
Exports by sea from	Bombay "	2,268,720
	Madras "	1,568
Grey Piece Goods.		
Imports by sea from	Calcutta yds.	17,784,088
Foreign ports into	Bombay "	4,506,001
	Karachi "	741,009
	Madras "	42,775
	Rangoon "	449,056
White Piece Goods.		
Imports by sea from	Calcutta yds.	6,467,585
Foreign ports into	Bombay "	6,433,585
	Karachi "	2,646,768
	Madras "	11,451
	Rangoon "	701,537
Other Piece Goods.		
Imports by sea from	Calcutta yds.	1,985,677
Foreign ports into	Bombay "	7,427,709
	Karachi "	2,069,981
	Madras "	87,414
	Rangoon "	1,673,345
Piece Goods.		
(Indian and Foreign.)		
Despatches by rail from	Calcutta cwt.	*18,625
	Bombay "	5,123
	Karachi "	12,788
	Madras "	3,828
Raw, Cotton.		
Imports into Bombay	By sea cwt.	241
	Coastwise "	30,274
	By rail "	363,152
Imports into Karachi	By rail "	67,327
" " Calcutta by rail and river	" "	*15,115
JUTE.		
Arrivals by all routes in	Calcutta cwt.	*407,142
Exports by sea from	Gunny bags No.	9,140,418
	Calcutta " cloth yds.	28,101,550
	Chittagong—Jute cwt.	273,140
	" "	12,639
COTTON SEEDS.		
Exports by sea from Bombay	cwt.	446,941
OIL SEEDS.		
Linseed.		
Imports into	Calcutta by rail and river cwt.	*1,732
	Bombay { By sea " "	187
	Coastwise " "	7,700
	By rail " "	2,030
	Karachi by rail " "	7,879
Exports by sea from	Calcutta " "	...
	Bombay " "	...
	Karachi " "	...
Rape and Mustard Seed.		
Imports into	Calcutta by rail and river cwt.	*35,780
	Bombay { By sea " "	248
	Coastwise " "	17,632
	By rail " "	101,440
	Karachi by rail " "	35,298
Exports by sea from	Calcutta " "	5,315
	Bombay " "	277,091
	Karachi " "	...
RICE.		
Arrivals by all routes in	Calcutta cwt.	*406,826
	Calcutta "	161,722
	Chittagong "	...
Exports by sea from	Bombay "	16,808
	Karachi "	13,678
	Madras "	82
	Rangoon "	491,925
TEA.		
Arrivals by all routes in	Calcutta lbs.	*2,221,898
Exports by sea from	Calcutta "	1,772,860
	Chittagong "	2,915,804
WHEAT.		
Imports into	Calcutta by rail and river cwt.	*55,452
	Karachi by rail " "	63,132
	Bombay { By sea " "	111
	Coastwise " "	12,954
	By rail " "	19,591
Exports by sea from	Calcutta " "	30
	Bombay " "	587
	Karachi " "	205,234

* B. N. Ry. figures not included.

EXPORTS—RUNNING TOTALS INCLUDING FIGURES RECORDED ABOVE.

	FROM APRIL		FROM JANUARY					
	1908.	1909.	1909.	1910.	1909.	1910.	1909.	1910.
	Wheat.		Linseed.		Rape and Mustard Seed.		Cotton Seed.	
Calcutta . . . Cwt.	49,169	3,376,976	63,120	13,473	9,149	97,577	Not reported.	
Bombay . . . "	80,127	2,646,809	42,466	84,360	14,369	76,402	1,326,712	2,477,720
Karachi . . . "	3,774,413	16,832,644	...	...	542,442	1,034,174	Not reported.	

The wholesale spot prices of the undermentioned articles in Calcutta on the 16th instant were as under:—

Jute—C. D. M. and Co. (Red) Group	
per 400 lbs.	Rs. 35 0 0
M. per 400 lbs.	" 32 0 0
Rice—Balla No. 1 per B. md.	" 3 13 0
Moonghy "	Nil.
Linseed—Bold 4% per B. md.	Nil.
Rapeseed—Yellow, mixed, bold,	
Cawnpore, 4% per B. md.	Nil.

The total approximate gross earnings of State and Guaranteed Railways from 1st April, 1909, to the 29th January, 1910, show a gain of Rs. 1,96,45,122 compared with the corresponding figures for 1908-09 and are less than those of 1907-08 by Rs. 7,78,280.

The sanction of the Secretary of State has been notified to the construction of a railway on the metro gauge from Thazi station on the Burma Railways to Yawnghe in the Southern Shan States, a length of about 100 miles. The line will be known as the Southern Shan State Railway.

During the quarter ended 31st December 1909 the following additional locomotives and rolling stock were placed on the several Indian Railways, namely:—73 engines, 122 carriages and 1,252 goods vehicles on 5'6" gauge lines; 5 engines, 60 carriages and 312 goods vehicles on metro gauge lines; and 12 engines, 16 carriages and 55 vehicles on narrow 2'6" gauge lines.

Writing on January 24th the Manchester Guardian says:—The market for standard copper was somewhat depressed during last week, but now seems to be recovering tone again. The movement did not appear to have any direct connection with the actual position of the metal, which must be considered more favourable—or perhaps one should say a little less unfavourable—than for some time past; but the semi-panic in cotton and the condition of the American stock markets have together led to some liquidation of bull interests. The general opinion in this market is that prices will not go much below £60 in times of reaction, and not much above £61 when the market recovers, and hence there is really not a great margin for operations. There seems to be no doubt that the consumption of the metal is gradually increasing, and this tendency must tell sooner or later. Compared with the other sections of the metal market, copper is at a moderate price. Of course it is well known that there is a large "bull" account open in copper, but the market is now thoroughly used to this feature, and from the experience of the last two years it has acquired a confidence in the strength of holders of metal which has never before existed to anything like the same extent.

The Engineering and Mining Journal (New York) publishes the following table, summarising the estimated production of the more important minerals and metals in the United States in 1909, so far as it has been possible to collect the statistics at so early a date. The figures for copper, lead and spelter are based on reports received directly from the producers, who have communicated their actual output during the first 11 months of the year, together with their estimates of probable production in December; in many cases the estimates are for the last few days of December only. The other statistics are based chiefly on the reports of producers, State mine inspectors and special correspondents:—

Product.	Unit,	1908.		1909.	
		Quantity.	Value.	Quantity.	Value.
Non-metallic—			Dollars.		Dollars.
Coal, bituminous	Short ton (a)	337,920,632	387,678,972	360,076,905	414,448,517
Coal, anthracite	"	80,320,578	159,122,961	77,089,336	153,757,078
Iron ore	Long ton (b)	33,780,987	60,821,076	53,033,873	95,460,971
Limestone flux	"	9,563,158	4,720,485	14,070,000	7,316,400
Petroleum	Barrel (c)	181,711,413	136,347,831	180,717,006	133,864,290
Metallic—					
Copper	Pound	948,196,190	127,438,536	1,008,287,425	146,456,628
Iron, pig	Long ton (b)	15,036,018	267,540,378	25,711,816	437,101,382
Lead	Shortton (a)	318,876	26,785,581	374,579	32,011,521
Quicksilver	Flask (d)	17,069	805,690	20,000	920,000
Zinc (e)	Shortton (a)	210,511	10,897,500	267,069	29,660,083

(a) Short ton=2,000 lbs. (b) Long ton=2,240 lbs. (c) Barrels of 42 gals. (d) Flasks of 75 lbs. (e) Includes zinc from foreign ore.

Although the production of pig iron and steel has now become an important industry in Canada, the development of the iron ore deposits has not kept pace with the growth of the metallurgical industries, for, according to statistics published by the Canadian Department of Mines, over a million short tons of iron ore were imported in 1908 showing a reduction of 65,813 tons as compared with 1907, besides 212,240 tons of pig iron, an increase of 2,000 tons. At the present time seven or eight mines are being worked in Canada, but of these only one is producing over 100,000 tons of ore per annum. There are 16 blast furnaces in operation with a total daily capacity of 2,665 tons. Notwithstanding the contention that the growth of the pig iron industry has been stimulated by bounties granted by the Dominion Government, it is noticeable that the amount of Canadian ore charged to furnaces during 1908, 209,266 tons, also shows a decrease of 34,338 tons as compared with 1907, while the amount of pig iron made was

reduced from 651,962 tons in 1907 to 630,835 tons in 1908. These decreases, however, are attributed to the general business depression from which a rapid recovery is predicted in view of the increased rate of production during the early months of 1909, and it is remarked that in the United States the production of pig iron in 1908 was reduced by over 38 per cent. when compared with 1907. With regard to steel, in 1908, 588,763 tons of ingots and castings were made as compared with 706,982 tons in 1907.

In view of the great increase in the production of pig iron in the United States an unusual degree of interest is being taken in the supplies and prices of iron ore. With the output of the blast furnaces on the record basis of 32,000,000 tons per annum it was inevitable that there should be an increase in the demand for ore, and accordingly it is not surprising to learn that shipments from the Lake Superior district this year will exceed the previous record by 7,000,000 tons. The production of iron ore last year totalled 51,000,000 tons, and in addition over 1,600,000 tons were imported. The Lake Superior contracts, which comprise Bessemer ore with an iron content of 55 per cent. and non-Bessemer with 51½ per cent. of iron, have been entered into at an advance in price of 50 cents a ton over last year's. Investigations have recently been made with regard to the contention that the exhaustion of the domestic ore supplies was already within sight. As the result of these it would appear that the available supplies of iron ore in the United States amount approximately to 4,788,000,000 tons. This is made up of all ore containing 55 per cent. of iron and 25 per cent. of all ore with between 45 and 55 per cent. of iron. In addition there is estimated to be 75,116,000,000 tons of ore, the average metallic content of which is put at 37 per cent. and which smelters would have to fall back upon in the event of the exhaustion of the higher grade ore. Further, it is estimated that there are 558,000,000 tons of foreign ore which would be available for American smelters. On the present basis of production, therefore, the supplies of high grade ore are equal to nearly one hundred years' consumption, irrespective of further deposits which may be discovered. It is freely predicted, however, that the present output of pig iron will in due time be doubled, and in that case something like 120,000,000 tons of ore per annum would be required. The real difficulty then would be one of transport, as to move this huge quantity of material over the long distances necessary would require facilities much in excess of those now available.

In their weekly report on the Shanghai piece-goods market, dated the 20th ultimo, Messrs. Noel, Murray and Co. say:—The heavy decline in American cotton during the interval has had the effect of

causing operators in Indian yarn to act with considerable caution, the business reported from first-hands being again reduced to a minimum. Second-hand holders, however, are more easy to deal with and have sold a fairly large quantity at about a tael and a half to two taels under what importers are asking. The buying is for the River Ports chiefly, and for forward delivery. If the report is true that there is a great stringency in the money market in Szechuen, owing to investments in opium, it is possible buying for that quarter may be considerably curtailed for some time. It is said that trade in Tientsin has picked up lately and a better demand will be experienced at the opening of the market in the spring. The total sales reported during the interval amount to 580 bales, chiefly No. 12's, at steady prices, and so the market closes.

The following return shows the number of bales of cotton imported and exported at the various ports of the United Kingdom during the week and 3 weeks ended 20th January, 1910:—

	IMPORTS.		EXPORTS.	
	Week ended 20th Jan., 1910.	3 weeks ended 20th Jan., 1910.	Week ended 20th Jan., 1910.	3 weeks ended 20th Jan., 1910.
	Bales.	Bales.	Bales.	Bales.
American	39,454	177,688	6,645	11,375
Brazilian	307	712	250	436
East Indian	4,075	13,920	370	1,307
Egyptian	10,563	30,976	521	9,606
Miscellaneous	2,483*	4,440†	350	557
Total	56,832	227,736	8,136	23,231

* Including 258 bales British West Indian, 7 bales British West African, and 217 bales British East African.

† Including 539 bales British West Indian, 8 bales British West African, and 217 bales British East African.

NOTE.—Cotton "in transit" or "for transhipment under bond," if desired as such in the ships' reports, is not included in this return.

The following telegraphic crop reports have been received from the cotton districts:—Bawar:—Bright, no sign of rain. All crops doing well. Amraoti:—Seasonable. Rabi crop prospects generally good. Dhulia:—Bright, no sign of rain. Rabi crop prospects generally good. Jalgaon:—All crops doing well. Broach:—Bright, no sign of rain. Cotton arrivals increasing largely. Viramgam:—Seasonable. Cotton plants shedding bolls. Wadhwan:—Mornings cold and dewy. Cotton crop excellent picking general and arrivals expected early. Barai:—Bright; no sign of rain. Sholapur:—Cloudy, but no rain. Rain much needed generally for rabi crops. Hubli:—Mornings cold and dewy. Cotton plants show bolls rapidly ripening. Cotton

picking partially begun and arriving in small quantities. Cotton crop accounts less favourable.

The following statement shows the quantity of cotton goods calendered and the proportion thereof to the total production in Indian mills in the month of November, 1909, and in the 8 months from April to November 1909, compared with the corresponding period of 1908-09:—

	1908-09.		1909-10.	
	November.	Eight months, April to November.	November.	Eight months, April to November.
BRITISH INDIA—Quantity calendered lbs.	9,552,067	67,751,934	10,589,512	86,717,652
Ratio of calendered goods to production %	54.08	55.47	53.87	58.32
NATIVE STATES (excluding Hyderabad)—Quantity calendered lbs.	64,125	481,001	143,180	1,114,584
Ratio of calendered goods to production %	10.63	12.45	20.51	25.04
TOTAL INDIA (excluding Hyderabad)—Quantity calendered lbs.	9,616,192	68,232,935	10,732,692	87,832,236
Ratio of calendered goods to production %	52.65	54.15	52.74	57.38

With reference to the Final General Memorandum on the Indian Cotton Crop, which is published in this issue, it is interesting to note that while the total estimated outturn of 4,502,000 bales is less than the outturn in 1906-07 (which was 4,934,000 bales) the high prices now current render the crop the most valuable that has been reaped in India. For purposes of comparison it is permissible to take the four months' prices in these respective years as given at the end of the Memorandum. In 1906 the mean of the four quotations was Rs. 241 per candy of 784 lbs. In 1909 it was Rs. 287. At these rates the value of the whole crop in 1906-07 would have been Rs. 60,66,80,612 (£40,445,374) while the value of the crop now to be handled would be Rs. 65,92,21,428 (£43,948,095). But since it would be quite incorrect to estimate the value of the whole crop by the Bombay price, we must content ourselves with saying that the crop, though falling short of that of 1906-07 by some 8½ per cent in quantity, exceeds it by about the same percentage in total value.

The prices of British corn per quarter of 8 bushels, as received from the inspectors and officers of Excise in the week ended 22nd January, 1910, were as follows:—Wheat, 93s. 9d.; barley, 24s. 11d.; and oats 17s. 6d.

The *Corn Trade News* gives the following summary of the world's crops as on the 25th ultimo:—*United States of America*—Complaints unsatisfactory appearance late sown winter wheat increasing, but crop still considered generally satisfactory. Receipts are liberal, stocks maintained. *Canada*—Officials still talk big yields, but some commercial authorities say wheat not there. Supplies fair. *Argentina*—Samples new wheat crop poor, some estimates of surplus very low. Large shipments predicted soon. Maize outlook favourable. *Australia*—Threshing results favourable, total crop officially estimated 82,000,000 bushels against 62,000,000 last year, and former likely be increased slightly. *India*—Further good rains over main wheat areas. *Russia*—Weather mild except parts centre and northern region. Crop conditions normal, but absence snow causes anxiety. Bad roads hinder supplies. *Roumania*—Weather mild, favourable; crops excellent. *Hungary*—Weather changeable, but crops excellent. *Bulgaria*—Good snow cover. *France*—Owing frequent rains and mildness, crops less favourable, disastrous floods occurred. *Germany*—Weather unseasonably mild, crops look strong and well. Native supplies fair. *Italy*—Reports weather, crops favourable. *Spain*—Good rains fallen. *United Kingdom*—Winter wheat mostly satisfactory, but weather prevented further sowings. *North Africa*—Rain still wanted.

The letter sent by the Manchester Association of Importers and Exporters to the various Chambers of Commerce of Australia with reference to grain charter parties is being widely discussed by Australian commercial men. Opinion in Victoria seems to be in favour of bringing pressure to bear on the shipowners who refuse to alter their forms of charter party so as to include Manchester as a safe port. The Melbourne *Age's* commercial editor on December 16th strongly supported Manchester's claim. He writes:—"For the purpose of substantiating the statement that Manchester is now one of the most important grain markets in Great Britain, a glance at the records of the arrivals is sufficient. Therein it is shown that 21 vessels brought 79,202 tons of wheat to Manchester last September. Of these six full cargoes came from British India, six from Russia, three from Argentine, and one sailing vessel from Australia; in addition there were 10,000 tons from Canada, in four parcels. It is stated that the merchants who imported the above-mentioned large quantities of grain complain that while they are trying to ascertain whether the wording of an Australian charter party will allow all

the cargo being ordered to the Manchester Ship Canal, the prospective customer has supplied his wants from countries which are free from any restriction in this respect. It is to be hoped that the efforts of all interested may be successful in freeing Australian charter parties from the disabilities described. Our producers are just as much concerned in this question as are the merchants, for the greater are the number of markets for our produce the greater will be the demand, and consequently the better will be the price."

One of the most notable features of the wool trade is the large amount of wool that England is receiving from South Africa. A Reuter message from the Cape states that the wool exports from that colony during 1909 amounted to nearly 300,000 bales, or nearly as much as came from the whole of South Africa during 1908. It seems likely that from this source England will within the next few years receive quite as much wool as is now drawn from New Zealand. Prices for all classes of wool, says the *Manchester Guardian*, remain fully firm at the London auctions, and although very little business is passing in tops at Bradford, makers are unwilling to make any concession to spinners. There is a feeling, however, that prices for all qualities of tops are sufficiently high, and especially is this the case with crossbreds in view of the fact that very soon the largest clip of wool ever exported from New Zealand will begin to arrive in large quantities.

In their Report on the Australian wool sales, dated Melbourne, January 20th, Messrs. Goldsbrough, Mort & Co., Ltd., say:—"We held our second sale of the year yesterday, submitting a catalogue of 5,185 bales and disposing of, including private sales since our last report, 4,785 bales. The offerings were widely representative, including a grand selection of clips from the South-Eastern district of South Australia, Tasmania, a further instalment of a large clip from Southern Queensland, and a large number of smaller parcels from Gippsland and the later shearing districts of the State generally. Special orders are held in Melbourne for these South-Eastern wools by the many buyers who make this centre their head-quarters, and they are always sure of a good reception, this year proving no exception to the rule, and while, owing to the slackening of the American demand, prices for a few of the top lines did not quite reach the high level of the December sales, the general results must be regarded as very satisfactory to owners. The wools comprised in the Tasmanian section of the catalogue were not quite up to the standard of previous years, showing the effects of the late unfavourable season, but even with this handicap they well maintained their reputation. In merinoes, two familiar Tasmanian marks in this market, L/R O C, from Lake River, and W. C.

G/BARROWVILLE (St. Leonards), both made up to 15½d., the 1st comeback of the latter realising 14¾d., the same price being obtained for the F & P crossbred from Longford. The well-known RIPPONHURST/H S a large crossbred clip from Macarthur made a splendid sale, realising up to 17½d. for the crossbred, and the comeback portion 15¾d., the whole of the brand selling proportionately well.

The following was telegraphed from a correspondent at Rio, dated 26th January:—"Rain is reported throughout the Sao Paulo coffee districts. The coffee market closed steady, with No. 7 New York type 25 reis higher at 4\$925. The receipts amounted to 9,009 bags, making the total for the season 2,640,000, against 2,041,000 last year. Clearances nil. The stock now stands at 492,000 bags, which compares with 216,000 in the corresponding period of 1909. The Santos market was steady at the close, with prices unaltered. No. 4 standard 4\$250 and No. 7 standard 3\$850. The receipts for two days totalled 7,000 bags, bringing the season's aggregate up to 10,570,000, against 8,154,000 in the preceding year. Interior receipts 7,000 bags. The stock now stands at 1,184,000, against 1,827,000 a year ago.

Discussing the hide and leather trade, the regular correspondent of the *Economist*, writing on January 15th, says:—"The hide market remains firm and tanners are beginning to cover their requirements in view of the anticipated brisk demand which seems likely to set in directly the General Election is over. Many classes of ox hides have sensibly hardened in price whilst calf skins remain dear and scarce. The amount of business passing in foreign hides is fair, but supplies arriving are limited, and holders are very firm on prices. According to cables received from the River Plate during the past week, the total number of cattle slaughtered to the end of December amounted to 94,000 head, as compared with 161,000 for the same time 1908. Chicago cables are to the effect that tanners are more inclined to buy, as slight concessions have been made by the packers, and, as leather is in small compass in the United States, leather manufacturers can hardly wait longer for supplies of raw material. Tanners report business as opening up very well, some of the Warrington firms having had placed fair-sized contracts at higher figures for sole bends and offal. Upper stock, too, is moving off well, and all kinds of chrome, calf and box sides are wanted, supplies arriving from America and the Continent being on a very limited scale. Glazed kid is selling well; many tanners are increasing their output in Britain, whilst the latest news from America is to the effect that the past year has been a record one in this section of the leather industry. Trade in Walsall has slightly improved of late, as orders have come to hand fairly well for harness, saddlery, and leather goods. Contractors, too, have been asked to

tender for 400,000 sets of military belts, complete, for an Eastern Government, and every endeavour is being made to secure the business, which is much wanted. If obtained this will again have the effect of firming up the leather market, as the belts are to be cut from good butts of heavy substance. Shoe manufacturers are full of work, and once the General Election is over the prospects for a record year's business are considered excellent. Other information on the hide and leather trade will be found in another part of to-day's issue.

The **sugar output** in **Cuba** this season is expected to be 1,800,000 tons, provided the weather continues favourable.

The **daily prices of opium** per chest for the periods mentioned below were as follows:—

For the week ending 12th February, 1910—

In the Calcutta market—

Behar opium—Rs. 2,303; 2,378; 2,399; 2,338; 2,315; 2,350; 2,360.

Benares opium—Rs. 2,360; 2,440; 2,460; 2,400; 2,375; 2,410; 2,420.

The prices in the time bargains for the Behar opium of the 3rd sale of 1910 were exactly same as mentioned above in case of Behar opium.

In the China market—

At Hongkong—(Exchange Rs. 130½ to 131 per \$100.)

Behar opium—\$1,820; 1,800; 1,830; 1,845; 1,845; 1,825; 1,825.

Benares opium—On the 7th and 11th February, \$1,840 and 1,875, respectively.

At Shanghai—(Exchange, no quotations received.)

Behar opium—No quotations received.

Benares opium—No quotations received.

For the week ending 5th February, 1910—

In the Bombay market—

On the 3rd and 31st ultimo (new 1909-10) Rs. 1,850 to 1,960; (new 1908-09) Rs. 1,350 to 2,100; (old 1907-08) Rs. 2,050 to 2,246. From the 1st to 5th instant, (new 1909-10) Rs. 2,000 to 2,050; (new 1908-09) Rs. 1,325 to 2,250; (old 1907-08) Rs. 1,425 to 2,375. The latest prices at Hongkong and Shanghai were (new) Rs. 2,185 and 2,216; (old) Rs. 2,271 and 2,243 respectively.

Applications in respect of the following **new inventions** were filed in the Patent Office, Calcutta, during the week ending 7th February, 1910:—G. A. Mitchell, builder, 192, Barry Road, East Dulwich, London, A. J. Mitchell, quantity clerk, The Willows, Station Road, Crayford, Kent, England, and E. E. Mitchell, builder, 80, Henslowe Road, East Dulwich, London.—Improvements in and relating to the construction of roadways, footways and the like. E. R. Palmer, sanitary engineer, 17, Wickham Road, Beckenham, Kent, England—Im-

provements in or relating to urinal systems. D. Marshall, engineer, 30, Winchcomb Street, Cheltenham, Gloucester, England—Improvements in and connected with inflated tyres and valves for use with same. N. S. Douglas, engineer, Mango Grove, Malagon, Tanwe Circle, Rangoon, Burma—A rail and connecting block for preventing shock and jar given to the wheels of railway vehicles. H. H. Benu, Montpelier Square, Knightsbridge, Middlesex; P. A. Ransom, G. F. Buck, The Unbreakable Pulley and Mill Gearing Co., Ltd., and G. F. Buck (as executor of W. E. Buck, deceased), all of Hyde Road Engineering Works, West Gorton, Manchester, England, engineers—Improvements in connection with friction clutches. Badische Anilin and Soda Fabrik, of Ludwigshafen-on-Rhine, Germany—Improvements in and relating to the production of nitrates; and improvements in effecting the removal of nitrous acid from solutions containing it. Sir C. H. A. F. L. Ross, Baronet, of Balnagown Castle, Ross-Shire, Scotland, with temporary address at Quebec, Canada—Automatic firearms and improvements in bullets. F. H. Fox, woollen manufacturer, and F. J. Bowchier, accountant, both of Tenedale Mills, Wellington, Somerset, England—Improvements in the manufacture of puttees and other clothbandages. J. Weiser, engineer and manager, Mineralol-Railinerie, Mährisch-Schönberg, Austria—Process for separating paraffin from paraffin butter and apparatus therefor.

We extract the following paragraph from the *Times Financial and Commercial Supplement* of January 14th:—Among several noteworthy events affecting insurance in 1909, first place must be granted to the passage into law of the **Assurance Companies Bill**. The Act embraces life assurance, fire insurance, accident and sickness insurance, employers' liability insurance, and bond investment business. Because its sponsors ambitiously attempted the difficult task of setting all branches of insurance in order by means of one measure they have not succeeded in giving general satisfaction, yet several of the provisions of the Act have won wide approval. The Bill had its origin in the report issued in 1906 of the Select Committee of the House of Lords which was appointed to consider what steps should be taken to provide adequate security for British policy-holders in foreign life companies carrying on business in this country. Consequently, one of the main novel features of the measure is that all such foreign companies are to be required to deposit £20,000 with the Paymaster-General and to make returns to the Board of Trade in the form prescribed. Further, a deposit of £20,000 is to be required from insurance offices undertaking fire, accident, or bond investment business, the object being of course to prevent the creation of "mushroom" companies; and accounts are to be rendered annually to the Board of Trade in prescribed forms. Companies undertaking several branches of insurance will be required to make more than a single

deposit. A certain section of opinion holds that the provisions respecting foreign offices are not sufficiently strict, and some friction has been caused by the extension of the deposit clause to all British life offices. Amendments dealing with these points were moved in Parliament, without success, and on the eve of the final discussion of the Bill the life offices' resentment was expressed in a memorial addressed to the two City members and signed by 21 actuaries. The restriction, in the form of the deposit, placed on the creation of small fire offices has much to commend it, since the rocket-like careers at times enjoyed abroad of some little offices have been no credit to the reputation of British insurance institutions. Underwriting members of Lloyd's, who now write considerable fire accounts, have been specially provided for. The majority of the provisions in the new Act come into effect on July 1st. An important clause in the Act enlarges slightly the powers of industrial companies and friendly societies, and legalizes the large number of *bond fide* insurances issued by these institutions before the passing of the Act in excess of their powers. So greatly have these offices exceeded their powers in the past that apparently the legalization of the contracts was the only possible solution of the difficulty. On November 2nd it was announced that the Labour Party had secured a promise from the Government of the appointment of a Commission to inquire into the facts relating to the past working of these institutions.

In its issue of January 25th the *Manchester Guardian* says:—We recently referred in these notes to some tests with **alcohol as a fuel** for oil or gas engines, and suggested that higher compressions would be necessary for success. This is confirmed by a bulletin issued by the United States Geological Survey, which recommends a compression pressure of 180 lb. per square inch for alcohol engines. This, of course, increases the efficiency and lessens the difficulty of ignition. When the Geological Survey's experiments were first started one gallon of alcohol only gave from 50 to 65 per cent as much power as a gallon of petrol, the heat value of alcohol (denatured) being about 68 per cent that of petrol per gallon. With special alcohol engines as much work has been obtained per gallon as from petrol, thus showing a considerably higher thermal efficiency, due to the higher compression possible (more than double). Further, with suitable engines of the same speed and cylinder dimensions, alcohol with a compression of 180 lb. gave 30 per cent more power than petrol with a compression of 70 lb. Water can be added to the denatured alcohol up to about 50 per cent provided the engine is properly adjusted, but the efficiency is somewhat lowered. At present the price of alcohol is against its adoption, but it is possible that this difficulty may be overcome, especially if petrol continues to increase in price.

Government and commercial authorities in the **United States** are at present giving close attention to the question of reduction in time and cost of legal proceedings. An outcome of the investigations is the resolution proposed by Mr. Charles L. Bernheimer, and unanimously carried by the New York Chamber of Commerce, that there be established in connection with that body a **court of commercial arbitration**.

NOTICES.

CALLS FOR TENDERS.

Railway Sleepers.

The Manager, North-Western Railway, Lahore, is calling for tenders up to the 15th proximo for the supply of 114,000 9' 6" x 10" x 5" sleepers.

Cotton Drill.

The Financial Secretary, Egyptian Army, War Office, Cairo, is calling for tenders up to the 18th proximo for the supply of 10,000 yards of chocolate drill. Samples and specification may be seen at this office.

Flour Sacks.

The Financial Secretary, War Office, Cairo, is calling for tenders up to the 15th proximo for the supply of 20,000 flour sacks, stitched inside and dry sewn, size 42" x 26", 11 porters by 13 shots, each sack to weigh 2 lbs. and to be marked clearly with a red trefoil on the centre of one side. A full specification may be seen at this office.

ENQUIRIES.

(For particulars address the Director-General of Commercial Intelligence, 5, Olive Street, Calcutta.

An asterisk (*) preceding an enquiry indicates that bank references are offered.)

Capsule-making Machinery.

(598).—A correspondent requires the addresses of firms in Europe and America manufacturing machinery for making capsules (other than paper) for bottles.

Gilt Mirrors and Overmantles.

(599).—A London firm desires to appoint agents for the sale of gilt mirrors and overmantles.

Ebony and Satin Wood.

(600).—A firm in Cologne desires to be placed in communication with shippers of ebony and satin wood.

BUSINESS NOTICE.

All correspondence and remittances relating to the supply of the "INDIAN TRADE JOURNAL" should be forwarded to the Superintendent, Government Printing, India, Calcutta, to whom all bills are payable.

Correspondence regarding advertisements in the "INDIAN TRADE JOURNAL" should be addressed to Reuter's Telegram Co., Ltd.; but all advertisements, blocks, etc., must be approved by the Director-General of Commercial Intelligence before insertion.

Retail trade advertisements cannot be accepted.

A full index is published as a quarterly supplement and should be filed for reference.

The annual rates of subscription to the "INDIAN TRADE JOURNAL" including quarterly index, are Indian, without postage, Rs. 12; with postage, Rs. 13; Foreign, Rs. 18. Single copies, 4 annas.

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Back numbers, when available, may be had at a cost of Re 1, for any number more than a week old.

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The Indian Trade Journal.

THURSDAY, FEBRUARY 17, 1910.

COMMERCIAL FIBRES.

MR. MOLLISON'S "Note on the Extension of Cultivation of Fibre Plants in India" is the latest word on this important subject. The information contained in it has been chiefly given by a Committee consisting of Messrs. Gammie, Burkill, Finlow, Clouston and Subba Rao at a meeting of the Board of Agriculture at Pusa, subsequently amplified by information obtained from the Directors of Agriculture of the various provinces. In most cases each fibre is dealt with separately.

For the purpose of his Note, Mr. Mollison says, agave and rhea may be taken together. The conditions of soil and climate suitable for these crops are now fairly definitely known. It used to be thought that agave would grow and thrive on any soil and under any conditions of climate. It has, indeed, been stated that the poorer the land, the better agave will thrive; but experience indicates that both agave and rhea require good land for rapid growth. For the latter also fairly heavy rainfall is required.

Although it is possible to extract both agave and rhea fibre by hand, the products obtained are usually inferior to those obtained by machinery. Therefore possibly the cultivation of these plants should, for some time, be continued by capitalists who can afford to pay for expensive fibre extractors. Rhea has been extensively cultivated on the estates of Indigo Planters in Behar, but has not proved a profitable crop. Both agave and rhea require some years' growth before they give any considerable yield of fibre, a fact which discourages the ordinary ryot from attempting their cultivation.

It has been practically proved that the climate of Behar with a rainfall of 45 inches is too dry to admit of a sufficient number of cuttings being made per annum to make rhea pay. The results of the recent experiments at Dalsing Sarai and elsewhere have been set forth excellently by Mr. B. Coventry in the *Agricultural Journal of India*, 1907, pages 1-14. This crop thrives in the moist climate of Assam where it is possible to obtain five cuttings per annum and where, to a small extent, it is a ryot's crop. In Madras, rhea is grown on a small scale in the Shevroys. The Glenrock Company opened a rhea plantation near Metapolliam in the Coimbatore District, but did not make a profit out of the cultivation. In Bombay rhea has been under experimental trial for many years, and further recent experiments with it at the Ganeshkhind Gardens, Kirkee, have confirmed the conclusion that the soil and climate of the Deccan are unsuitable for the plant under ordinary circumstances. It is said that in Lower Burma, a variety of the plant grows wild on the banks of streams in the Tharrawaddy District along the foot of the Pegu Yoma range, and that the fibre is used to make twine for fishing lines. Experimental plantations of *B. nivea* and *B. tenacissima* have been started by the Forest Officer in Tharrawaddy, who reports that the latter species is growing with success. Rhea grows wild both in the Northern and Southern Shan States. The fibre is chiefly used for making paper, but is also made into cloth and strong twine for fishing lines, etc. Two varieties of the plant are known, one being considered better than the other for the above purposes.

Agave grows in most parts of India, on all classes of soil and under various conditions of climate. It yields the largest, quickest and most profitable returns under careful cultivation on good land in a moist climate. In Assam only one plantation (Dauracheria Fibre Company, Sylhet) has existed

long enough to yield definite results, and these do not prove that agave cultivation in Assam is certain to be a profitable industry. A few plantations of agave exist in the United Provinces, but have hardly reached the cutting stage. The raw material which is at present dealt with is chiefly obtained from railway fences taken on lease.

The only place in the Madras Presidency where agave fibre has been extracted on a commercial scale is in the Coimbatore District from the plants growing along the railway lines. This species proves to be agave vera-cruz. Several European planters are trying sisal in the planting districts, and the Madras Fibre Company has some plantations in the Anantpur and Chingleput Districts. The cultivation of agave is not likely to be taken up in the near future by ordinary ryots. The extraction of the fibre by hand is unpleasant on account of skin irritation caused by the sap. The chief purpose of the Hindupur Government plantation is to grow agave experimentally on land where the rainfall is too precarious for other crops. It is also intended to supply Sisal plants to those who are interested in the cultivation of this plant.

Agave has been but little exploited in the Central Provinces, and the cultivation is not likely to become popular. The common species there is *Agave cantala*. It is usually grown in hedges, around groves and gardens, but nowhere in abundance. Fibre is not extracted from it extensively. In the Kawardha Feudatory State adjoining Bilaspur, its cultivation is fairly large, and the fibre is used in making ropes and cloth. The labour involved in extracting the fibre is considered both hard and degrading, while the juice of leaves produces eczema on the legs and arms of the labourers. Agave cultivation has been extended of late at the jails in the Central Provinces, and the Inspector-General of Prisons had 87,459 aloes planted out last year in his various gardens. At these jails all the work of cultivation, of extracting the fibre and of making it into ropes, rugs, etc., is done by the prisoners. This industry engages labour at all times of the year. On the bhata plains of Chhattisgarh, where there are very large areas of waste land, it may be possible to start aloe plantations; but if this is to be done successfully, the work will have to be undertaken by an enterprising firm with sufficient capital and practical knowledge. It has yet to be proved that the aloe can be profitably grown for commercial purposes on such soils without irrigation. Experimental trials are being made. So

far as is known, the agave vera-cruz is the only agave found in Burma. It is not systematically cultivated for its fibre, though it is used in some prisons for rope-making. It is not yet certain whether agave would repay cultivation, and in any case a better species than agave vera-cruz should be grown.

Flax cultivation has no particular prospect of success in the United Provinces, except perhaps in a few favourable localities, and unless the growers can afford to stack their straw until clean water is available. Except on the Dharwar Farm, the different varieties of imported flax have not yet been found suitable for cultivation in the Bombay Presidency. It has so far not succeeded in Burma, but no very systematic experiments have yet been made.

In the Punjab, 39,874 acres of linseed were sown in 1906-07, 14,669 acres being in the Kangra District and most of the balance in the submontane districts; but in 1907-08 only 29,348 acres were sown. The crop is grown for seed. It is thought that good material for fibre has been obtained from trials made with Russian linseed. But the difficulty lies in the retting, and this is being studied at Lyallpur. Experiments which were conducted many years ago were well reported on as regards the growth of the plant. The retting question was not then fully examined. The local variety of the Punjab is not suitable for fibre purposes, owing to its established habit of short and bushy growth.

The Bengal Agricultural Department tried *Malachra capitata* at Cuttack, but gave it up as hopeless after two years' trial. Similarly experiments conducted at the Rajshahi Experiment Station in Eastern Bengal and Assam indicated that its cultivation is not likely to be profitable. Experiments have not yet been made in other provinces.

The Committee believes that it is possible to extend largely and profitably in the immediate future the cultivation of jute, sunn-hemp and *Hibiscus cannabinus*, and that later on, it is possible that a portion of the linseed grown over large areas in various parts of India may be utilized for the production of fibre as well as seed. A considerable increase of agave cultivation is possible in Assam and in tracts which have similar physical and climatic conditions. Successful rhea cultivation must apparently be limited to a comparatively narrow zone where both climate and soil are particularly suitable. The Committee affirms that jute is a very paying crop, and believes that it can usually be followed by a food crop in the same year. The Committee further lays great stress on so arranging

the rotation of food and fibre crops that the encouragement of the latter shall not be at the expense of the former. From this point of view, those fibre crops which occupy the ground for one season only are preferable to those of a perennial nature. Finally, the Committee believes that the demand for fibres is bound to increase, as they are essential for nearly all branches of trade; also that it is not likely that prices will fall so low as to render fibre cultivation in India unremunerative.

TARIFF CHANGES AND CUSTOMS NOTIFICATIONS.

The *Board of Trade Journal*, published on the 27th ultimo, in the section relating to Tariff Changes and Customs Regulations, gives particulars about:—

PERU.—Proposed Tariff Revision.
JAPAN.—Government Bill for the Revision of the Customs Tariff.—Proposed.

COMMONWEALTH OF AUSTRALIA.—Free importation of certain "Minor Articles" and Tools of trade, etc.

DOMINION OF NEW ZEALAND.—Customs Decisions.
CAPE OF GOOD HOPE.—Amended Customs Regulations.

TRANSVAAL.—Date of Operation of Bees Regulation Act of 1909.

ORANGE RIVER COLONY.—Importation of Horned Cattle.

FIJI.—Importation of Tobacco, etc., by Parcel Post.

EGYPT.—Valuation Tariffs.
NETHERLANDS.—Increase of Excise Duty on Spirits.

FRANCE.—Customs Decisions.
SWITZERLAND.—Customs Decisions.

PORTUGAL.—Importation of Wheat Authorised.
TURKEY.—Prohibition of Importation into Aidin of certain Potash.

MOROCCO.—Valuation of Principal Articles of Import.

HONDURAS.—Decree Reducing the Import Duties on Cotton Goods Cancelled.

VENEZUELA.—Customs Classification of Seed Potatoes.

BRAZIL.—Preferential Customs Treatment of certain United States Products.

JAPAN.—Customs Classifications.

We give the following particulars of changes interesting to Indian trade:—

PORTUGAL.

Wheat Authorised—Importation of.

The *Diario do Governo* for the 14th January contains a Royal Decree authorising the importation of 20,000,000 kilogrammes of foreign wheat from the 15th January to the 31st July, 1910, for consumption in Portugal and the Azores, of which 1,150,000 kilogrammes may be imported into the District of Ponta Delgada for consumption therein. Wheat imported under the terms of this Decree will be subject to a duty of 10 reis (300 reis=Re. 1) per kilogramme.

CROP FORECASTS.

COTTON.

Final General Memorandum on the COTTON crop of the season 1909-10

This memorandum summarises the provincial reports of the cotton crop up to the 1st February, and compares them with those for the two previous seasons.

The total area in all territories reported on is now computed at **20,227,000 acres**, which marks a net increase of 228,000 acres or 1 per cent on the 19,999,000 acres recorded at this time last year. The total estimated outturn is **4,502,000 bales** of 400 lbs, as against 3,691,000 bales estimated last year, representing an increase of 811,000 bales or 22 per cent. To this figure might be added some 24,300 bales consisting of 18,000 bales estimated as the production of Bombay tracts from which returns are not received, 800 bales from Bengal Native States which also make no returns, and a conjectural 5,500 bales founded on the usual outturn from Dholpur State whose report has not come to hand. But doubt is thrown upon last year's estimate for all India by a comparison of it with the sum of net exports and internal consumption, this latter being computed on a basis arrived at in agreement with the Bombay Cotton Trade Association, Limited. The figures taken are for the year ending 30th September 1909, and the calculation is as follows:—

Net exports	1,990,000
Mill consumption	1,744,000
Consumption outside mills	750,000
TOTAL	4,484,000
Deduct estimated yield	3,691,000
Deficit	793,000

Only on one occasion (1906-07) has the estimated crop exceeded the figure now returned. In that year the crop of 4,934,000 bales was the produce of 22,484,000 acres; and the higher yield per acre for which estimate is made this year may be taken as some index of the relatively favourable character of the season.

The following is a summary of the provincial reports. The figures in brackets, following the name of each province, indicate what percentage of the entire cotton area of India is ordinarily cultivated in that province.

Bombay (28·8%).—According to the latest reports the total area under both early and late cotton in the British districts comes to 3,388,000 acres—an increase of 218,000 acres or 6·9 per cent as compared with last year's area. The Native States (excluding Baroda) report 1,988,000 acres

as compared with 2,448,000 acres last year—a decrease of 18·8 per cent. Since the publication of the December forecast the early crop in Gujarat has suffered in places owing to cloudy weather and rain in December and January which caused some shedding of flowers and bolls. The late crop, however, is reported to have benefited by this rain. In the Karnatak, the crop has suffered in places from adverse winds and from deficiency of moisture in light soils. The total revised estimate of yield now stands at 1,354,000 bales (780,000 in British districts and 574,000 in Native States) as compared with 1,111,000 bales (463,000 in British districts and 648,000 in Native States) for last year, this representing an increase of 22 per cent. Besides the above, about 64,000 acres yielding about 18,000 bales are estimated for tracts for which statistics are not usually received.

Central Provinces and Berar (22%).—The revised total area is now returned at 4,229,000 acres (1,197,000 acres in the Central Provinces and 3,032,000 acres in Berar) as compared with 4,176,000 acres (1,158,000 acres in the Central Provinces and 3,018,000 acres in Berar) for last year—an increase of 1·3 per cent. The total yield is estimated to be 1,014,000 bales (339,000 in the Central Provinces and 675,000 in Berar) as against 766,000 bales (226,000 in the Central Provinces and 540,000 in Berar) for last year—an increase of 32·4 per cent.

Madras (8%).—The total area sown in *raiyatwari* villages up to the end of January is reported to be 1,431,000 acres which is about 3 per cent more than the area at the corresponding date of last year, the increase being attributed to timely and sufficient rainfall. The crop is reported to be generally fair, though it has suffered for want of rain in some places. The yield is estimated to be 150,000 bales which is 6 per cent more than that of last year. Villages other than *raiyatwari* report a total area of 180,000 acres which is about 9 per cent more than that reported at this date last year. The yield of this area is estimated to be 22,000 bales. Native States report a total area of 25,000 acres which is estimated to yield about 4,000 bales.

Panjab (7·7%).—The total area in British districts is now reported to be 1,284,000 acres as compared with 1,446,000 acres last year—a decrease of 11·2 per cent. The revised estimate of the yield comes to 851,000 bales as against 296,000 bales last year—an increase of 18·6 per cent. Native States report a total area of 151,000 acres and a yield of 48,000 bales, compared with 116,000 acres and 28,000 bales for last year.

United Provinces (6·2%).—The revised estimates for the British districts now stand at 1,224,000 acres and 380,000 bales as compared

with 1,377,000 acres and 423,000 bales for last year. No change has been reported in the estimates for the Native State of Rampur given in the December forecast, namely 17,000 acres and 4,000 bales against 15,000 acres and 3,000 bales last year.

Sind (1·2%) returns a total area of 218,000 acres compared with 259,000 acres last year—a decrease of 15·8 per cent. The crop is reported to be good in Thar and Parkar and fair in Hyderabad. The total yield is estimated at 106,000 bales as against 101,000 bales last year—an increase of 5 per cent. No Egyptian Cotton has been grown this year for want of water at the time of sowing.

Burma (0·9%) now reports the area to be 196,000 acres as compared with 204,000 acres last year—a decrease of 3·9 per cent. The crop is not a satisfactory one. Early rains were favourable and sowings successful; but heavy rain in November damaged the ripening crop and reduced the outturn in several districts. The yield as estimated by the district officers is 32,000 bales; but the Commissioner of Settlements and Land Records believes that the total crop of the Province may amount to 34,000 bales.

Bengal (0·35%) reports the total area sown as 67,000 acres as against 64,000 acres last year—an increase of 4·7 per cent. For the early crop the season was generally favourable, but for the late crop it was less favourable as in the two important districts of Saran and Muzaffarpur the crop suffered from excessive rain in August. The yield is estimated to be 17,000 bales as against 14,000 bales last year—an increase of 21·4 per cent. Further, the crop in the Native States, for which no returns are available, is roughly estimated at 800 bales.

Eastern Bengal and Assam (0·3%). The total area sown is estimated at 98,000 acres as against 97,000 acres last year—an increase of 1 per cent. The yield is estimated at 17,000 bales compared with 21,000 bales last year—a decrease of 19 per cent.

North-West Frontier Province (0·25%) reports that since the issue of the December forecast there has been no change in the estimates which remain at 32,000 acres and 7,000 bales against 54,000 acres and 12,000 bales for last year.

Ajmer-Merwara (0·2%) reports 39,000 acres and 13,000 bales compared with 40,000 acres and 9,000 bales last year.

Hyderabad, Deccan (14·1%).—The total area sown is reported to be 3,401,000 acres as against 2,902,000 acres last year—an increase of 17·2 per cent. In the December forecast the yield was estimated to be 400,000 bales, but, the late rains having failed, the revised estimate now stands at 380,000 bales against 307,000 bales for last year—an increase of 23·8 per cent.

Central India (46%) now reports the total area sown to be 1,057,000 acres as compared with 978,000 acres last year—an increase of 8.1 per cent. The total yield is estimated to be 220,000 bales as against 144,000 bales last year.

Baroda (3%) reports 675,000 acres compared with 623,000 acres of last year—an increase of 8.3 per cent. The yield is estimated at 235,000 bales as against 171,000 bales last year—an increase of 37.4 per cent.

Rajputana (2%).—The total area is reported to be 446,000 acres (excluding Dholpur State from which returns have not been received) compared with 389,000 acres last year—an increase of 14.6 per cent. The yield is estimated at 142,000 bales against 79,000 bales last year—an increase of 79.7 per cent.

Mysore (0.38%) reports 81,000 acres and 6,000 bales compared with 65,000 acres and 3,000 bales last year.

The Exports of raw cotton by sea to foreign countries have been as follow (in cwts):—

April to December	1905	4,865,593
" "	1906	4,370,952
" "	1907	6,385,557
" "	1908	3,873,671
" "	1909	4,683,528

The course of prices is indicated by the following figures, which represent the price of Broach Cotton at Bombay in rupees per candy of 784 lbs:—

	1905	1906	1907	1908	1909
September	250	235	268½	227	230
October	...	241½	270	229	305
November	245	243	265	226	230
December	252	245	271	220	282

FREDERICK NOEL-PATON,
Director-General of Commercial Intelligence.

Final Estimate of the Cotton crop of India

Provinces and States.	1909-10.		1908-09.		1907-08.	
	Area (acres).	Yield (bales).	Area (acres).	Yield (bales).	Area (acres).	Yield (bales).
Bombay (a)	5,376,000	1,354,000	5,618,000	1,111,000	6,495,000	932,000
Central Provinces and Berar	4,229,000	1,014,000	4,176,000	766,000	4,432,000	595,000
Madras (a)	1,636,000	176,000	1,578,000	162,000	1,855,000	198,000
Panjab (a)	1,435,000	399,000	1,562,000	324,000	1,474,000	356,000
United Provinces (a)	1,241,000	384,000	1,392,000	426,000	1,461,000	268,000
Sind (a)	218,000	106,000	259,000	101,000	259,000	135,000
Burma	196,003	32,000	204,000	41,000	195,000	29,000
Bengal (b)	67,000	17,000	64,000	14,000	70,000	14,000
Eastern Bengal and Assam	98,000	17,000	97,000	21,000	79,000	24,000
North-West Frontier	32,000	7,000	54,000	12,000	48,000	9,000
Ajmer-Merwara	39,000	13,000	40,000	9,000	41,000	10,000
Hyderabad	3,401,000	380,000	2,902,000	307,000	3,100,000	293,000
Central India	1,057,000	220,000	978,000	144,000	993,000	55,000
Baroda	675,000	235,000	623,000	171,000	606,000	107,000
Rajputana	446,000	142,000	389,000	79,000	438,000	91,000
Mysore	81,000	6,000	65,000	3,000	84,000	6,000
TOTAL	20,237,000	4,502,000	19,999,000	3,691,000	21,630,000	3,122,000

N. B.—A bale contains 400 lbs of cleaned cotton.

(a) Including Native States within provincial boundaries.

(b) Excluding Native States for which the yield of the current year is roughly estimated at 800 bales.

GROUNDNUT.

Final General Memorandum on the GROUNDNUT crop of the Season 1909-10.

This memorandum is the second of the series which has included returns for the groundnut crop in all those tracts in British India and in Bombay Native States which produce groundnuts to a considerable extent. The five years' figures in the tabular statement are therefore incomplete as regards Madras and Burma. The total area now returned is 940,000 acres as compared with 1,091,000 acres in 1908-09 which marks a decline of nearly 14 per cent. This tallies approximately with the decline of 14.6 per cent in the total outturn which is estimated at 413,700 tons of nuts in shell as against 484,700 tons in January 1909. The shortage as compared with the previous year is therefore some 71,000 tons. It will be noticed that since September, when the returns were made for the preliminary memorandum on this crop, large additions have been made to the Madras crop which now stands at nearly 75 per cent of the total acreage.

The following is a summary of the provincial reports. The figures in brackets, following the name of each province, indicate what percentage of the total reported area under groundnut in British India is ordinarily cultivated in that province.

Madras (70.8%).—The total area sown in *raiayatwari* villages up to the end of January 1910 is reported to be 632,000 acres, which is about 11 per cent less than the area sown in the corresponding period of last year. Villages other than *raiayatwari* report a total area of 46,500 acres which is about four times that reported last year. The total area is 678,500 acres. The condition of the crop is reported to be fair or good. The probable yield of nuts in shell is estimated to be 211,700 tons in *raiayatwari* and 10,200 tons in other villages—total 221,900 tons, as compared with 246,500 tons for last year—a decrease of 10 per cent.

Burma (15.7%).—The total area sown in the six principal groundnut producing districts is estimated at 137,000 acres which falls short of last year's actuals by 101,600 acres or 42.6 per cent. The decrease is attributed mainly to a feeling on the part of the cultivators that last year's harvest prices were unremunerative. The probable outturn from these six districts is estimated to be 61,000 tons and if 5,000 tons be added for districts not furnishing forecasts the total outturn of the province becomes 66,000 tons.

Bombay (13.5%).—The estimates are up to 10th December. The total area sown is reported to be 124,500 acres (91,200 acres in British districts and 33,300 acres in Native States) against 133,700 acres in the corresponding period of last year—a decrease of about 7 per cent. The decrease is attributed partly to the deficiency of water-supply at the time of sowing owing to the early cessation of the monsoon last year and partly to preference given to cotton and other crops. It is also due in part to non-receipt of complete information from certain districts. The season, on the whole, has been fairly satisfactory. The crop, however, suffered to some extent from deficiency of rain in July—August, particularly in the eastern tracts. The subsequent rains have improved it to some extent. The total yield is estimated to be 130,800 tons (96,200 tons in British districts and 34,600 tons in Native States) as compared with 129,500 tons (103,100 tons in British districts and 26,400 tons in Native States) for last year—an increase of one per cent. Besides this about 575 acres with an outturn of 600 tons are estimated to have been under the crop in tracts for which statistics are not usually received.

Exports.—The quantities exported during nine months of this year and the whole of the five preceding years have been (in cwts):—

	From Madras.	From Bombay.	From Burma.	From other provinces.	TOTAL.
1904-05	1,567,430	42,408	63,299	1,284	1,674,421
1905-06	1,117,037	149,559	106,578	1,040	1,374,214
1906-07	1,350,096	130,356	243,575	1,223	1,725,250
1907-08	1,218,092	93,553	212,227	183	1,524,055
1908-09	1,486,871	117,930	174,557	2,491	1,781,849
1909-10 (nine months).	1,162,976	101,437	65,488	647	1,330,548

FREDERICK NOEL-PATON,
Director-General of Commercial Intelligence.

Estimate of the Groundnut crop of the season 1909-10

PROVINCE.	AREA IN (ACRES)					
	Of current year's crop (1909-10)	Of previous year's crop (1908-09)	Average of preceding		Percentage by which column 2 exceeds (+), or is less than (-), area in	
					Column 3	Column 4
			Five years	Ten years		
1	2	3	4		5	6
Madras	678,500	718,700	533,700(a)	471,100(a)	-5.6	...
Burma	137,000	238,600	94,700(a)	...	-42.6	...
Bombay (b)	124,500	133,700	103,100	92,100	-6.9	+20.7
TOTAL	940,000	1,091,000	731,500	...	-13.9	...

PROVINCE	YIELD (IN TONS) OF NUTS IN SHELL					
	Estimated yield of current year, i.e., of area in column 2	Yield of previous year, i.e., of area in column 3	Average of preceding		Percentage by which column 7 exceeds (+), or is less than (-), yield in	
					Column 8	Column 9
			Five years	Ten years		
1	7	8	9		10	11
Madras	221,900	246,500	179,300(a)	9)	-10.0	...
Burma	61,000	108,700	47,500(a)	...	-43.9	...
Bombay (b)	130,800	129,500	72,300	59,500	+1.0	+80.9
TOTAL	413,700	484,700	299,100	...	-14.6	...

(a) Incomplete. (b) Including Native States (c) Not available

CHAMBERS OF COMMERCE.

UPPER INDIA.

We take the particulars below from the abstract of the proceedings of the Upper India Chamber of Commerce during December, 1909, just issued:—

Through Bills of Lading to the United States.

The question of through bills of lading from Cawnpore and other up-country centres to the principal ports in the United States was again considered in connection with the endeavours which the Committee proposed to make to obtain the amendment of Risk Note Form B. It was felt that the attitude of the banks offered no encouragement to pursue the matter further, and that the success of any fresh representations must depend upon the conditions of the Risk Note being amended. The trade has realized that in its present form, it is too high a price to pay for the facilities of a through bill of lading.

Customs duty on Component Parts of Machinery.

With reference to the case submitted by one of the members of the Chamber in which the Collector of Customs at Calcutta had refused to admit free of duty as "Component parts of Machinery" a consignment of emery filleting used for the renewal of grinding rollers in a textile mill, the Committee have been informed that the importer's claim for exemption has been submitted direct to the Government of Bengal.

Indians Assuming and Trading under European Names and Titles.

This matter was again considered in connection with a further representation made by the Bombay Chamber of Commerce to the Government of Bombay, and the United Provinces Government has been addressed in support of the recommendation put forward that as a preliminary measure more stringent regulations might be enforced with regard to cases in which an individual or firm assumes a title which implies a nationality different to that of the original name.

Re-Weighment of Coal Consignments.

This subject was again considered in connection with the new rules promulgated by the East Indian Railway under which re-weighment of coal at destination is undertaken on payment of a fee; and the Divisional Traffic Manager at Cawnpore was addressed on 23rd December, expressing the hope that under the new regulations the existing practice of re-weighing free of charge wagons containing coal which had been transhipped in route would not be discontinued.

State Competition with Private Enterprise.

A transcript of the correspondence which has passed between Government and this Chamber on the subject of Government competition with private enterprise has been forwarded to the Madras Trades Association. The Committee in their communication on this body pointed out that in view of the assurances given as to the stoppage of work at the Sembiam Tannery, except as regards the manufacture of water buckets and sandals for the ryots and Government Departments, they found it difficult to understand Messrs. Chambers and Co.'s statement that enlargements in the equipment of the Sembiam factory were being carried out.

Report on the Leather Industry in the Bombay Presidency.

The enquiry from the Bombay Government as to whether the Chamber would be able to arrange for the services of a leather expert to be placed at their disposal for the purpose of reporting on the leather industry in the Bombay Presidency, was considered.

The Committee informed the Local Government that before giving a definite reply, they would require for the satisfaction of the firm with whom the Committee were negotiating, to have some definite information as to the scope and objects of the enquiries which were to be undertaken.

Federation of Master Cotton Spinners' and Manufacturers' Associations.

A meeting between the local cotton mills, the Honorary Secretary of the Delhi Millowners' Association, representing the Delhi cotton manufacturers, and Mr. Arno Schmidh, the Secretary of the above Federation, was held at the Chamber on 17th December, at which the following resolution was adopted:—"That the Cotton Mills of Cawnpore, through the Upper India Chamber of Commerce, are prepared to join the International Federation of Master Cotton Spinners and Manufacturers Association." The Honorary Secretary of the Delhi Millowners' Association also intimated the readiness of his Association to join the Federation. Messrs. A. John and Co. of Agra subsequently intimated their willingness to join.

—The Russian Government has been considering the introduction of a patent law on similar lines to the Lloyd-George Act. The existing Russian law insists on patents granted in Russia being worked within five years. It was intended to draft the new law so that it exactly resembled the English one, but apparently that would be very detrimental to Russian commerce. It is now expected that the enforcement of the compulsory working of a patent in the country will be left to the discretion of Government officials. The Bill will shortly be brought before the Duma for consideration.

BALUCHISTAN AND ITS TRADE.

We take the particulars below from the Administration Report of the Baluchistan Agency for 1908-09:—Previous to the advent of the British, life and property were so insecure that the cultivator deemed himself fortunate if he reaped his harvest; the fatness of the hills, on the other hand, afforded shelter and safety to the herdsman. The spread of peace and security has been accompanied by a marked extension of agriculture, which accounts for the increase in numbers of the purely cultivating classes. Some tribes however are still largely or almost entirely pastoral, including the Marris and Bugtis; the Sulaiman Khel, Nasir, and other Afghans; and many Brahuīs.

The cultivable area of the country in comparison with the total area is necessarily small; for, with the exception of the plains of Kachhi, Las Bela and the Dasht in Makran, cultivation is confined to the limited areas lying in the centre of the valleys, where are sometimes found bright red clays, many of them highly saliferous. Elsewhere, as in the great Thal plateau, the valleys consist of loess deposits apparently formed by accumulations of wind-blown dust. In the plains the soil is generally loess mixed with alluvium. The admixture of moisture-bearing sand is the usual test applied by the cultivators to the quality of a soil.

In Baluchistan the majority of crops depend either on permanent *abi* or flood (*Sailaba*) irrigation, and those irrigated by rainfall alone (*khushkaba*) are insignificant. The *karez* is one of the un-Indian features which Baluchistan has in common with the countries of Central Asia. It is an underground tunnel driven into the great inosculating fans which spread with a slope of from 300 to 600 feet per mile from the mouths of the hill ravines into the valleys or into a water-bearing stratum elsewhere. These tunnels have a slope less than that of the surface, and acting as a subsoil drain, carry the water out to the surface. There are some 500 of them in the administered tracts. Experiments have also been made in artesian borings, with results so far successful as to lead to the hope that in some parts an artesian supply of water may be secured at a more moderate depth than elsewhere in India.

Wells used for irrigation are so far practically non-existent except in Nasirabad, but experiments made near Quetta indicate that this system of irrigation may also produce good results in the highlands.

As has been said above the waters of the few rivers of the Province are used whenever practicable for irrigation.

The season for sowing the principal crops in the plains occurs in July and August, for at this time the rivers bring down the necessary moisture. In the upper highlands the dams are filled by the winter rainfall between December and March, when wheat and barley are sown, while sowings in *abi* lands last from October to December. Here the system of cultivation in "wet" crop differs from

that in "dry" crop areas. In the former the land is first watered and then ploughed, after which the seed is sown broadcast, and for further irrigation the fields are afterwards subdivided into small plots. In the latter, wheat, barley, and other spring crops are sown with the drill (*nali*) and the seed depends for further moisture on the subsequent rainfall. In the plains where the only important crop is *jowar*, the seed is everywhere sown broadcast after the ground has absorbed the flood moisture. There are two harvests, gathered in the spring and the autumn. The spring harvest is the most important in the uplands; while the autumn harvest takes the first place in the plains.

Of spring crops, the most important is wheat. *Jowar* (*Andropogon sorghum*) is the chief autumn crop in the plains, and maize in the highlands. Dates constitute the sole crop of importance in Makran. *Mung* (*Phaseolus mungo*) and oilseeds in the plains, and tobacco and melons in the hills also occupy considerable areas. Of minor products may be mentioned barley, gram, and beans among spring crops; and rice, several varieties of millet, gingelly, cotton, and a little indigo among autumn crops. Lucerne is the most important leguminous crop and yields from May to October.

Fruit is extensively grown in the highlands, and the export is increasing. The principal kinds are grapes, apricots, mulberries, almonds, apples, pomegranates, peaches, nectarines, quinces, plums, and cherries. Much improvement has been effected by the introduction of fresh varieties. All kinds of English vegetables are grown. Excellent potatoes are produced and the cultivation is extending. The appointment of a Superintendent of Arboriculture and Fruit Growing was sanctioned in 1902, and large numbers of good fruit trees are raised and distributed. An impetus has recently been given to mulberry cultivation by the inception of sericultural operations.

A test of the increase of cultivation which has taken place in recent years is afforded by the returns of the Government share of revenue in kind. In 1879-80 the revenue in Sibi amounted to 6,575 maunds of wheat, while in 1902-03 it was 11,978 maunds; and between 1882 and 1895 the revenue in wheat from the Quetta Tahsil rose from a little more than 4,000 maunds to about 18,000 maunds. The cultivation of tobacco, potatoes and oats has been recently introduced, and sugarcane is making some way. Madder-growing, which was extensive at one time, has now ceased.

Throughout Makran the staple food is dates. Great attention is paid to the cultivation and care of the date tree and the dates of Panjgur are declared by Arabs to excel those of Basra. Though all the trees belong to the species *Phoenix dactylifera*, they are divided locally into more than a hundred kinds, according to the weight, size, and quality of the fruit. All trees are known either as pedigree trees (*nasabi*) or non-pedigree trees (*kuroch*). Fresh trees are raised from offsets, and produce fruit after three

to eight years, and continue to do so for three generations. The date season is divided into three principal periods; *machosp*, *rang* or *kulont*, and *amen*. In *machosp* (March) the artificial impregnation of the female date-spathes by the insertion of pollen-bearing twigs from the spathe of the male tree takes place. In the season of *rang* or *kulont* (June) the colour first appears on the fruit and there is general rejoicing. The harvest (*amen*) lasts from July to September, when men and cattle live on little else but dates. The fruit is preserved in various ways, the most common being by pressing and packing in palm leaf baskets (*lagathi*). Better kinds are mixed with expressed date juice and preserved in earthen jars known as *kumb*. Night blindness, which is so common in Makran, is popularly supposed to be due to the excessive quantity of dates in the diet of the people.

Both sheep and goats are very numerous in Baluchistan and constitute a large part of the wealth of the Province. The sheep are of the fat-tailed variety, a breed of which imported from Siahband near Kandahar is preferred both for meat and wool. The goats are small and not very hardy. Both sheep and goats keep in excellent condition in the hills for six or seven months of the year owing to the numberless small cruciferous and leguminous plants which afford good pasturage; but the question of fodder is one of the most difficult in Baluchistan, since no large quantity of grass exists in the greater part of the country.

Baluchistan has long been noted for its breed of horses. Even in pre-British days Baluchi horses were taken for sale so far afield as Mysore. The Government therefore found much excellent material when horse breeding operations were commenced in 1884. The stallions now employed are all Arab or English and Australian thoroughbreds, the services of which are allowed free to branded mares. The success attained has been considerable, and the Horse Breeding Commission in 1901 pronounced one of the classes of brood mares at the Sibi fair as good as anything to be seen in England. The bullocks bred in Kachhi have been pronounced equal to anything in India and are much sought after by dealers from the Panjab. The small hill bullocks are also well suited to their country.

The heavy transport of the country is done entirely on camels of which there are estimated to be some 350,000 in Baluchistan. The numbers, however, fluctuate greatly, being greatest in the cold season when there is a large influx of nomad tribes from Afghanistan. They are mostly of the small hill-bred type, excellent over rocky ground, but unable to stand the heat of the plains. As a rule transport animals are readily available, but the number varies in different parts of the country with the season of the year, and special arrangements have been made by Government to organize camels for transport purposes.

The Makran coast is famous for the quantity

and quality of its fish and the industry is constantly developing. Fish are salted and used as food by the people of the country as well as being exported to Bombay and even Zanzibar. There is fairly good river fishing in some parts, but no use is made of the fish by the people.

Coal, which is the only mineral produced in large quantities in Baluchistan, is fairly widely distributed in the Central Brahui range, and is worked at Khost, in the Sor range near Quetta, and in the Bolan Pass; but the North Western Railway which works the Khost Colliery consumes almost the whole of the output. Chromite occurs in large amount in the hills between the Zhob valley and the Takatu range and has recently been mined in considerable quantity. There is some reason to hope that petroleum may be found in paying quantities, but the operations carried on by Government between 1884 and 1892 were conducted at a loss, as were those of a private company.

The necessity for railway communication with Baluchistan was forcibly demonstrated during the second Afghan War, and the Sind-Pishin Railway owed its inception to this period. The critical year of 1885 caused its extension in temporary form up the Bolan Pass, but it was not finally completed till 1892. This line enters the Province near Jhatpat, traverses the Harnai valley and has its termination at Chaman. Its total length, including the branch line from Bostan to Quetta, is 312 miles. The surface line through the Bolan Pass was realigned in consequence of serious damage done by floods in 1889 and 1890, the lower portion being taken through the Mushkaf valley so as to avoid the heavy floods of the lower Bolan. The tunnelling on this line was extremely heavy, and the gradients are steeper than those on the Sind-Pishin line. The Quetta-Nushki Railway of 82 miles was opened in 1905, bringing the total length of railways in the Province up to 481 miles.

There has been a continual increase of roads since the British occupation, especially in the north-east of the Province. In the south and west no cart-roads exist and many of the routes are barely practicable even for camels.

—There is some likelihood of the resumption of the manufacture of vulcanite and celluloid goods on a large scale in Scotland, the factory of the Scottish Vulcanite Company having passed to another company which is extending the works so that they will provide employment for about 1,000 hands. It is expected that the factory will be in active operation by April. The Scottish Vulcanite Company (now in liquidation) was the only company manufacturing vulcanite in the United Kingdom. The staple articles of manufacture consisted of vulcanite combs, and at one time it did a considerable export trade, especially to Canada and India.

OIL AND SHELLAC MARKETS.

In the course of an article in its issue of January 29th, 1910, the *Ironmonger* says:—Although business in paints, colours and varnishes has been very quiet during January, the oil markets have all been very strong with advancing prices, and in some cases a strong tendency to "boom." Various causes have contributed to this movement, but probably the chief of them is a general appreciation in the value of food-products. This probably does not appear a very logical reason to those, like our readers, who are connected with oils chiefly in their relation to the painting and decorating trades; but a rise in food-values, and especially in what the Americans call "hog products," acts very directly upon almost all oils except the mineral group. Linseed oil feels the influence chiefly through the tendency to turn the crushing power of the mills on to edible and soap-making oils, because a large proportion of what is often devoted to soap-making is diverted to the making of compound-lard and artificial butters.

Linseed Oil.

Prices of linseed oil were high when we last wrote, but they have been considerably higher since. The total rise in the London market was at one time £3 per ton (£33 15s. casks free), and in Hull £3 5s. per ton. A little of this was lost during the third week, but has since been recovered. Some people now hold the theory that linseed oil has reached top values, and there is no doubt that during the past month there has been a remarkable increase in the use of substitutes, for the advance in these is of course never so great in proportion as in the pure oil. When there is a good £10 per ton difference between the best substitutes and pure oil the temptation to save money is very great; and, indeed, makers of the cheaper varieties of paints, and decorators who take contracts for painting jerry-built houses at low rates, are almost compelled to give up the use of the real article. The course of the linseed-oil market will probably depend a good deal upon what happens in the edible-oil markets during the next month or two, but it cannot be wrong to keep stocks low for the present. Sooner or later the price is bound to come down again, and meantime the makers of substitutes have their innings. The statistics for 1909 are as under:—

	1905.	1906.	1907.	1908.	1909.
Imports of seed	Qrs. 1,924,008	Qrs. 1,588,100	Qrs. 2,071,534	Qrs. 2,067,195	Qrs. 1,697,428
Price of oil, Dec. 31	£21 10s.	£21 7s. 6d.	£22	£21 15s.	£21 10s.

It will be noticed that the supplies are actually greater than they were three years ago, when the price was £10 lower; but we were then moving slowly up from extreme depression. Nevertheless, the actual statistical position of linseed does not alone justify the present price. It is feared that America will this spring trench upon our Argentine resources, and this is one reason for the firmness of the market.

Rape Oil.

The market for rape oil has at last begun to move upwards; what is known as English rape oil is £2 dearer on the month, and Stettin colza is better by about the same amount. The demand is not yet strong, but if the firmness of the seed-oil market generally be maintained it seems likely that rape oil will advance still further. The quantity of foreign seed is still very small, and the year's statistics are as under:—

	1905.	1906.	1907.	1908.	1909.
Imports of seed	Qrs. 181,326	Qrs. 118,149	Qrs. 261,960	Qrs. 147,490	Qrs. 139,703
Price of oil, Dec. 31	£25 15s.	£32 15s.	£33	£30	£23 10s.

Cotton Oil.

The market for cotton oil has remained very firm, and prices of the common qualities used for soap-making are about 10s. to 15s. dearer, but the supply of the finer American edible oils having run low in this country buyers have had to pay as much as the cost of imports, or about £37 10s. per ton for "P. S. Y." Some have been trying the cheaper English qualities of edible oil, but one fears without so much satisfaction as could be wished. The price of the ordinary English edible cotton oil is now about £6 below that of American. There appears to be some expectation that these oils will soon begin to get cheaper, the theory being that cotton-seed ought to be affected by the break in the cotton market, but at present it is difficult to diagnose the causes of this break, which might have resulted not from any miscalculation or exaggeration as to the short supply, but from mere market manipulation. The 1909 statistics of cotton-seed supply and of cotton-oil prices are as under:—

	1905.	1906.	1907.	1908.	1909.
Imports of seed	Tons. 568,928	Tons. 624,765	Tons. 758,152	Tons. 616,923	Tons. 600,377
Price of oil, Dec. 31	£16 12s. 6d.	£21 15s.	£19 15s.	£23	£28 5s.

The 1909 imports of seed show an increase of 28,000 tons from "other countries"—principally India—and a decrease of 45,000 tons from Egypt, where the crop was short. The Indian crop was one of the largest on record, and it is rather surprising that no more seed came in from that source of supply. It is, however, quite possible that more seed from India will reach us this year, as the price obtainable for it is very tempting.

Turpentine.

The market for American turpentine has been stronger since we last wrote, and at one time it was as much as £3 per ton in advance of the December prices, but has recently lost a little. A very steady business is being transacted, and there does not appear to be any expectation of a serious change. The present price is no longer out of proportion to other paint requisites, and the trade is fairly well

accustomed to it. The following are the usual statistics:—

	1905.	1906.	1907.	1908.	1909.
Imports	Cwt. 526,679	Cwt. 512,836	Cwt. 510,308	Cwt. 573,678	Cwt. 443,375
Price, Jan. 1.	£18	£30 5s.	£32	£29	£40 15s.

The heavy reduction in imports is a feature worth notice. It is clear that the trade in substitutes has made great strides; and it is of course well known that considerable improvement in the manufacture of these has taken place during the last five or six years. Russian turpentine keeps fairly steady at from £26 to £29 per ton according to quality.

LONDON HIDE, SKIN AND LEATHER MARKET.

Raw Hides Advancing.

WRITING on January 26th the *Leather Trades Review* says:—Business in Bermondsey has been a trifle quieter during the past week on account of the General Election. This has been accepted as a general excuse in many of the Midland centres for a partial relaxation from business, with the result that travellers and salesmen have drawn several almost blank days instead of forwarding the usual supply of orders—or at least enquiries—to headquarters.

Leather values are practically unchanged; the firm tone that has been generally experienced has continued, and leather maintains the advances put upon it since October last. Raw material necessitates such firmness, for even with condition and quality down considerably, and still depreciating week by week, prices steadily advance on certain grades. These facts are common on all raw hide markets throughout the country, so that tanners have no alternative but to ask and obtain full late rates at least—with something added whenever possible in order to get a trifle for themselves.

Raw hides at the London Butchers' Hide Company's sales last Thursday were steady, the advances numbering three in all, and these on light weights. Prime Herefords heavy made 6½d., seconds 6d. to 6½d. per lb. Calf skins were a trifle firmer, heavy 17 lbs. and up at 9½d. were an eighth up, ½lbs. squares at 11½d., and cuts, squares, under 5 lbs. at 11½d. per lb. were both an eighth dearer. All the other grades were unchanged. Horse hides were 3d. easier in 4th selection at 10s. 6d., the only change in this section. Wool skins were a penny to 3d. easier in two grades, and from a penny to 7d. each dearer in four other grades, making them higher on average. Sheep pelts were quoted the same as before, £14 to £14 10s. per 10 doz.

Last week's realised hide prices were:—

	90s.	80s.	70s.
Glasgow	6½d.	6½d.	6½d.
London	6½d.	6½d.	6½d.
Manchester	6½d.	6½d.	6½d.
Birmingham	6½d.	6½d.	6½d.
Edinburgh	6½d.	6½d.	6½d.

Leather Prices Well Maintained.

English Sole Leather.—Butts and bends: business has been much about as usual in London, a steady consumptive trade all the time. In the provinces the Election has made a difference, as whole centres are affected, whereas London is so vast that elections in one part have no appreciable effect on other distant parts. Prices have kept up to their highest points, and good class heavy bends are making 20½d. to 21d. per lb. Butts of 28/30 lbs., No. 1 selection, are making 20½d. to 21d. per lb., and light 22¼ lbs., from 20d. to 20½d. per lb. Shoulders and bellies: Deliveries continue to be made against old contracts in both descriptions, and with the new business coming along day by day for small lots, values are kept up to recent levels. Bellies are a steady sale, and a fair enquiry has been observed for the better grades of rough-dried sorts. Stocks of these are not extensive, and are usually placed as soon as ready.

Calf Skins and Splits.—These goods are in short supply, and with raw calf skins fetching somewhat higher limits, there is not likely to be any great increase of stocks just at present.

Dressing and Shaved Hides.—There has been very little doing lately in either dressers or shavers, simply the requirements of the moment being catered for. Tanners, however, are not pressing their goods, and with cost so high are content to wait for customers to come along to them, and so make their prices.

English Curried and Dressed Leathers.—Harness leathers have been quiet again, only hand-to-mouth business being recorded. Business generally throughout the country just now is affected by the elections. Prices, however, are well maintained. Chrome upper leathers: Box and willow calf move steadily, and full prices for best grades are being made. Imitation chrome, such as box hide, and willow sides are all selling steadily at full late rates. Glace kid has sold satisfactorily at old prices. The outlook favours a keener demand at firmer rates, unless a decided decline occurs in the raw material.

Kip butts maintain their full values, and with the firmer tone of the kip market there is little present prospect of relief. The demand is well up to the average for January.

English Sheet leathers.—Skivers have been quieter as a rule during the past week. Stout grades are short, and are usually placed against old contracts. Ordinary and thin goods are not a very brisk sale, as just now the fancy trade is usually quiet. Prices are unchanged, and fairly firm all round. Basils: The trade doing is of the small and frequent descriptions. Best selections of soft and strains are meeting a steady sale at current rates. Colonial basils have been on the quiet side, and prices are about as they were. Chamois crust: Demand has been a trifle better lately, and prices are pretty firm. Stocks are in moderate compass, and with raw material still too dear, dressers have to keep firm at their limits in order to make ends meet.

London Skin Prices.

Pelts.		Pelts.
Pelts		£14 to £14 10s. per 10 doz.
The London Butchers Hide and Skin Company's price list for January 20th is as under:—		
Hides Dehorned.		per lb.
Herefords and Rts.		90/ up 6½
"		80/89 6½
"		70/79 6½
Seconds		90/ up 6
"		80/89 6
"		70/79 6½
Ox and Heifer Hides, 1st		90/ up 6½
"		80/89 6½
"		70/79 6½
"		60/69 5½
"		53/ un 5½
Ox and Heifer, 2nd		90/ up 6
"		80/89 6
"		70/79 5½
"		60/69 5½
"		59 un 5½
Cows, Devon		5½
" heavy		60 up 5½
" light		59 un 5
		per lb.
Cows, cuts, all weights		5½
Casualty		5
Bulls, 1st		5½
" 2nd		5
Kips, 1st		5½
" 2nd		5½
Calf.		
17/ up		9½
9/16 (without heads)		11½
½ (without heads)		11½
Cut (without heads, under 5 lbs.)		11½
Cut (with heads)		9½
Kip Calf		8½
Casualty		7½
Horse Hides 1st 21/6, 2nd 18/9, 3rd 14/3, 4th 10/6		
Wools 3/0, 4/0, 5/4, 6/2, 7/2, 8/4, 9/7		
Hogs 3/6, 4/8, 5/6, 6/7, 7/8, 8/10, 10/0		

EASTERN BENGAL AND ASSAM.

Crop Reports.

(By Telegram.)

Shillong, Feb. 15th.

The following is a summary of the weather and crop reports of Eastern Bengal and Assam for the week ending 14th instant:—

The weather is dry. Rain is needed for standing crops.

The transplantation of spring rice is going on with good prospects.

The pruning and hoeing of tea, pressing of sugarcane and harvesting of mustard are in progress.

Preparatory cultivation for jute and other autumn crops continues.

The prospects of linseed, wheat, tea, tobacco, sugarcane and mustard are good.

The average price of common rice has fallen one per cent.

Cattle disease is reported in Dacca, Mymensingh, Sylhet, Darrang and Sibsagar.

HAND-LOOM WEAVING IN INDIA.

MR. H. HOOGEWERF, A.M.S.T. (Manchester), contributes the following article to the current issue of the *Quarterly Journal* published by the Department of Agriculture, Bengal:—

We learn from history that in the early ages before the invention of machinery and prior to the introduction of the most primitive looms, our ancestors clad themselves in the skins of animals, or platted fabrics made from the leaves and fibres of trees. The material constituting the cloth was cut in strips or roughly twisted into yarn from coarse fibres which were manipulated by hand. Our forefathers were people of simple habits, and their requirements were few, but as civilisation advanced, the demand for more refined fabrics also increased. As time went on, it was found that some fibres with short staple could easily be twisted into thread by laying them parallel and drawing them out; however ages past before platted garments were exchanged for woven fabrics.

The origin of this ancient craft seems to have found birth in India some thousand of years ago, as we read from history that the princes and nobility of India were clothed in the gorgeous product of its looms long before civilisation had yet reached the shores of Europe. This added greatly to the wealth of India. The only other country where weaving was known was Egypt, but India stood unrivalled for its fabrics. Moreover, it appears that looms were first invented in the East. India may therefore justly claim to be the birth place of the weaving industry. It seems a deplorable fact, then, that the once famous hand-loom weaving industry of India, should be allowed to fall into decadence. Some of the cloths of India, such as the Dacca muslins, still remain unrivalled both as regards texture and the fineness of the hand-spun yarns, from which they were made. I have it on good authority that the counts of these hand-spun yarns although rather uneven, registered on an average 500 counts, and were spun by hand from a short staple cotton with a very large percentage of natural twist in it. Yarns of such high counts cannot be spun except perhaps with the greatest difficulty, on the most improved machinery of the present age. In spite of these facts, it is surprising that the development of this most important industry should have been left entirely to other nations to bring it to its present standard of efficiency.

The decline of the hand-loom weaving industry in India seems to date from the development and improvement of the hand-looms in Europe about some 200 years ago. It is true that the Danish settlers introduced European fly-shuttle looms into Serampore during their occupation of the town, but for unknown reasons it does not seem to have spread in the country. In fact, it was almost lost sight of, until very recent years. The advent of the power-loom into India has further disheartened the hand-loom weavers as their primitive looms cannot keep pace with the greater output of power machinery, and with

the cheap prices at which machine-made goods are being sold in the market.

The inventive faculty of the Indian weaver has been dormant these many centuries, and he seems to have yielded the palm without even a struggle to his more enterprising opponents, who have come to the front by improving their machinery. It would perhaps be of some interest to trace the rise of the improved European fly-shuttle looms from the decline of the Indian hand-loom weaving industry.

Before the invention of the fly-shuttle loom, the weavers used to throw the shuttle across the warp thread by hand, and with the other hand it was brought to a standstill and the operation was repeated throughout the weaving of the cloth, but this method was found to be too slow. In the year 1733, John Kay improved on it, in-as-much as he made an arrangement by which the weaver could actuate the shuttle by means of a handle and two cords attached to it. To the ends of the cords he attached two pieces of leather running through two steel spindles. When the weaver wanted to shoot the shuttle in either direction he had simply to give the cord nearest to the shuttle a pull in the direction in which he wanted the shuttle to move. By this method he found a considerable increase in production, and the result was that the hand spinners were not able to keep pace with the weavers and many of the looms were consequently stopped for want of yarn. Highly elated with this simple and effective invention, he went further and constructed a shuttle box at either end, with a series of trays arranged one above the other, in which, when required, shuttles with different coloured yarns were put. These trays were corded up and the two ends of the cords were attached to a lever in the centre of the slay and by the actuation of this lever, the weaver could raise or lower them to any required height, thereby selecting the colour of yarn he wanted. Later he made another device, by which he fixed a rack on these trays or drop boxes, and so arranged them, that the trays with the required shuttle came exactly level with the slay or shuttle race, and there was no difficulty in the shuttle being shot across as before when the elevation of the drop boxes depended entirely on the skill of the weaver. As time went on the weavers found that much time was lost in constantly having to jump up, and let off the warp as the cloth got woven; this difficulty was overcome by riding good stout cords, across at either end of the warp beam and attaching weights at the ends of the cords. This very simple device reduced a twofold good result; the weavers found that the cloth woven on such looms was of better appearance and in addition to this they found that the yarns used had not to be strained so much and they could weave finer cloth.

The cloth-taking-up motion was the next improvement and this was easily done by a train of wheels. As the loom advanced in mechanism and the different motions were made automatic in their action it was found that stronger reeds were necessary. Before

"beating up" was done by reeds, combs or swords used to be employed, but these were found unsatisfactory as the beating up was never regular. Reeds were made formerly of pieces of bamboo or cane split up into fine splints and bound together at the ends according to the dents per inch required and the bound ends were dipped in tar to fix the lapping. Nowadays, the same process is still carried on, but instead of bamboo or cane, steel strips are used and the reeds are made by machinery at the speed of nearly 3 to 4 hundred dents per minute.

The first power-loom was invented in the year 1661 by a certain Mr. Darsik, but nothing came of it as it is believed that he met with an untimely end. In the year 1678, a French Naval Officer introduced another power-loom, and he claimed that it would do wonders which the most up-to-date looms of the present times cannot do. We know very little of him too. However, their two inventions had a peculiar effect on the weaving industry and although the inventors and their looms fared badly at the hands of the weavers, yet it did not prevent people from carrying on experiments. In the year 1785, Dr. Cartwright was far more successful than his predecessors had been with their power-looms. He was a far-sighted man, and thought that if the power-loom was to be a success, it would have to be organized on the factory system. He was of an inventive mind, and had an ample supply of capital. After carefully going into the matter with some of his weaver friends, he made his first loom in the year 1785, but after it had been constructed, he found that the power required to drive it was very great and that it compared very unfavourably with the hand-loom. However, he was not to be beaten, and in the year 1786 he made his second loom on more improved lines. Little by little he invented the automatic shuttle, the warp stop-motion and weft stop-motion. He used to let his looms out on hire, but the people who either hired or purchased them were constantly molested by the hand-loom weavers. He built a mill in Yorkshire in 1787, and when he actually started working he found many deficiencies which he overcame slowly. In 1792 he made his last patent, and this was the introduction of trays for carrying many shuttles, which were arranged horizontally. The fabrics turned out by these looms were of much the same quality as those turned out on hand-looms, but they were no cheaper, on account of the loss of time in putting in the picks. Fifty-six picks per minute was all they could do, and 37.8 per minute continuous working. Dr. Cartwright also attempted to make an automatic loom by which the yarn was drawn off directly from the bobbins arranged on a V-shaped creel, and the warp thus made went through a sizing vat with a brush in it, which put on the size, and the yarn was conducted round heated rollers in order to dry it, and then it was drawn directly through the halds and reeds. This idea of his, which was not successful, is at the present day being patented by a firm of loom makers and it is likely to result in something good.

With the introduction of sized warps, it was found that one weaver could look after two or more power-looms although the looms were still very imperfect. One improvement followed another; but in the long run, the up-keep of power-looms was found more expensive on account of the troubled time the industry passed through and the scarcity of labour.

During the development of the power-loom great improvements were also being effected in the several branches of spinning, finishing, bleaching, dyeing, and in the steam engine. To keep pace with this new revolution in machinery it was found necessary for the cotton growers also to improve the general condition of things and to cope with the great demand for cotton.

The following data will tend to show the growth of the industry. From 1701 to 1751, the increase was 2,500 bales of 400 lbs. each, the total amounting to 7,500 bales in all:—

In 1780 the consumption was	16,750 bales.
In 1790 ditto ditto	77,500 "
In 1800 ditto ditto	1,40,000 "

This development was not due solely to the increase of power looms but also and chiefly to the vast quantity of yarn consumed by the hand-looms which increased considerably during this time.

Robert Miller of Glasgow and William Horrocks of Stockford were the next prominent inventors of the power-loom after Dr. Cartwright. Robert Miller patented his power-loom in 1796 about 4 years after Dr. Cartwright gave up his researches. He discarded springs and used motive power for the first time for actuating the shuttle directly. He used cams and levers which acted on a shaft, thus rocking it from side to side. To this shaft, a lever was fixed at right angles and to it the two pickers were attached by hands. Cams were used to operate the heads and to draw back the slay. The beating up was done by the stored up energy. The taking up motion was borrowed from the hand-loom. He employed the swell and protector of the present fast reeds stop motion to prevent the breaking of the warp when the shuttle was caught in the shed. Horrocks employed two cranks instead of the central one used by Miller and Cartwright. He also introduced the tappet shaft and improved the power-loom considerably. This was in the year 1882. After this one improvement followed the other and the speed of the loom was increased from 80 to 120 picks per minute.

From about the year 1830 spinning was done by machinery and one frame could produce as much yarn as 200 persons with their old spinning machines. As for the power-loom, the production was reckoned at about three times as much as a hand-loom could turn out on equal footing.

From 1813 to 1818, there were altogether 11,750 power-looms in Great Britain.

In 1820 the power-loom rose to	14,150
In 1833 ditto ditto	100,000
In 1860 ditto ditto	400,000
In 1882 ditto ditto	500,000
In 1905 ditto ditto	652,166

and in this year there were 45,972,951 spindles employed in keeping these looms going.

In the year 1882, there were 686,000 persons employed directly in the cotton industry.

From 1800 to 1830, the consumption of cotton was increased from 140,000 bales to 600,000 bales.

By 1860, it increased to 2,709,000 bales.

In 1882, the consumption was 4,423,000 bales.

In 1903 the three cotton growing countries, namely the United States of America, Egypt and India, produced 17,530,000 bales.

From 1820 to 1833, the hand-looms increased from 240,000 to 250,000.

Other inventions followed in textile machinery of Europe until they arrived to their present state.

During this period of advancement in machinery in Europe little or nothing has been done by Indian machinists to improve their possession and to keep pace with the other countries.

A short while ago a great deal of agitation prevailed all over the country for the revival of the hand-loom weaving industry. Investigations were made by Government and philanthropists, and it was found that though the industry was in a state of decline, yet the output of the hand-loom weavers, according to statistics with their primitive looms, amounted to nearly three times that of the power-looms and that in spite of the decline it still possessed great vitality. These revelations have led to the opening up of weaving centres by Government missionary bodies and some of the Native States where the more improved methods of weaving are being taught on a commercial basis and as an art. As far as the missionary bodies are concerned, they are carrying it on according to the factory system, thereby not only instructing the weavers as to the use of the modern fly-shuttle looms, but also making their centres self-supporting.

The Salvation Army specially under the able guidance of Commissioner Booth Tucker is doing a great deal towards the revival of this industry, besides using it as a means of reclaiming the lower classes of weavers who had abandoned weaving and had taken to other pursuits, which I am sorry to say, do them no credit. The object of the Government, on the contrary, seems to be to impart a more thorough course of instruction to their students, thereby developing the industry and at the same time ameliorating the position of the poorer weavers.

The Government Weaving Institute in Serampore may be cited as an instance. At this institute instruction is being imparted to two distinct classes of students: the higher class and the lower class. The students of the higher class are not only being instructed in practical weaving, but also in the different branches that make weaving an art. The students who are chiefly young men of respectable Brahmin and Kayastha families are going through a course of textile fibres, the preparation of yarns, fabric structure, design and analysis of cloth, costing of cloth, practical weaving, model drawing, freehand drawing, sketching of textile machinery, engineering

drawing and textile chemistry. The lectures in these subjects are in English and the standard of admission has been fixed for boys who have passed their Entrance Examination of the Calcutta University. They will also be encouraged to appear at the examinations of the City and Guilds London Institute which are being held annually at Bombay. Efforts are being made at present to have these examinations, if possible, held in this Province.

The admission to the Lower Standard is limited only to the weaving classes who are not only afforded opportunities of working practically on the various types of looms at this Institute, but they are also taught freehand drawing, structure of standard cloths, for which there is a demand in the market, and their analysis and designs. This Institute has not only been made a centre for instruction, but it has also become a centre where the work at 5 other weaving schools which are shortly to be opened up in Bengal will be controlled. The teaching given at these outlying weaving schools will not be of a such high standard as that given at Serampore, but it will be made suitable to the mass of the weavers. Arrangements will, however, be made for the drafting of some of the more intelligent of the weavers from these centres to Serampore for a higher course of instruction if necessary. The instruction given at these weaving schools will be imparted through the medium of the vernacular. The course of instruction will be for a period of about 4 months. Both adult weavers and sons of weavers will be admitted to instruction.

The tuition both at Serampore and at the other outlying centres is free. The Government has offered 80 scholarships ranging from Rs. 4 to Rs. 15 per mensem as an encouragement to the students. Arrangements have also been made for providing free quarters for up-country students. At present there are about 90 students at the Serampore Weaving Institute including the higher and lower classes. This Institute is doing excellent work and it is impossible to gauge fully the extent of the work through the medium of bare reports of facts and figures. It has filled a long-felt want in this Province and it would be a great boon to India if some of the philanthropists and the national leaders would make up their minds to ameliorate the condition of their fellow countrymen by opening up weaving centres on a similar basis instead of wasting time in speeches which seem to have resulted in no good whatever.

—The Divisional Forest Officer, Goalpara Division (Assam), will sell by auction on the 17th instant about 500 sound seasoned sal logs cubing 7,500 c. ft. more or less at Tipkai Railway Station, E. B. S. Railway; on the 19th instant about 500 sound seasoned sal logs cubing 10,000 c. ft. more or less at the Sapatgram Railway Station, E. B. S. Railway; and on the 21st instant about 500 sound seasoned sal logs cubing 7,000 c. ft. more or less at the Kokrajhar Railway Station, E. B. S. Railway. Special arrangements have been made with the Railway for favourable rates of freight.

CAN SUGAR PAY IN AUSTRALIA WITH WHITE LABOUR?

An article on this subject appears in *Tropical Life* for January and from it we take the particulars below:—

The first heavy cane-sugar crop taken off Queensland under "white labour" conditions realized to the full the unpleasant anticipations of the growers as to the scarcity of suitable white labour, for though the great bulk of the growers, large and small, accepted the position, and have striven to carry out the new "white Australia" policy, they could not help feeling that the anti-Kanaka legislation was passed by the Federal Parliament under misapprehension of the facts of the position. "Where Kanakas had harvested 2½ tons of cane per day per man," reports the *Australian Sugar Journal* issued by the Australian Sugar Producers' Association, "white labour harvested but 1¼ tons, and at much higher wages per day. This meant a great increase in the cost of harvesting and a reduction of profits." In spite, too, of the high wages offered—sufficiently high to draw men from other districts and even from other States (a large number of white workers migrated from Victoria, South Australia, and New South Wales to assist in taking off the Queensland sugar crop)—the supply of labour fell far short of the demand. Large areas of cane, therefore, had to be left standing at the end of the season to take its chance for the next crushing, whilst planting was out of the question, and cultivation suffered considerably. This would look, therefore, as if the "white labour" experiment is not altogether proving a success. To give some idea of the labour necessary, we would add that, according to official statistics, upwards of 4,300 hands were employed in the mills alone, and during the year their salaries and wages aggregated £294,479, whilst over £1,000,000 sterling was paid to the cane-cutters and field labourers who produced and delivered the sugar at the factory. Furthermore, it seems that the full force of the loss to the labour market by the deportation of the Kanakas has yet to be felt. It will be quite another year before all the cane-fields planted by Kanakas will have been ploughed out. Consequently Queensland will not feel the full significance of the enforced "white labour" rule until this year (1910). As the planters already seem to be in enough trouble over the cutting, it is unpleasant to think what their lot will be in another twelve months' time. The West Indian planter is a happy man compared to what the Queenslander is likely to be, unless circumstances vastly alter.

Talking of the West Indies reminds us that the Queenslander is said to have found the Indian coolie of a somewhat refractory and dangerous disposition, from whom it is not wise to differ. If this is so, either the coolies must be very roughly or unfairly handled, or else allowed to get slack, and so in time of stress it is difficult to work him up to "crop-pitch." We have had some years of experience

with coolie labour in the West Indies, both free and indentured, and though they do give trouble, especially when they feel aggrieved, we never remember any West Indian report speaking of its being unwise to have a difference of opinion with the coolies.

Early last year a deputation of the Australian Sugar Producers' Association waited upon Mr. Kidston, the Queensland Premier, to urge upon him the necessity of trying to obtain agricultural labourers from Europe. In reply, the Premier agreed that it was earnestly to be desired that a small but regular stream of immigrants should come out to increase that supply and raise the standard of labour, especially in the sugar-fields.

Meanwhile, as Mr. Montgomerie Hattrick pointed out, the substitution of highly paid white labour in place of Kanakas, adds one more strong argument to the already long list, for better and more intensive methods of cane-culture, and the adoption of labour-saving machines, light railways, cane-carriers, cane-grabs, etc., as Louisiana has had to resort to for some years past. For this reason we are glad to see that Llewellyn Jones and Scard, in their "Manufacture of Cane Sugar," when speaking of transporting canes, mentioned that in hilly districts, overhead ropeways are frequently made use of, for this is a practical and economical way of overcoming the question of transport, the lack of which is keeping back many centres. In Mauritius, Messrs. Bullivant have erected overhead ropeways which are, we understand, used with most satisfactory results to the estates. On large estates, the overhead ropeway can also be fed by light portable railway lines, temporarily laid down by the labourers at right angles to the ropeways. Over these lines skips or cars are run which, when filled, are pushed by hand down to the ropeways. There the full skip or car is hitched up, leaving the bogey behind, and a returned empty car is put on the bogey and sent back to the fields, whilst the full car speeds on its way down to the sugar mill. Some such system, modified to suit local requirements, saves both time and money, both very important items on a sugar estate when crop is on. Also not having the locomotives running up and down between the canes, the risk of fire from cinders, sparks, etc., is eliminated.

Improved methods of ploughing, conducted with a view to reducing the cost, will also have to be discovered, for at present insufficient and ineffective tilling and cultivation, that seems inseparable with imported labour—at least in Queensland and the West Indies—must give way to improved methods if white labour only is employed. Without more adequate manuring and labour-saving ploughs and cultivators, the minimum of cost cannot be reached, whilst the maximum of output will also be missed, and it is only by obtaining these two—maximum production at a minimum of cost—that a profit can be realized, and the future of the Queensland, or the West Indian sugar industry assured. Since 1900, the Bureau of Sugar Experiment Stations in Queens-

land under the able direction of Dr. Maxwell (who with Dr. Stubbs, in Louisiana, and Prinsen Geerligs, of Java, stands unrivalled for expert knowledge in sugar production and cultivation), has been actively engaged in investigating the many problems connected with the cultivation, irrigation, manuring and improvement of varieties of sugar-cane in Queensland, and from the data that this Bureau has made available Mr. Hattrick compiled a very useful pamphlet on the question of sugar production in Queensland and Australia.

The data given in Mr. Hattrick's pamphlet show a serious falling off in yields, which is attributed by Dr. Maxwell to three main causes—(1) removal of plant food elements from the soil by cropping, (2) poor cultivation, and (3) diseases to which soil exhaustion and consequent lessened plant vitality are predisposing causes. The remedy here, as elsewhere, clearly lies, therefore, in improved methods of ploughing and cultivation, and a more systematic use of the proper manures.

OUTLOOK FOR COMING WOOL SALES.

In its issue of January 15th the *Statist* writes:—The holiday season is over, wool-men have once more got their nose to the grindstone, and interest in the course of the raw material is undiminished. Next Tuesday the first series of Colonial sales for the current year begin, and already it is a foregone conclusion that another excellent reception awaits the wool that is available. Everyone seems to be in a very good temper, and users will welcome the opportunity of once more acquiring new stock. The trade cannot be called bare of supplies of merinos as direct imports are certainly considerable; but so far as crossbreds are concerned, there is wool hunger which is almost without parallel. A great deal has happened in the crossbred world since the close of last November sales, more life and activity being manifest in coarse qualities than for some time back. In fact, all through 1909 36's to 40's wool somewhat hung fire, and business in a large measure was slow and unremunerative, it only being the last three months of the year that any good was done in the handling of coarse descriptions. So far as fine wools are concerned they have held their own in a creditable and dignified manner, and the price of super 60's tops has not really varied a great deal during the vacation. With the beginning of January (this year) the cheap contracts fixed up last October became operative, and fine tops are being delivered to-day on a basis of 25d. to 26d. for 64's. This may have some effect upon the forthcoming auctions, but all the same there is certain to be an excellent demand for the raw material, which cannot but make itself felt upon all consuming centres. The interval has been characterised by a good deal of activity, and taking things as a whole everything is sound and prosperous.

Let us for a few moments go back over the past year, for it is well worth contrasting present prices

with what obtained at this date in 1909. When the January series came round wool of every description was at a reasonable figure, and upon that basis the prosperous extile industry of last year was founded. Cheap or reasonable supplies always stimulate demand, and that is exactly what we have seen all through 1909. To-day a new era opens, and although trade is very good, yet there is an altogether higher range of values commanding the attention of the trade than users have been recently accustomed to. The monetary side plays an important part in helping to make or mar trade, and wool at £16 to £18 per bale is a very different price to £13 to £14, which was the price ruling a year ago. However, the best thing we can do is to contrast to-day's ruling rates for good standard descriptions of tops on the Bradford market with the corresponding date in 1909, and the following shows the difference in quotations:—

	Jan. 14 1909.	Jan. 12 1910.	Advance.
70's Colonial tops . . .	25½	28½	3
64's " " " . . .	24½	27½	3
60's " " (ordinary) . . .	22½	25½	3½
56's " " " . . .	18½	23½	5
50's " " " . . .	16½	21½	4½
46's " " (prepared) . . .	13½	17½	4
46's " " (carded) . . .	13	17	4
40's " " (prepared) . . .	12	15½	3½
40's " " (carded) . . .	10½	14½	4
36's " " (prepared) . . .	11	14½	3½
44's " " (pick hog) . . .	13½	17½	4

The question of supplies is engaging a good deal of attention, and we rather incline to think that in some quarters there is a lot of tub thumping being done, and more than is necessary. All through the past vacation the fear has been expressed that the arrivals for the forthcoming series would be very small in consequence of the wool not being shipped from Australia on account of the prevailing strike last November and December, and when we estimated supplies at near hand 160,000 bales some ridiculed our figures. As an actual fact 180,000 bales are available, and we venture to say that this is the beginning of large arrivals from Australasia. We have no desire to minimise the importance of the certain shrinkage in the River Plate clip, but we strongly incline to think that the increase from Australasia will about atone for the deficiency in the former, and in our opinion there is in sight enough wool to meet the demands of the entire trade. No doubt English buyers have purchased sensibly less in Buenos Aires than they did last year, largely on account of being unable to bring in tops on the Bradford market at the limits cabled out. Evidently Continental buyers have been disposed to take greater risks, and as circumstances are turning out, they have acted wisely. At the same time, we cannot see through any policy which means greatly enhanced values for any class of wool. Trade no doubt is very healthy and sound, but neither merinos nor crossbreds can now be played with as was the case a year ago, and in our opinion prices are high enough.

The following table, showing the net available quantities for the January series, is well worth considering, and included in the total we also set forth the quantity of New Zealand wool:—

	Gross Arrivals.	New Zealand.	Net Quantity.
	Bales.	Bales.	Bales.
1910	405,500	41,000	180,000
1909	354,500	41,100	187,000
1908	353,300	38,000	187,000
1907	275,000	37,000	155,000
1906	291,500	28,000	165,000
1905	235,000	29,000	147,000
1904	190,000	39,500	137,000
1903	216,000	42,000	141,000
1902	211,500	59,700	193,000
1901	250,000	70,000	339,000*

*133,000 bales were carried forward from the December series, 1900, to the January series, 1901.

The outstanding feature of the above is that there is practically the same quantity of wool available this series as there was at the corresponding series a year ago, and the same quantity of New Zealand. But the most important point of all is that there is already a larger movement of wool direct to manufacturing centres, this year no less than 229,000 bales having been forwarded, compared with 181,000 bales a year ago.

Prospects point to merinos next week maintaining fully last sales' best prices, and the same can be said for fine crossbreds. These are in all conscience dear enough, although we expect with America being present in good force some high prices will be paid for 50's to 56's quality. Medium crossbreds may advance 5 per cent., and coarse 10 per cent. and these advances will certainly bring wool up to a level where speculation and erratic buying cannot be recommended.

—The clearances of silk at the Lyons Conditioning-house during the week ended January 19th amounted to 151,332 kilos, as compared with 165,496 kilos in the preceding week, and 142,861 kilos in the corresponding week of last year. The following is a detailed comparison:—

Week ended Jan. 19th.	Thrown			Total. Kilos.
	Organzines. Kilos.	Trames. Kilos.	Raw. Kilos.	
1910	18,463	26,647	106,272	151,382
1909	17,110	23,061	109,690	142,861
1908	20,634	23,765	88,816	133,215
1907	20,411	24,006	118,078	162,495
1906	15,963	20,626	87,172	123,661
1905	17,867	21,628	83,873	123,368

The persistent dulness of the market may be taken as proof that the purchases of December have provided for the immediate needs of manufacturers. So far as may be judged from the small transactions current prices are maintained well enough.

BRITISH TRADE AND INDUSTRY IN 1909.

In its issue for January, the *Journal* of the London Chamber of Commerce publishes a review of British trade and industry in 1909. It writes:—

In our previous "Review," when forecasting the course of trade in 1909, we expressed the opinion that a general revival might set in by March or April, at the same time pointing out that much would depend upon the financial provisions to be made to meet national necessities. That opinion was fully justified by events. In the spring signs of improving trade were clearly discernible, by the middle of the year the trade figures manifested an upward tendency, and in the last six months steady—if slow—progress was recorded in several branches of industry, most notable exception being the cotton trade. Unfortunately, however, affairs political have not been such as to inspire that confidence and stability which is so essential to progressive commerce and industry, for it will, we think, be generally conceded that the sense of insecurity which—warranted or not—has undoubtedly been felt by many capitalists, has had some retarding influence upon trade expansion in this country.

Taking the trade returns for the eleven months ended November last, it is at once seen that, despite the improvement which set in during the latter half of the year, the figures relating to the export trade were lower even than those of the previous year of acute depression. Exports of British and Irish produce and manufactures were valued at £344,590,000, a decline of £3,228,000 as compared with the same period of 1908, and of £48,873,000 if contrasted with that of 1907. Exports of foreign and colonial merchandise totalled £81,731,000, which shows an increase over the eleven months of 1908 of £10,252,000, but a decline from 1907 of £3,522,000. Similarly the imports, which aggregated £563,995,000, were greater than in 1908 by £27,630,000, but less than in 1907 by £25,916,000.

While it is possible to gauge the volume of our export trade from the above figures it is exceedingly difficult—and in many cases impossible—to obtain reliable figures as to our home trade. Last October, it is true, saw the publication of the first series of statistics, collected under the Census of Production Act, relating to the production in 1907 in mines, as in cotton, woollen, worsted, tin plate and iron and steel factories. But until this Census of Production has been taken on successive occasions—and, it is hoped, the publication of the results accelerated—thus enabling effective comparisons to be made, we must still rely almost entirely upon reports from the different industrial centres such as those given in this "Review." From these it is apparent that the record of 1909, although better in some respects than that of its predecessor, was an exceedingly unsatisfactory one, particularly in the first half of the year. In the staple industry of Lancashire it was, indeed, one of the worst periods ever experienced; unlike other trades, the depression became more pronounced month by month, and at the end of the year the situation was anything

but encouraging. Short time was run in the mills from the beginning of July, and it is estimated that some 20 to 25 per cent of the spindles and looms in Blackburn have been for some time, and are still, standing idle. Undoubtedly, both cotton spinners and manufacturers have lost a good deal of money in the year that has just passed away. In the shipping trade a worse year was seldom experienced, with low freights and high and increasing running expenses. For the iron and steel trades 1909 was worse even than 1908 and, in addition, severe competition was experienced in the home and foreign markets alike, particularly from Germany and Belgium. Attention is specially called by our Glasgow correspondent to the thousands of tons of half-finished products which are imported at prices with which Scotch makers cannot compete, which aspect of the trade was recently brought before the Glasgow Chamber and Commerce, and is also commented upon by our Cardiff and Wolverhampton correspondents. Shipbuilding was perhaps a little better last year than in 1908. On the Clyde, for example, some 50,000 tons more were launched, but this total was 200,000 tons less than in 1907. In the building trade the year was one of the worst experienced, and, coming as it did after two successively bad years, the consequences were deplorable, both in regard to unemployment of workmen and failures of builders. The coal trade, although a small increase is shown in the export figures, has been severally hampered by a spirit of unrest, the Eight Hours Act having been the cause of much wordy strife and threats of strikes and lock-outs. On the other hand, it is pleasant to record a decided improvement in woollens and worsted; topmakers were exceptionally well favoured, but manufacturers have not experienced so substantial an improvement, the rapid rise in prices hampering business. Similarly a much better tone has prevailed in the linen, lace and hosiery trades. But, on the whole, 1909 must be described as an unsatisfactory year, with lack of employment for the workers and small profits to manufacturers, who generally experienced low prices for goods, with an advanced cost of most raw materials.

It is satisfactory to see, however, that there was a large decrease in the number of failures in 1909 compared with 1908. According to *Kemp's Mercantile Gazette*, the total last year was 9,389, as against 10,196 in 1908, and it is also the lowest total since 1899 when the figures were 9,113. "It is quite impossible to say," states the *Gazette*, "how much of this improvement is due to brisker trade and better business and how much is the result of that clearance or 'shake out' which took place in 1908, when so many of the weaker ones went to pieces. But, at least, it is a hopeful sign."

Unemployment remains one of the most serious problems to which statesmen and others can direct their energies. During the past year the tide of unemployment was again exceptionally high, and, although it is gratifying to record a small proportional decrease in the number of skilled workers without employment, the percentage is still abnormally

high, while it is doubtful whether the number of unskilled labourers who are unemployed has yet been materially decreased. The Board of Trade's monthly percentages of unemployed, based upon returns from trade unions paying unemployed benefits, and aggregating some 700,000 members, were as follows:—

	1908.	1909.
January	5.8	8.7
February	6.0	8.4
March	6.4	8.2
April	7.1	8.2
May	7.4	7.9
June	7.9	7.9
July	7.9	7.9
August	8.5	7.7
September	9.3	7.4
October	9.5	7.1
November	8.7	6.5

The above figures, however, do not afford a complete picture of the volume of unemployment as a whole. Apart from the lack of information as to the employment of unskilled—and much skilled—labour, it must be borne in mind that the Board of Trade figures do not, naturally, take into account whether men are fully or only partially employed. For instance, for the last half of the year short time was continuously worked in the cotton trade, yet this lack of full employment is not indicated in any way by the official figures, as a man working, say, four days a week is returned as "employed" in the same way as a man who is working six days a week.

Some indication of the general trade prospects for the New Year is always expected in this annual "Review"; and it is with no little diffidence—we had almost said trepidation—that we now endeavour to meet that expectation. Modern trade and industry are so complex, they are from time to time affected by so many extraneous and fortuitous circumstances, that it is exceedingly difficult to form reliable conclusions as to the trend of commerce in the twelve months ahead. For 1910 the outlook is, even more than ordinarily, blurred by the political situation. It opens with a general election, the outcome of which—no matter which Party is returned to power—cannot fail to have an important influence upon the trade of the country. Apart, however, from such influences, there are distinct indications of better times ahead, the weak spot at present being the cotton trade, where the outlook for the future is certainly discouraging. In iron and steel and shipbuilding it is doubtful whether there are yet solid reasons for anticipating any great improvement although there is general feeling of hopefulness among those engaged in these trades, which we trust will be justified. For the woollen and worsted trades the prospects appear to be fairly favourable; Belfast linen manufacturers are booked ahead for several months; and the flax and jute factories of Dundee are well employed, with an increasing export demand. The economic conditions generally, but particularly in the United States, South America, India, Australia and Canada, appear to have decidedly improved, which must have a beneficial effect upon our trade. Viewing the

situation as a whole, but always bearing in mind the reservations mentioned above, we think that the improvement manifested during the latter part of 1909 will be continued and extended, and that there is good ground for anticipating a healthier condition of trade in the year just begun.

THE MEANING OF "ALL WOOL".

THE *Textile Mercury* of January 22nd writes:—Those who have followed the law-suits of the last few years will have no difficulty in recognising the growing importance attached to trade names. The Witney instance [referred to in the *Indian Trade Journal* of December 30th, 1909, page 362] is one of the most significant; and in addition there are the various prosecutions undertaken because of the incorrect naming of peasant-made tweeds, of Irish linen, and so on. The Witney case has been particularly unsettling, in part because it has raised the question of how soon Bury and Ayrshire may bestir themselves in the matter of the common use of their place names on blankets. Whether the Witney makers' triumph will infect others in one trade or direction is considerably less certain than that it will have a strong influence at large.

There follows on that prosecution a circular request from the London Chamber of Commerce asking other Chambers whether they will continue to take joint action in reference to the practice of misrepresenting goods. This being received at Leeds it has caused the Chamber there to consider its own attitude on the far-reaching question of the use and misuse of the words "all wool." Members are to be asked their opinions, and this step is doubtless more necessary than those who understand neither woollens nor trade custom might suppose. Before the Board of Trade is pressed to submit any more delicate trade customs to the London aldermen, it will be advisable for manufacturers to make sure of what they really mean and want.

The Leeds Chamber apparently has in view that exceedingly common form of misrepresentation which consists in advertising as all wool, indigo dye, etc., suits which are for sale at about fifteen shillings each! The advertisements appear in places where they are likely to attract the attention of persons of mean intelligence and meagre information, and it is of some importance to consider what persons of that type make of them. It will be agreed that under some circumstances it is no merit for a cloth to be all-wool, and that the buyer of a suit on anything like these terms will get materially better value in a mixed fabric than in one which more justifiably supports the description quoted. Probably by a large number of persons "all wool" is construed to mean a cloth that will return fair satisfaction rather than one in which no foreign ingredient is present. Probably "all wool" is regarded as a term in contradistinction to shoddy; "shoddy" of course, meaning to the same people any fabric which does not give satisfaction in wear. These considerations, and the natural scepticism with which cheap-jack advertisements are received in most quarters,

tend to limit the mischief of which the misrepresentation is capable. They do not affect the fact that the advertisements if true are misleading, and if untrue are sheer lies.

The fact that the statement if untrue is the one on which legal administrators would be likeliest to fix and settle. What they would make of the difficulty of defining "all wool" precisely is beyond the wit of man to forecast. Does all-wool mean all new wool, straight from the sheep? Or does it cover mill waste and rag wool? Does the term exclude "cotton wool" or even "slag wool" and "wool wool"? These are the points which might for a minute vex the aldermanic mind, and, conceivably, lead to the formulation of a startling decision. To judge from some experience, it will hardly be contended that law-givers in London would pay much attention either to what woollen manufacturers think or have been in the habit of doing for generations past. They would be as likely as not to receive as unimpeachable testimony the evidence of those who know least about the subject and barely know cotton from wool. These things may be confidently anticipated, and equally confidently it can be said that this class of light and leading is not what woollen manufacturers want.

Broadly, our cloth manufacturers are guileless. They deal with men hardly less expert than themselves in detecting the presence of cotton, and they have no material inducement to misrepresent the composition of their goods. The trickery begins in the business of distribution, and the manufacturers' concern with any new regulations is principally with their indirect effects. It may not be fair to makers of all-wool goods that articles of a lower class should by misrepresentation be made to compete with theirs. It may even not be to the good of makers of cloths containing substantial proportions of cotton that these should be puffed as all-wool. These matters may demand redress more or less urgently; but it will not be for the general good of trade that everybody should be hampered by irrational restrictions such as any set of legal luminaries is capable of devising. That risk might to some extent be safeguarded by an authoritative declaration of trade custom. It ought to be made clear that an otherwise woollen fabric is not made any the less "all wool" in essence because it has an "effect" thread of cotton or silk; also that an all-wool cloth may contain what the trade calls "woollen" and the world calls "shoddy." As very short woollen material may require the use of a percentage of cotton to give it strength, there seems to be need of a pronouncement as to the allowable limits of cotton in a fabric that is substantially all-wool or all-woollen.

It is regrettable that woollen manufacturers are very short of associations of their own to speak with authority and to crystallise trade custom in due form. As matters stand, they are confined virtually to the use of Chambers of Commerce, of which it can be freely averred that some have more and some have less influence and authority. However, on this occasion it is of the Chambers they must make use, and that quickly.

RUBBER AND THE RUBBER MARKET.

It is of importance, says the *Economist*, to trace the progress of the supply during the past few years, and the figures are given in the interesting annual report issued by Messrs. Gow, Wilson, and Stanton, Ltd., produce brokers. Taking the last half decade, the exports of plantation rubber into Great Britain from Malaya and Ceylon are set out as follows:—

Year.	Tons.	Increase.
1905	205	...
1906	531	326
1907	1,133	602
1908	2,010	877
1909	4,025	2,015

As regards Para (wild rubber), Messrs. Gow, Wilson, and Stanton set out the receipts at Para during the last ten seasons as:—

	Tons.		Tons.
1899-00	26,693	1904-05	33,100
1900-01	27,640	1905-06	34,710
1901-02	29,997	1906-07	37,810
1902-03	29,890	1907-08	36,680
1903-04	30,580	1908-09	38,150

As the world's supply in 1909 was about 69,000 tons, it will be seen that Para and plantation rubber together made up, roughly speaking, 60 per cent of the total. The average prices paid at London auction for plantation rubber have been 5s. 6½d. in 1906, 4s. 9½d. in 1907, 4s. 1¼d. in 1908, and 6s. 7½d. in 1909. Of recent years the lowest has been 2s. 9d., touched in February, 1908, and the highest—by a curious coincidence reversing the figures—was 9s. 2d. on September 30th and October 1st last year. At the Mincing Lane sales on January 18th the top price realised was 8s. 9½d. for the best sort of rubber, but fine hard Para keeps very firm at about 7s. 7½d. spot, and plantation fine rubber is all but 8s. At such prices as these the best companies are making huge profits, and most of the authorities, both in the rubber industry and in the Stock Exchange market, now think that for some time to come there is hardly likely to be any violent fall in the price of the material. As is generally known, the earlier undertakings (most of which are moderately capitalised) can make a profit out of the sale of rubber at 3s. or less per lb., so it is manifest that the gains at the present time are very large indeed. It is a safe assumption that if at some future time the price of rubber should fall to, say, half-a-crown to three shillings per lb., plantation rubber might be expected to supplant the wild product, and at such a price the yield per acre would work out to something between £24 to £30, according to locality. Climate, altitude, and transport facilities are amongst the considerations which have to be taken into account when the yield per acre is under calculation. A fair capitalisation which this yield would justify is £200 per acre.

A burning question, of course, is how long the price of rubber can be expected to remain at, or near,

* The December figures (and part of those for November) are estimated.

its present high level. The dozens of new companies that have issued prospectuses within the last twelve months all estimate big production in the course of the next few years, and every one who takes an interest—practical or otherwise—in the rubber industry wants to know whether this promised immense increase in production will not swamp the market, and lead to such a slump in the price as was witnessed only two years ago, when rubber, as already mentioned fell to 2s. 9d. per lb. Now, assuming that this price were to be touched again, it will be seen from the above tables that the demand for 38,000 tons of Para rubber must be exhausted before the plantation rubber would be affected. On this point it is of interest to see that Mr. J. B. Carruthers, Director of Agriculture and Government Botanist of the Federated Malay States, asserts that in his opinion the possibility of over-production is only a bogey, and one which a careful examination of the figures of increase in rubber consumption and acreages planted will at once dissipate. In his preface to Messrs. Gow, Wilson, and Stanton's book on Rubber Producing Companies, 1909, Mr. Carruthers admits that it is not easy to forecast how the future of production and demand will influence prices, but he adds: "It is unlikely that the amount planted each year will have the effect of causing a serious drop in prices by overtaking the demand." The lightning spread of the British, Continental, and American motor car business has opened up almost a new world for the marketing of rubber, while the way in which a thousand and one other industries call for rubber at the present day is a remarkable development of the trade. Rubber substitutes have sprung up in plenty, only to be found wanting in the qualities of the real article, and the failure of the strenuous efforts to produce synthetic rubber on a commercial basis seems to have removed the menace of a very formidable competitor. There are, of course, companies for the reclaiming of rubber, working-up old rubber in order to re-form it for further use, etc., but these products have not the same qualities as the fresh rubber. There is almost a tendency to be led into exaggeration in discussing the rubber outlook as it stands to-day; as a matter of fact, a charge of super-optimism was levelled at the articles written upon the same subject when the rubber share market began to attract so much attention some eighteen months back, at a time when the prospects looked less assured than is the case now. In the interval, however, has come a Stock Exchange boom in the prices of rubber shares, which puts a different complexion upon investment and speculation, and the quotations of all the leading shares stands at high premiums. The prospective buyer is dazzled by the knowledge that a company can make a profit on its rubber with the price at half-a-crown per lb., and that each additional penny will represent a dividend ranging from 1 to 5 per cent. When, however, it comes to buying shares in such companies at premiums ranging from 1,000 to 2,000 per cent, the prospective purchaser pauses to

reflect, there being so wide a margin for a fall in the event of untoward happenings. Pests and blight, insects, fungi, and bacteria are enemies mentioned by Mr. J. B. Carruthers, who, however, claims that modern agricultural science has provided weapons to combat these evils successfully. The investor or speculator will have no wish to shut his eyes to unpleasant possibilities; it is for his own decision whether he cares to run the risks in order to participate in an industry which is unquestionably making splendid profits, and which can be relied upon to provide good dividends, in a number of cases, for some time to come. There are many people just now who prefer to put faith and money into companies which are only in a development stage, and whose shares are not likely to enter the dividend list for perhaps a year or two. They fight shy of giving huge premiums, but are not averse to taking up some of the lower-priced shares in companies managed by directors well known for competence and ability, the investors looking to the future to provide them with rewards in the shape of possibly increased capital to an extent which they can hardly hope to obtain from shares already commanding big figures. The lesser-value shares are not so much exposed to vicissitudes of price as their heavier neighbours, in which a good-sized Stock Exchange speculative account has arisen, thus rendering them vulnerable to attack from forces which quite possibly may have no direct or legitimate connection with the rubber markets. At the same time, it must be clearly kept in mind that in the event of some unlooked-for calamity overtaking the general market, a number of the lesser-known shares might become well-nigh unsaleable for the time being; hence the necessity of paying for purchases, or the buying of such shares only as can be taken up should occasion arise for doing so.

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—The returns of the London Clearing House in 1909 reveal the colossal turnover of £13,525,000,000, an increase of 11·59 per cent on the figures of the previous year.

TRADE OF PRINCIPAL COUNTRIES.

The following summary table has been prepared by the Board of Trade showing the total imports and exports of merchandise of the principal countries for which the particulars can be given up to October 1909, inclusive, and referring in all cases to the same period *viz.*, the ten months ended October. The corresponding figures for 1908 and 1907 are added for comparison:—

	Imports (See Note). Ten months ended October			Exports (Domestic). (See Note). Ten months ended October		
	1907.	1908.	1909.	1907.	1908.	1909.
	£	£	£	£	£	£
Belgium*	119,139,000	105,636,000	117,758,000	87,713,000	79,332,000	83,662,000
France	202,454,000	183,152,000	193,884,000	184,652,000	164,648,000	178,994,000
Spain	31,088,000	30,963,000	31,035,000	29,639,000	28,981,000	29,487,000
Italy	95,562,000	94,282,000	99,333,000	63,769,000	57,227,000	59,631,000
Austria-Hungary	83,954,000	81,732,000	91,544,000	82,279,000	77,806,000	78,947,000
Egypt	21,674,000	20,922,000	18,466,000	20,245,000	14,854,000	17,676,000
United States	254,164,000	187,612,000	249,216,000	309,970,000	287,997,000	278,982,000
Japan	42,684,000	38,543,000	34,918,000	37,012,000	31,289,000	33,385,000
British India	70,567,000	77,012,000	66,046,000	106,852,000	81,241,000	93,177,000
Canada	63,776,000	48,628,000	58,021,000	39,749,000	38,944,000	40,239,000
British South Africa†	23,193,000	20,975,000	22,697,000	39,230,000	36,839,000	40,798,000
United Kingdom	453,665,000	421,713,000	427,434,000	357,691,000	318,671,000	311,265,000

A comparison of the total figures for the eleven months ended 30th November is possible for four countries, as follows, *viz.* :—

	Imports (See Note). Eleven months ended November			Exports (Domestic). See Note). Eleven months ended November		
	1907.	1908.	1909.	1907.	1908.	1909.
	£	£	£	£	£	£
Belgium*	130,012,000	115,973,000	123,237,000	97,188,000	87,457,000	92,319,000
France	221,017,000	201,681,000	215,169,000	203,975,000	18,971,000	198,499,000
United States	277,277,000	209,236,000	278,463,000	352,149,000	311,221,000	318,943,000
United Kingdom	501,658,000	461,885,000	482,261,000	393,463,000	347,818,000	344,591,000

* Value of principal articles only.

† Including Ballion.

NOTE.—The figures in italics are based, wholly or mainly, on the prices of some earlier year than that under which they are shown.

In the case of Belgium, France, Italy, Austria-Hungary, Egypt, Japan, Canada, and United Kingdom the import figures given in the above summaries represent imports for home consumption. In all cases the export figures are intended to represent exports of domestic produce. In most cases, however they include a certain amount of "nationalised" goods, *i.e.*, goods originally imported for consumption, and which, if dutiable, have been charged with duty, but which are subsequently re-exported.

—A German report on the artificial silk trade in the United States says that though the consumption is considerable, the home production of artificial silk is small, the great bulk being imported from Europe, and interest is expressed as to the effect of the increase on the import duties made under the new tariff. The duties range from 45 to 60 cents per lb., an advance on the old rates of 30 to 50 per cent. Several European manufacturers have had the question of establishing branch works under consideration, but so far only two have taken actual steps in this direction, these being Messrs. Samuel Courtald and Co., Coventry, who have obtained land near Philadelphia, and the Donnersmarcksche Artificial Silk Co., Germany, who have obtained a

plot near New York. Both employ the viscose method, the raw material of which is wood pulp. The other manufacturers, who work either the cupro-ammonium or gun-cotton process have decided to make no more for the present, considering that the increased cost of plant and high rate of wages in America would far more than counterbalance the extra price obtainable under the shelter of the increased tariffs, and they will continue to export the product from their European works. The prospects of the New American works are not considered rosy, and the German manufacturers, who supply by far the greater part of the American requirements, say that there is absolutely no ground for uneasiness.

WEEKLY TRADE MOVEMENTS.

For the week ending 12th February, 1910.

COTTON GOODS.

Twist and Yarn.

Foreign—	Calcutta lbs.	709,613
Imports by sea into	Bombay "	141,432
	Madras "	89,910
Indian—	Calcutta "	196,000
Exports by sea from	Bombay "	5,364,597
	Madras "	...

Grey Piece Goods.

Imports by sea from	Calcutta yds.	19,778,943
Foreign ports into	Bombay "	2,714,677
	Karachi "	620,400
	Madras "	882,532
	Rangoon "	138,097

White Piece Goods.

Imports by sea from	Calcutta yds.	7,027,023
Foreign ports into	Bombay "	4,909,427
	Karachi "	3,760,121
	Madras "	797,864
	Rangoon "	960,215

Other Piece Goods.

Imports by sea from	Calcutta yds.	3,310,164
Foreign ports into	Bombay "	5,005,421
	Karachi "	3,490,176
	Madras "	1,100,284
	Rangoon "	867,154

Piece Goods.

(Indian and Foreign).

Despatches by rail from	Calcutta cwt.	* 17,215
	Bombay "	5,731
	Karachi "	12,517
	Madras "	3,085

Raw Cotton.

Imports into Bombay	By sea cwt.	134
	Coastwise "	30,779
	By rail "	332,684
Imports into Karachi by rail	"	51,973
" " Calcutta by rail and river	"	* 9,282

JUTE.

Arrivals by all routes in	Calcutta cwt.	* 342,504
Exports by sea from	Gunny bags No.	16,752,178
	cloth yds.	27,115,100
	Jute cwt.	* 312,157
	Chittagong—Jute "	...

COTTON SEEDS.

Exports by sea from Bombay	cwt.	187,324
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OIL SEEDS.

Linseed.

Imports into	Calcutta by rail and river cwt.	* 1,690
	By sea "	9
	Coastwise "	220
	By rail "	21,393
Exports by sea from	Karachi by rail "	...
	Calcutta "	* 18
	Bombay "	11,003
	Karachi "	...

Rape and Mustard Seed.

Imports into	Calcutta by rail and river cwt.	* 41,835
	By sea "	...
	Coastwise "	5
	By rail "	21,144
Exports by sea from	Karachi by rail "	79,620
	Calcutta "	8,808
	Bombay "	4,631
	Karachi "	279,073

RICE.

Arrivals by all routes in	Calcutta cwt.	* 295,745
	Calcutta "	225,826
	Chittagong "	...
Exports by sea from	Bombay "	10,826
	Karachi "	5,257
	Madras "	...
	Rangoon "	863,611

TEA.

Arrivals by all routes in	Calcutta lbs.	* 921,784
Exports by sea from	Calcutta "	1,354,887
	Chittagong "	...

WHEAT.

Imports into	Calcutta by rail and river cwt.	* 54,331
	Karachi by rail "	220,804
	By sea "	474
	Coastwise "	6,844
	By rail "	23,400
Exports by sea from	Calcutta "	270
	Bombay "	271
	Karachi "	231,462

* Incomplete.

EXPORTS—RUNNING TOTALS INCLUDING FIGURES RECORDED ABOVE.

	FROM APRIL		FROM JANUARY					
	1908.	1909.	1909.	1910.	1909.	1910.	1909.	1910.
	Wheat.		Linseed.		Rape and Mustard Seed.		Cotton Seed.	
Calcutta . . . Cwt.	50,663	3,377,248	65,205	13,491	9,296	106,385	Not reported.	
Bombay . . . "	80,941	2,647,080	58,951	95,363	17,681	81,033	1,366,032	2,665,044
Karachi . . . "	3,805,698	16,564,106	...	...	672,976	1,313,247	Not reported.	

KEROSENE OIL, WEEK ENDING 12th FEBRUARY, 1910.

Imports by sea into—	FROM			
	Russia.	America.	All other foreign countries.	TOTAL.
	galls.	galls.	galls.	galls.
Calcutta	...	...	...	...
Bombay	...	399,619	...	1,390,619
Karachi	...	1...	268,632	268,632
Madras	...	300,206	...	300,206
			Bengal	1,652,492
			E. B. & Assam	...
			Bombay	...
			Sind	...
			Madras	...
			Indian Ports, Non-Br.	...
			Foreign Ports	...

IMPORTS OF SUGAR, WEEK ENDING 12th FEBRUARY, 1910.

Country of Shipment.	REFINED SUGAR IMPORTED INTO					
	Calcutta.	Chittagong.	Bombay.	Karachi.	Madras.	Rangoon.
	owt.	owt.	owt.	owt.	owt.	owt.
United Kingdom	140	...	17	30	...	...
Germany	...	...	...	...	...	...
Austria-Hungary	...	...	5,694	1,000	...	...
Other European Countries	...	...	...	...	...	...
Java	64,670	...	24	27,168	...	33,980
Mauritius	...	...	...	...	...	...
Other Non-European Countries	...	...	4,109	...	...	...
			Total refined			136,832
			Total unrefined			303
			Grand Total			137,140

SILK MARKET IN 1909.

In their annual report of the silk market in 1909, Messrs. Chabrieres, Morel and Co. divide the year under review into two parts. "During the first half-year, the offer and the demand remained about at par and prices hardly fluctuated; during the second the offer, under the pressure of the large Asiatic crops, outran the demand, which was deprived of its most efficient stimulus, the confidence of America." At the beginning of the year occurred the earthquake in Messina, which "destroyed almost all the known filatures of the country," in February came the news that the exports from the East would considerably exceed the estimates; in March spring fashions were delayed by cold weather, and throughout the first eight months of the year there was the uncertainty regarding the new American tariff. Manufacturers in Europe, however, were little affected by outside influences, the changes of fashion kept their looms busy. In the United States the position was less satisfactory, owing to the unexpected stagnation of business which fell in the spring. "In short, outside of a keen interest for Tussahs, America, from March, played only an indifferent part on the silk market, and it is the European demand which kept up quotations." By May, it was clear that the new crop would be better in Asia than in Europe, and in spite of the fact that the European crops represent hardly one-

fourth of the world's production the "cocoon fever" ruled the market, and the cost of new silk rose in France and Italy to about 20 per cent. above the cost of 1908 and 5 per cent. above ruling quotations. At the end of August the nominal firmness of Japan was shaken by the exceptional summer crop, which promised an export of 140,000 bales, against 125,000 and 105,000 in the two previous years. Throughout September the market was demoralised by short sales, at much below Yokohama quotations, and from September until the beginning of December prices fell continuously. On December 6th came the news of a rise at Yokohama, and the market woke up at once, and continued fairly active to the end of the year. "The year will have proved the increasing influence on the market of Japan on one hand, and of America on the other. Europe, in spite of its intense consumption, has not been able to maintain prices, which have receded lower still than those of January past—by 5 per cent. on the average. This depreciation has cleared the way to a better future. Silk goods are finding daily new outlets, helped by the rise of cotton, and, above all, by the favour of fashion. The same feeling is becoming noticeable even in the United States, where hopes are entertained that the general prosperity of the country will reflect upon the silk trade for the spring season and will permit to turn a new leaf over the disappointment of the year just ended."



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[ANNAS 4.]

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NOTES.

MONEY MARKET.

Wednesday Evening.

PRESIDENCY BANK RATES	Calcutta	6 per cent. (Dec. 9).
	Bombay	6 per cent. (Nov. 25).
	Madras	7 per cent. (Jan. 4).
EXCHANGE	On demand	1-4 $\frac{3}{4}$
	Telegraphic	1-4 $\frac{1}{8}$
	Transfers	
	3 months	1-4 $\frac{1}{2}$
	6 months	1-4 $\frac{1}{4}$
GOVERNMENT PAPER (3 $\frac{1}{2}$ per cent.) Rs. 93 $\frac{1}{2}$.		

The spot price of wheat at Karachi on the 19th February was Rs. 33-10-0 per candy of 656 lbs. This is for white wheat on a basis of 30 per cent red wheat, 5 per cent barley and 3 per cent dirt; the price of bags included. The price of Indian grey yarn (20's) at Bombay on the 22nd February was Re. 0-7-6 to Re. 0-8-0 per lb. and of Mutia Bhawnagar cotton, February and March delivery, Rs. 262 per candy of 784 lbs.

The wholesale spot prices of the undermentioned articles in Calcutta on the 23rd instant were as under:—

Jute—C. D. M. and Co. (Red) Group	
per 400 lbs.	Rs. 34 8 0
" M. per 400 lbs.	" 31 8 0
Rice—Ballam No. 1 per B. md.	" 3 13 0
" Moonghy	Nil.
Linseed—Bold 4% per B. md.	Nil.
Rapeseed—Yellow, mixed, bold,	
Cawnpore, 4% per B. md.	Nil.

The Railway Board have sanctioned an estimate of the cost of renewing 25 miles of creopine sleepers on the Bhatinda district of the North-Western Railway.

The total approximate gross earnings of State and Guaranteed Railways from 1st April, 1909, to the 5th February, 1910, show a gain of Rs. 2,07,01,143 compared with the corresponding figures for 1908-09 and are less than those of 1907-08 by Rs. 4,51,749.

Another of the series of Monographs on the Manufacture of Wire and Tinsel has been published, this time by the Government of the United Provinces. The present Monograph has been compiled by Mr. C. W. Gwynne, I.C.S., and forms an illustrated record of practically all there is to say of the wire and tinsel industry in the Provinces with which it deals.

Tariff Schedules, 1910, being a reprint of Schedules II, III, IV and V of the Indian Tariff Act, VIII of 1894 (as modified up to the 17th December, 1909, by various Tariff Amendment Acts and Notifications of the Governor General in Council), showing the rates of customs duties levied on goods imported into, and exported from, British India, has recently been published by the Commercial Intelligence Department, India. The publication is available at the office of the Superintendent, Government Printing, India, for 6 annas or 7d. The rates for silver-ware, plain and embossed (Art. 43 in schedule IV), should be read as Rs. 1-2 and Rs. 1-6 instead of Rs. 1-4 and 1-10, respectively, printed in the schedule.

The following return shows the number of bales of cotton imported and exported at the various ports of the United Kingdom during the week and 4 weeks ended 27th January, 1910 :-

	IMPORTS.		EXPORTS.	
	Week ended 27th Jan., 1910.	4 weeks ended 27th Jan., 1910.	Week ended 27th Jan., 1910.	4 weeks ended 27th Jan., 1910.
	Bales.	Bales.	Bales.	Bales.
American . . .	39,743	217,131	3,416	14,791
Brazilian . . .	...	712	9	445
East Indian . .	6,420	20,340	410	1,717
Egyptian . . .	7,533	38,509	2,940	12,546
Miscellaneous .	2,118*	6,558	584	1,141
Total . . .	55,814	283,550†	7,359	30,640

* Including 21 bales British West African, and 466 bales British East African.
† Including 539 bales British West Indian, 29 bales British West African, and 713 bales British East African.
NOTE.—Cotton "in transit" or "for transhipment under bond," if described as such in the ships' reports, is not included in this return.

A meeting of the Belgian Cotton Spinners' Union has decided to continue the short time, which has been worked since last October, until April 16th. The reduction is at the rate of one day per week.

In their weekly report on the Shanghai piece-goods market, dated the 27th ultimo, Messrs. Noel, Murray and Co. say:—Business in Indian yarn is extremely slack, the demand at the present high range of prices being very limited. What inquiry there is for immediate clearance is readily met by native holders on easy terms compared with what importers are asking for forward delivery. All that is reported by the latter amounts to 400 bales.

At a meeting of the Swiss Union of Cotton Spinners and Manufacturers held in Zurich, it was decided to begin organised short time on February 14th. There is to be a reduction in output of 15 per cent for three months, and this will affect spinners of American, Egyptian, and Indian cotton. The Union of South German Cotton Manufacturers, at a conference just held at Stuttgart, unanimously decided to run short time for three months. Both spinners and manufacturers will be concerned here, and the reduction during the quarter was fixed at 174 hours.

A special meeting of the Organisation Committee of the Federation of Master Cotton Spinners' Associations was held in Manchester on February 1st when reports were received from the various districts on the short time running among spinners who use American-grown cotton. The percentage of spindles in the Federation area only running four days a week continues to be 98 of the total, and numerous outside firms are also supporting the Federation policy of curtailing production on an organised scale. In some cases, owing to the state of trade, some mills are running less than forty hours a week. There is, it seems, not much likelihood of any concerted action amongst Egyptian spinners.

It is not at all unlikely, says the Journal of the Royal Society of Arts, that before very many years have passed the Soudan will provide England with much of the raw cotton it requires. Contrary to what used to be said about it by the opponents of the British occupation of Egypt, the Soudan is a very rich country, and in the opinion of those who know it best, it is particularly suitable for the growth of cotton. The present difficulties in the way of extensive cotton cultivation in the Soudan include the lack of transport and labour. But it may be expected that with the maintenance of peace the population will rapidly revive, and already railway communication is begun. Now it is stated that an arrangement

has been arrived at between British and French capitalists for the construction of a railway between Khartoum and Massowah, which will open up very fertile country. And there is under construction at present a short line from Khartoum towards El Obied, which will pass through a very rich part of the Soudan capable of growing large quantities of cotton.

The cotton industry in Brazil is the most important manufacturing industry of Brazil. The following particulars of the Brazilian cotton mills were first published in the Bulletin of the Centro Industrial do Brazil in 1905 and have since been partially revised to 1908 :-

Number of factories	119
Capital and reserve	£11,638,812
Debentures	£1,892,397
Spindles	761,816
Looms	27,958
Power :	
Steam	24,064 h.p.
Water	8,168 h.p.
No. of workpeople employed . . .	41,307
Annual production	256,952,213 metres.
Annual consumption of cotton . .	34,606,980 kilograms.

The number of factories had by the middle of 1909 risen to 137. The raw cotton used in the factories is entirely Brazilian, and every process involved in the manufacture of cotton goods is carried out in the factories, some of which turn out cotton prints ready for use. The standard width for finished cloths is 66-67 centimetres (about 26 inches), which is identical with the standard width in the Manchester trade. Special widths can be made according to requirement. Unbleached cloths are made 28-30 inches wide, and a small quantity up to 36 inches. The great bulk of the Brazilian cotton cloths are made from yarns below 30's English count. Some few factories produce cloths made from yarns as high as 60's, but only a few looms are at work on these yarns. The industry has recently been suffering from over-production. The duties on the raw material are made prohibitive, with a view to confining the factories to the use of Brazilian cotton, and the duties on less expensive grades of cotton manufactures are sufficiently high to exclude Manchester goods. The finer classes of cottons, however, still find their way into Brazil in large quantities, as it does not pay to manufacture them in the country in spite of the protective duties in force; Brazilian cotton is alleged to be unsuitable for the yarns and, apart from this, it would probably in any case be difficult to compete with so specialised a branch of the Manchester trade. It may be added that several mills are now installing electric power in place of, or in addition to, steam power.

The prices of British corn per quarter of 8 bushels, as received from the inspectors and officers of Excise in the week ended 29th January, 1910, were as follows:—Wheat, 33s. 6d.; barley, 25s. 0d.; and oats, 17s. 4d.

His Majesty's Trade Commissioner for New Zealand (Mr. G. H. F. Rolleston) has forwarded the following estimate, prepared by the Agricultural Department, of the coming harvest in that country, as compared with the results for the previous one:—

	WHEAT.			OATS.		
	Area for threshing, g.	Yield.	Yield per acre.	Area for threshing, g.	Yield.	Yield per acre.
	Aeres.	Bushels.	Bushels.	Aeres.	Bushels.	Bushels.
1908-09 . . .	252,301	8,772,799	34.75	46,908	18,003,788	43
1909-10 . . .	311,000	11,020,900	35	378,000	17,770,500	47

The Government pre-harvest estimates of the Australian wheat yield, 1909-10, are now complete (writes a Melbourne correspondent), and the total is far larger than had been anticipated. Whether they will be fully realised remains to be seen. The total is placed at 82,678,000 bushels, against 62,587,000 bushels for last season. The estimates for the exporting States compare as follows:—

	1908-09.	1909-10.
	Bushels.	Bushels.
South Australia . . .	19,397,000	20,139,000
Victoria . . .	23,345,000	28,535,000
New South Wales . . .	15,483,000	25,600,000
Western Australia . .	2,457,000	5,978,000

The estimate of the Victorian yield is considerably higher than the estimates of the three weekly newspapers. But, whatever may be the final estimates, it may be regarded as certain that the exportable surplus will be between 5,000,000 and 6,000,000 quarters, of which a portion will go to South Africa in the form of wheat and flour, and another to ports in the Far East in the form of flour. The 1909 export season has now closed. The total quantity shipped, wheat and flour as wheat, is 36,749,000 bushels, or, say, 984,370 tons. For the previous season the quantity was 526,746 tons. The largest quantity shipped in one year was 1,064,900 tons in 1904.

The Corn Trade News gives the following summary of the world's crops as on the 1st instant:—United States of America—Some complaints alternate freezing and thawing, but reports winter wheat mostly favourable. Receipts and stocks maintained. Canada—Autumn ploughings indicate full acreage for the next crop. Weather good, receipts fair. Argentina—Officials reduced estimate wheat crop and now give 17,500,000 against 20,000,000 last year, but latter crop unofficially estimated 18,500,000. Oats and Linseed also reduced, but not very much. Wheat surplus given 11,000,000 quarters, which higher than unofficial estimate and compares with

12,500,000 in 1909. Maize crop indicated 23,000,000 quarters against 21,000,000 last year. *Australia*—Harvest outturn reports good, estimates maintained. *New Zealand*—Wheat crop moderately larger than last; oats smaller. Harvest weather bad. *Chili*—Wheat crop estimated 3,000,000 quarters against 2,300,000 last year. *India*—Reports of crops favourable, but new crop prices rather higher and dear. Old wheat very scarce. *Russia*—Weather mild; crops look all right but absence snow causes anxiety. Bad roads hinder supplies; port stocks decreasing. *Roumania*—Weather mild, condition crops satisfactory; maize crop 8,600,000 quarters against 9,600,000 last year; surplus 3,500,000 quarters. *Hungary*—Heavy snowfalls, crops excellent. *France*—Floods subsiding but damage feared owing abnormally mild, wet weather. Government say winter wheat acreage 360,000 less; condition lower than year ago. *Germany*—Weather more seasonable, crops favourable. *Italy*—Copious rains, crop conditions good. *Spain*—Some rain wanted in south, seedings make good progress with mild weather. *United Kingdom*—Wintry weather hinders ploughing; wheat crop fair condition.

The *Manchester Guardian* of January 31st writes:—Probably no series of auctions of Colonial wool ever showed fewer fluctuations in value than that now drawing to a close in London. From first to last prices for all classes have been on a high level. The splendid clips of merino wool grown in New South Wales and Queensland have been very conspicuous in the catalogues, not merely for their depth and soundness of staple and fineness of hair, but also for the great increase in the number of bales sent from a majority of these stations, some of which are much larger than an average English county. These increases only confirm us in our opinion that this wool-year's exports from the Commonwealth will exceed those of last year by fully 200,000 bales. All our correspondents agree that never before has so much wool been left over for shipment during the second half of the wool-year.

According to Messrs. Helmuth, Schwartze and Co.'s annual circular, the exports of wool from South Africa to the United Kingdom during 1909 amounted to 336,078, and to the Continent to 63,772 bales, making a total of 399,850 bales. During 1908 the exports to the United Kingdom were 234,736, and to the Continent 56,581, or a total of 291,317 bales, showing an increase in 1909 of no less than 108,533 bales. These figures confirm the reports of the last year or two as to the great improvements in the breed of sheep now going on in South Africa, especially in the Transvaal and the Orange River Colony. It is believed by those in a position to judge that the results already obtained are only a small portion of what may be expected. There are still millions of sheep depastured in South

Africa with only out fleeces worth two or three shillings each, though the country might easily carry sheep-cutting fleeces worth seven or eight shillings.

In their weekly report on the **Australian wool market**, dated Melbourne, January 27th, Messrs. Goldsbrough, Mort & Co., Ltd., say:—For some years past we have made a point of holding a special scoured sale towards the end of the series, and yesterday's catalogue included a good display, the major portion of the offerings comprising scoureds, probably one of the finest collections seen in this centre for many years past, the result being fully commensurate with the selection. Some notable prices were obtained, pride of place being secured by the Tweedsmuir clip, from Richmond, Queensland, treated by Messrs. Ladbury & Co., at the Carrar Works, the fleece of which sold up to 25½d., constituting an Australian record for the whole series, closely followed by the Manfred mark, from Hay, at 24d., and the J. Dover Netley, from the Darling River, 23½d., both the latter being treated by Messrs. Wm. Murray & Co., Abbotsford. As the close of the season is now within measurable distance, it is most reassuring to record a firm and buoyant market, with all sections of the trade eager buyers, yesterday's auction providing one of the most animated sales of the season; rates, with the exception of super parcels, showing an advance of 5 per cent on last week's values. The position of Australia's staple industry to-day is one well calculated to afford growers pleasurable anticipations of satisfactory prices for next season. In all 4,031 bales were submitted at yesterday's auction, of which, together with private sales since our last report, 4,231 were disposed of, making a total of 70,068 bales for the season, as against 54,151 for the corresponding period of last year, representing a gratifying increase of 15,917 bales.

A correspondent states that thriving business in black sand is being carried on in Travancore by a London Mining Company, whose engineer recently discovered at Cape Comorin a useful monositiferous mineral product valued at £5 to £6 per unit in Europe.

The following figures represent the quantity and the value of gold and silver imported from, and exported to, foreign countries, into and from British India during the month of January, 1910. The total imports of gold were 1,039,928 ozs. valued at Rs. 6,24,81,324; of these 210,926 ozs. priced at Rs. 1,35,08,601 represented bullion, 823,770 ozs worth Rs. 4,86,69,365 represented sovereigns and other British gold coin, and 5,232 ozs. valued at Rs. 3,03,358 represented other coined gold. The exports of gold totalled 51,355 ozs. * in quantity and Rs. 29,21,588 in value, and of these 50,699 ozs. valued at Rs. 28,83,290 represented bullion; 514 ozs. worth

Rs. 30,059 represented sovereigns and other British gold coin and 142 ozs. * priced at Rs. 8,239 represented other coined gold. The total imports of silver were 4,638,664 ozs. priced at Rs. 76,95,639; of these 4,415,033 ozs. valued at Rs. 71,24,170 represented bar, 154,847 ozs. worth Rs. 4,12,930 represented Government of India rupees and 68,784 ozs. valued at Rs. 1,58,539 represented other coin. The total exports of silver were 1,340,538 ozs. * valued at Rs. 24,08,293; of these 5,555 ozs. * worth Rs. 24,650 represented bullion, 204,752 ozs. priced at Rs. 5,46,004 represented Government of India rupees, 580,395 ozs. valued at Rs. 8,79,949 represented British dollars, and 549,836 ozs. * worth Rs. 9,57,690 represented other coin. During the month, the net imports of gold amounted to Rs. 595'6 lakhs and of silver to 52'9 lakhs of rupees. The figures marked with an asterisk * are defective, the weight of certain postal parcels not being declared by the Post Office.

The following statement shows the quantity and value of manganese ore exported by sea from each province of British India to countries of final destination in January, 1910:—

Countries of final destination.	BENGAL.		BOMBAY.	
	Quantity.	Value.	Quantity.	Value.
January, 1910—	Cwt.	R	Cwt.	R
United Kingdom	45,000	42,000	382,005	2,86,505
Holland	...	...	30,000	22,500
Belgium	30,000	28,000	200,000	1,76,250
France	40,000	40,000	105,000	90,250
United States of America	...	...	294,000	2,43,750
TOTAL	115,000	1,10,000	1,011,005	8,19,255
Countries of final destination.	MADRAS.		TOTAL.	
	Quantity.	Value.	Quantity.	Value.
January, 1910—	Cwt.	R	Cwt.	R
United Kingdom	...	...	427,005	3,28,505
Holland	...	...	30,000	22,500
Belgium	...	...	230,000	2,04,250
France	...	...	145,000	1,30,250
United States of America	134,000	60,300	428,000	3,04,050
TOTAL	134,000	60,300	1,280,005	9,89,555

Writing of February 1st the *Manchester Guardian* says:—During the past week the prices for standard copper have moved within very narrow limits only, and the closing price was, for cash warrants, exactly as upon the preceding Friday, although three months' warrants were 5s. per ton higher. Various contradictory items of information have been received with regard to the American

amalgamation scheme, and it is quite impossible to come to any reasonable conclusion as to its prospects. The market now appears to be resting upon two facts: (1) That the consumption of copper throughout the world is on the up grade rather than upon the down grade; and (2) that the large stocks are so held that there is no great probability of their being thrown recklessly upon the market. Most people in the trade appear to believe that these two facts are sufficient to prevent the price of standard copper from dropping much below £60, although they may not be sufficient to bring about any serious rise until some considerable reduction of stocks has taken place. From £58 to £62 are the limits usually put upon the movement, with the result that it is considered safe to buy when the price goes near £59, and safe to sell when it approaches £61.

The *Manchester Guardian* of February 1st writes:—America is considerably interested just now in a "slow-rusting" iron or steel. It consists of nearly pure iron with carbon reduced to 0·02 per cent, manganese to 0·01 per cent, and silicon to a mere trace. Naturally the metal is not so strong as average mild steel, its tensile strength being about 21 tons. Its primary quality is said to be its very great resistance to corrosion. The process of manufacture is Mr. R. B. Carnham's patent, and it involves the prolonged boiling of the ordinary furnace charge in a basic open-hearth furnace. One would imagine that the electric furnace would be particularly suitable for producing such an iron or steel. The tapping temperature is about 3,000 to 3,100 degrees Fahrenheit. Experience alone can determine the value of this new brand of steel where resistance to corrosion is important, but, if it proved successful, it should have a wide field of usefulness, even at a much higher price than average mild steel, as it would frequently replace copper, brass, muntz metal, and similar alloys.

The *Engineering and Mining Journal* of New York has recently published its annual figures, showing the production of gold in 1909. The world's output is still increasing, and is now over 92 millions, the largest figure ever recorded. The following table shows the distribution of the output during the past three years. The figures have been converted at the rate of \$5 to the £ sterling:—

	1907.	1908.	1909.
	£	£	£
United States of America	18,087,140	19,262,600	19,300,000
Transvaal	27,404,000	29,957,000	30,925,800
Australasia	15,189,870	14,859,200	14,396,200
Russia	5,315,651	5,500,000	6,832,000
Mexico	3,564,000	3,750,000	5,200,000
Canada	1,652,953	1,870,000	2,150,000
Rhodesia	2,253,869	2,657,800	2,521,000
British India	2,171,530	2,185,000	2,118,300
West Africa	1,154,900	1,186,300	955,600
China, Japan and Korea	2,080,675	2,100,000	2,200,000
Other countries	4,687,387	4,800,000	5,486,000
TOTAL	82,525,455	88,127,700	92,089,900

From this it will be seen that, although several of the famous gold areas are producing a smaller supply, the increases of the others more than counterbalance this falling off. The Transvaal continues to lead, with a total of 30 millions—nearly one-third of the whole, and nearly a million more than last year. America is still increasing, and Russia and Mexico have larger outputs, but Australia, India, and West Africa are lower, and the figures of the "Jungle" have fallen below a million. The following is a summary of the production for the past ten years, and shows a continuous increase, with the exception of the first year of the great Boer War:—

	Millions.		Millions.
1900	62.3	1905	75.7
1901	51.8	1906	81.0
1902	52.3	1907	82.7
1903	59.8	1908	87.2
1904	65.9	1909	92.1

In the last five years the increase has been very large, and this year's increase is greater than that of 1908.

A Pittsburg message dated January 31st states that a meeting of the United Mineworkers' Union of America has decided to make fresh demands upon the owners for increased pay of 5d. per ton, making 4s. a ton in all of coal mined for an eight-hour day and a half holiday on Saturdays. The mineowners are given until March, when the present agreement runs out, to accede to these demands. The Union threaten a strike among all the anthracite and bituminous miners unless terms are agreed upon, and declare that they will stop work in every mine in Pennsylvania, Ohio, and West Virginia, calling out some 50,000 or 60,000 men. At present the owners seem to have stiffened their backs, and, as far as can be seen now, there will be no agreement, and there is every prospect of the country being plunged into an enormous strike.

His Majesty's Consul at Antananarivo (Mr. T. P. Porter) reports that coal of good quality is stated to have been discovered in the south of Madagascar by a French officer of Engineers. The deposit is said to have been found at a point near the junction of the Malato and Onilahy rivers, and not many miles above the limit of navigation of the latter river. His Majesty's Consul understands that it is the intention of the authorities, in the event of the coal being found satisfactory, to reserve it for Government use.

His Majesty's Consul General at Manila (Mr. R. de B. Layard) reports that a piece of Government land in the Island of Mindoro, with an area of about 55,550 acres, has been purchased, at a cost of 734,000 pesos (about £76,000) for the purpose of forming sugar plantations. The sugar produced is to be sold to the Havemeyer Company (Sugar Trust). The estate is practically virgin soil and is well-drained.

It is stated that a rate war between British and German shipping engaged in the African trade is threatened. The German East African Line, which comprises four Companies, has determined to make an attack on the South African carrying trade, now held by the Union Castle and three other lines belonging to the British Conference. For trade to South African ports the German Combine is prepared to quote 5s. per ton lower than those charged by the British lines. They will also enter into seven-year contracts and for special cargoes will quote an even bigger reduction. An important point is that the Combine will undertake to quote for and deliver goods at a single charge to any British South African port or centre in the interior, thereby saving agency charges.

A leather fair was held at Leeds on February 2nd. This, the first fair of the year, was fixed for the 17th January but was postponed on account of the elections. There was a good attendance of buyers and sellers, but actual transactions were limited to immediate requirements. Stocks were firmly held, and sellers refused to consider offers even to secure large contracts. There was a brisk inquiry for all qualities and classes, but no quick response, as the demand is apparently greater than the supply. Leather is wanted for an increasing variety of purposes, whilst the quantity of raw hides coming on to the market is stationary, and values still show a strong upward tendency. Motor butts are in strong request for car linings and motoring garments both for men and women's wear. There is also a strong demand for gloves, belts, purses, and satchels all made of leather and very fashionable. Boot manufacturers, who are of course the largest consumers, have great difficulty in obtaining sufficient supplies at anything like reasonable rates, and the quotations for butts and bends and English sole leather at the fair are thought to prove that values have not even yet reached high-water mark. Boot manufacturers have recently revised their price lists and obtained an advance from the retailers of about 5 per cent—not a very great increase when it is remembered that leather now costs fully 30 per cent more than it did three or four years ago. The manufacturers have been able to sell at virtually the old prices owing to recent improvements in machinery and factory organisation which have reduced the cost of production in about the same ratio as leather has advanced. Manufacturers must soon again advance their quotations. The retailers hold out strongly against paying an increase, as they state that the public have become so accustomed to the half-guinea boot that they refuse to pay more. If the public adhere to this decision the standard of the half-guinea boot cannot be maintained.

The present high price of rubber gives importance to processes for the reviving of perished

rubber. Considerable quantities of waste rubber are sold by the railway companies in India; and an enquiry was received some time ago as to the quantity that might be obtained from this source for treatment. It has been found impossible to ascertain these quantities because a large proportion of the articles are purchased by number or as parts included in the cost of a vehicle or appliance; and the weight of rubber in each of them varies according to the design and quality suitable, and is not always known. The descriptions of rubber articles bought by a railway in some cases number nearly one hundred. Under these conditions a good deal of experience is required for engaging in the trade in such discarded articles, and it is not worth the while of a railway to make an elaborate calculation of the total quantity of rubber sold. Particulars kindly supplied by nine railway administrations in India show that during the three years 1906-7-8 the total quantity of waste rubber sold by them was about 84 tons, 17 cwt., 1 qr., 1 lb. and the total proceeds amounted to Rs. 36,630-1-2, giving an average price of as. 3-1 per lb.

It is not surprising that the boom in rubber shares continues, says a contemporary, and recalls the memorable Kaffir boom of fifteen years ago. Para rubber that two years ago was quoted at 3s. 2d., and twelve months later at 5s., is now nearly 8s. and there is not much likelihood of an early and appreciable fall. As was to be expected, the Company promoter is active, and new rubber companies are constantly appearing. Many of them no doubt will run their course to liquidation without ever having paid a dividend, for the properties they take over, as is usual in "booms," are of little or no value. But for others, possessed of suitable lands for rubber growing, prosperity seems to be assured, since there is little likelihood of supply exceeding demand for many years to come, as a careful examination of the figures of increase in rubber cultivation and acreages will show. It is not easy to forecast how the future of rubber production and demand will influence prices, but it is unlikely that the amount planted yearly will soon have the effect of glutting the market. The cultivated rubber area is now considerable, but it must be borne in mind that year by year the market will become more dependent upon cultivated rubber, whilst the demand for the product, given anything like reasonable prices, will increase. Mr. J. B. Carruthers, the Director of Agriculture and the Government Botanist of the Federated Malay States, estimates that Malaya alone should produce in 1919 some 35,000 tons of rubber, or about 15 per cent of what he thinks will be the world's demand in that year. Probably that estimate of the world's requirements ten years hence is below the mark. The rapidity of the growth of this industry has been remarkable, and not less so the recent rise in prices. Up to last year the highest price ever reached was in 1882, when for a few days the quotation was 4s. 11d.

The daily prices of opium per chest for the periods mentioned below were as follows:—

For the week ending 19th February, 1910—

In the Calcutta market—

Behar opium—Rs. 2,379; 2,344; 2,390; 2,387; 2,380; 2,358; 2,355.

Benares opium—Rs. 2,430; 2,400; 2,440; 2,440; 2,430; 2,410; 2,400.

The prices in the time bargains for the Behar opium of the 3rd sale of 1910 were exactly same as mentioned above in case of Behar opium.

In the China market—

At Hongkong—(Exchange Rs. 130½ to 131½ per \$100.)

Behar opium—\$1,825; on the 13th and 14th; No business was done from the 15th to 19th.

Benares opium—No quotations received.

At Shanghai—(Exchange, no quotations received.)

Behar opium—No quotations received.

Benares opium—No quotations received.

For the week ending 12th February, 1910—

In the Bombay market—

On the 6th and 7th instant (new, 1909-10) Rs. 2,000 to 2,050; (new, 1908-09) Rs. 1,325 to 2,250; (old, 1907-08) Rs. 1,425 to 2,375.

From the 8th to 12th instant (new, 1909-10) Rs. 1,350 to 2,300; (new, 1908-09) Rs. 2,400 to 2,425; (old, 1907-08) Rs. 2,450 to 2,500. The latest prices at Hongkong and Shanghai were (new) Rs. 2,247 and 2,336; (old) Rs. 2,351 and 2,389, respectively.

In 1907, Mr. A. Chatterton, Director of Industries, proposed a scheme for the establishment of a charcoal (wood distillation) factory in the Madras Presidency. The proposal was discussed at the Industrial Conference held at Ootacamund on the 21st September, 1908, and, after some further information had been collected, it was referred to a Committee consisting chiefly of non-official gentlemen for consideration and report with special reference to the question whether the industry should be left to private enterprise or undertaken by Government. The Committee were of opinion that Government could not undertake the establishment of a factory for wood distillation on a large scale without undue interference with private enterprise, though, upon the information at present available and in view of the uncertainty of a market for some of the most important bye-products, it was highly improbable that private enterprise would embark upon an undertaking of so much importance and difficulty. The Madras Government concur generally in the opinion of the Committee and have decided after full consideration to take no further action in the matter for the present.

The Report by Messrs. Moran and Company, Calcutta, on the shellac trade for 1909 indicates the progress being made in that trade. Prior to the year 1907, we are told, the average production

of shellac, judged by the export returns, was about 145,000 cases per annum; in 1907 the shipments amounted to 206,700 cases; in 1908 the number increased to 222,000, while in the past year there was a jump of no less than 100,000 cases to 322,000. The notable feature in these circumstances is that such a rapid increase in the supply should have been so readily absorbed—a fact which, as Messrs. Moran and Co. point out, speaks volumes for the intrinsic merits of the commodity. At the same time there has been some accumulation of stocks, London now holds 58,000 cases as against 48,000 last year, and it cannot be expected that the 100,000 cases which represent the increased shipments to America have actually been consumed. It is satisfactory to learn, however, that, so far as our manufacturers are concerned, they are well placed and will not lay in large stocks of sticklac until they can make sales. They have accommodated themselves to the altered conditions of the trade and, while, during the autumn, there was evidence that a few had oversold themselves, engagements were faithfully carried out.

Reviewing the course of **Stock Exchange values** during January, the *Bankers' Magazine* says:—“Whether the volume of business would have been greater during the past month but for the disturbance of the elections, it is, of course, impossible to say, but, in spite of the amount of attention concentrated on the political struggle, Stock Exchange dealings have been fairly brisk, and the general tendency has been good. It is perfectly true that our list of representative stocks shows a trifling shrinkage for the month, but that is mainly due to a very sharp fall in American railway securities. In fact, the conditions have been the reverse of those which have so often characterised markets during the last few years, and there has been a general upward tendency in British and other stocks, with a break, in American railways and a moderate set back in Foreign Government securities. The actual net decline in our list of 387 representative stocks is just under two millions, the exact figures being as follows:—

	£
December 16th, 1909	3,711,462,000
January 20th, 1910	3,709,574,000
Decrease	1,888,000

One of the outstanding features of the month has been the strength of the English Government securities and English railway stocks, while other “gilt-edged” descriptions, such as home corporations and colonial loans, have also been very strong.”

The demand for labour in the United Provinces is a full normal demand. No unusual movement of labour is reported, and the prospect of an excellent harvest makes any immediate movement improbable. The labour market is affected by the construction of large irrigation works in Jhansi and Hamirpur and

of large bridges at Cawnpore and Ballia, whilst new railways are in progress in north Allahabad, Unao, Sitapur, Hardoi, Partabgarh and Bara Banki. Partabgarh reports that labourers are available for work elsewhere in considerable numbers. Jaunpur and Basti report that a few hundreds are available. Superfluous labour is reported from no other district.

Applications in respect of the following **new inventions** were filed in the Patent Office, Calcutta, during the week ending 12th February, 1910:—D. W. Macbean, tea planter, Malan Kangra, Punjab, India—A new or improved horn or trumpet for talking machines. A. J. Arbuckle, mechanical engineer, 1, Main, Street Belgravia, Johannesburg, Transvaal—Improvements in means for introducing and distributing mixtures of solids and liquids in settling or other vats or vessels.

Some time ago a St. Petersburg paper called attention to the forwarding of **cocoanut oil** to the **butter-making regions of Siberia**, and it asked in a suggestive way what it could be wanted for there. The reply may perhaps be found in the following: “In the butter-producing regions of Siberia for some time back, yellow cocoanut oil from abroad has been arriving in large quantities. It is found useful for mixing with natural butter, and the Siberian producers have petitioned the authorities to forbid the distribution of this product in the butter-producing areas, or at least to make it compulsory to have it coloured red, so as to prevent the adulteration of butter with it; otherwise its use is calculated to bring a bad reputation on Siberian butter.”

It is stated in the Report on **British Guiana** for 1908-09 that the **area under rice** continues to increase, having risen from 29,715 acres in 1907-08 to 37,854 last year. Ten years ago the cultivation was limited to some 6,000 acres. The Director of Science and Agriculture, Professor J. B. Harrison, C.M.G., M.A., F.I.C., F.C.S., notes that “the enormous area in British Guiana pre-eminently suitable for the cultivation of rice, will enable the Colony to become the granary for the West Indian Islands if ever the cultivation of Sea Island cotton attains the great development which is said to be in the future for it in those Islands.” It may be added that the rice grown is of excellent quality and that the cultivation and reaping of it by mechanical means is being tried and promises well.

His Majesty's Trade Commissioner for New Zealand (Mr. G. H. F. Rolleston) has forwarded a copy of a Report, issued by the Department of Lands, on **Forestry in New Zealand**. From this it appears that out of a total area of 66,568,876 acres in New Zealand, about 17,074,000 acres are still covered with forest; in 1886 the forest area was estimated at 21,197,000 acres. It is estimated that there is

growing within the Crown and State forests, and on private and native freehold lands, a gross total of about 33,000,000,000 sup. ft. of timber that is, or may eventually prove, suitable for commercial requirements. The **output of sawn timber** for the year 1908 amounted to 4,13,868,919 sup. ft., and will probably advance to an average of from 450,000,000 to 500,000,000 sup. ft. for the next fifty years. The **stock of trees** in the State nurseries and plantations amounted at 31st March, 1909, to 47,835,217, of which 6,231,479 had been planted during the preceding twelve months. The total area of land planted with forest trees at 31st March was 12,175 acres, of which 2,709 acres had been planted during the previous year. Although a very large proportion of the trees planted out in the various areas will not reach maturity owing to repeated thinnings, yet it is expected that a sufficient number will attain full size to produce an appreciable quantity of milling timber in 50-60 years from the present time, and that each successive year will produce a further supply to assist in meeting the current demand.

The transmission of any of the following **articles by post** to any of the States of the **Australian Commonwealth** or to Papua (British New Guinea), Lord Howe Island, or Norfolk Island is **prohibited**:—Rags; second-hand bedding; second-hand clothing; flock and bedding or other articles packed or stuffed with flock; human bones, other than specimens for scientific purposes; human hair; jute bags, second-hand carpets, rugs, and similar articles.

NOTICES.

CALLS FOR TENDERS.

Mineral Grease.

THE Divisional Contract Officer, Rawalpindi, is calling for tenders up to the 8th proximo for the supply of about 300,000 lbs. of mineral grease.

ENQUIRIES.

(For particulars address the Director-General of Commercial Intelligence, 5, Olive Street, Calcutta.

An asterisk (*) preceding an enquiry indicates that bank references are offered.)

Iron Ore.

(601).—Iron ore having been discovered in a Native State in the Madras Presidency, the Durbar officials desire to be placed in communication with firms or individuals likely to be interested in this industry.

BOOKS OF REFERENCE.

The following publications have been received and may be consulted by any desirous of studying them at the Office of the Director-General of Commercial Intelligence, 5, Clive Street, where they will be

displayed in the ante-room till Wednesday, the 2nd March, 1910:—

Parliamentary Publications.

Return Relating to Street and Road Tramways and Light Railways, etc., for 1908-09. Colonial Report—Annual Series. No. 632—British Guiana—Report for 1908-09. Post Office Telegraphs—Copy of an Agreement, dated the 29th day of September, 1909, between His Majesty's Postmaster General and Marconi's Wireless Telegraph Company, Ltd., etc.

Foreign and Colonial Publications.

Germany—Monthly Accounts of Foreign Trade for December, 1909; Jahresbericht der Handelskammer zu Hamburg über das Jahr 1909. Australia—Vital Statistics of the Commonwealth for the quarter ended 30th September, 1909—Bulletin No. 17; Trade, Shipping, Oversea Migration, and Finance of the Commonwealth of Australia for the month of November, 1909—Bulletin No. 35. Ceylon—Customs Returns for December, 1909. Norway—Statistisk Aarbok for Kongeriket Norge Ningsyvende Aargang, 1909. New Zealand—Official Year-Book, 1909. Brazil—Importação Exportação Movimento Marítimo Cantial e do Café da Republica dos Estados Unidos do Brazil em 1908. Canada—Weekly Report, January, 17th and 24th, 1910; Supplement to Weekly Report—Special Report upon the Trade and Commerce of Newfoundland, Monthly Report for October, 1909. Bureau of Entomology—Circular No. 114—The Euonymus Scale; Bulletin No. 85, Part II—The Slender Seed-Corn Ground-Beetle; Bulletin No. 82, Part II—The Paraspis Leaf-Miner. The Parsley Stalk Weevil, and the Celery Caterpillar; No. 58, Part V—Insect Depredations in North American Forests and Practical Methods of Prevention and Control. Forest Service—Circular No. 171—The Forests of the United States: Their Use. Bureau of Statistics—Bulletin No. 51—Foreign Trade of the United States in Forest Products, 1851—1908. Department of Agriculture, United States of America—Bureau of Plant Industry—Circular No. 42—Origin of the Hindi Cotton. Office of Experiment Stations—Circular 86—A Preliminary Report on the St. Francis Valley Drainage Project in North-eastern Arkansas; Bulletin 220—Secondary Agricultural Education in Alabama; Circular No. 90—Normal School Instruction in Agriculture; Record Volume XXI, Nos. 7 and 8. Bureau of Animal Industry—Bulletin No. 121—The Need of Controlling and Standardizing the Manufacture of Veterinary Tetanus Antitoxin; Bulletin No. 79—Index—Catalogue of Medical and Veterinary Zoology—Part 25; Bureau of Chemistry—Bulletin 127—The Influence of Environment on the Composition of Sweet Corn, 1905—1908. Farmers' Bulletin No. 373—Irrigation of Alfalfa; No. 375—Care of Food in the Home; No. 379—Hog Cholera; No. 380—The Loco-Weed Disease; No. 381—Experiment Station Work, LIV; No. 382—The Adulteration of Forage-Plant Seeds.

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Correspondence regarding advertisements in the "INDIAN TRADE JOURNAL" should be addressed to Reuter's Telegram Co., Ltd.; but all advertisements, blocks, etc., must be approved by the Director-General of Commercial Intelligence before insertion.

Retail trade advertisements cannot be accepted.

A full index is published as a quarterly supplement and should be filed for reference.

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The Indian Trade Journal.

THURSDAY, FEBRUARY 24, 1910.

MANUFACTURE OF TANNIN EXTRACTS.

IN the *Indian Trade Journal* of the 13th ultimo (page 32) particulars were given of the scope that exists in India for the opening up of a tanning material industry, and additional information was furnished in our issue of the 27th ultimo (page 96). In this connection a few remarks on the preparation and leaching of bark, compiled from *Modern American Tanning*, may not be out of place. The first and most important item to consider regarding the economical extraction of tannin from bark is its reduction or preparation before going to the leaches. Unless this part of the work is most carefully performed, good extraction is practically impossible, no matter how it is carried out. Hence it is from the lack of due attention to this part of the process that many tanners are surprised to learn their spent bark upon analysis contains so much tannin after having used an inordinate amount of water and heat in the attempt to attain perfect extraction.

Bark leached until it contains no more than 1 per cent tannin in the air-dry bark, and calculated back to its fresh equivalent, may be said to be well leached, as the cost involved in carrying the extraction beyond this point will in nearly every instance more than balance the gain. However, there are few establishments in which the average leaching will run so low, 3 per cent being much commoner than 1 per cent.

The preparation of bark must be conducted in the manner best adapted for the saturation and percolation of the water or liquor through it. By through the bark we mean not around it, nor through the interstices of the mass of ground bark, but actually through the pores and intercellular spaces of the bark itself.

There are many styles of bark mills in use, ranging from the old-fashioned exaggerated coffee mill to the recent disintegrator. Mills of the coffee-grinder type are defective, principally on account of the irregular grinding they do. When the mill is set open, the bark is too coarse to admit of saturation; or, when set close, so fine as to prevent circulation in the leach and frequently a mixture of both at the same time is the result. Cutters vary from fair to poor, the defects in their case being their failure to cut the bark in the most desirable way. If they do not dust they sliver the bark up longitudinally or smash it off instead of cutting it cleanly. In most cases the arrangement of the knives does not permit of their clearing the chipped bark freely after making the cut, therefore each succeeding chip has to force the previous one out of the way, and in doing so reduces a considerable portion of the bark to dust. A mixture of shavings and dust does not leach well.

Disintegrating machines under favourable circumstances do fair work, but the tendency is again towards too much dust, and it is hard to secure free circulation in a column of bark prepared in this way greater than six or seven feet in depth.

The ideal preparation of bark is to cut it straight across the end in slices of not over one-eighth of an inch in thickness. Such slices of chips will, with the rolling of mixing given them by the conveyor or blower, which takes them to the leaches, be reduced to cubes of about one-eighth inch, and on account of the way they are cut prove peculiarly susceptible to saturation.

Bark reduced to pieces equally as thin as the above, but anywhere from one-fourth to one inch long, will not leach as readily, because the porous

surfaces are confined to the ends rather than to the flat surfaces of the pieces. It is the exposure of as much porous surface as possible that simplifies leaching, hence the desirability of cutting in end sections. The feature most to be desired in a cutting machine is a sharp, and not a rasping or tearing cut. Constant attention should be given this point, and, as soon as the cut bark shows indications of being broken or smashed instead of cut, change the knives.

It has been found that where liquor is taken off at a constant average of 16 or 18 degrees barkometer, a column of not less than 140 feet is necessary to leach to the best advantage well prepared bark. That is to say, assuming we have a column of bark contained in a suitable number of leaches equalling a total of 140 feet, the first ten feet will be leached when we have pumped all the liquor obtainable off the last ten feet, which averages 16 to 18 degrees barkometer, commencing on the first leach with water at a temperature of 130 degrees and gradually increasing this temperature so that when liquor is being pumped on the last ten feet of fresh bark it will have reached the boiling point on the first ten feet. Good dry hemlock bark will yield in round figures 1,000 gallons (oak about 1,100 to 1,200) of 16 to 18 degree liquor per cord of 2,400 pounds. It therefore requires, approximately, 5.75 gallons of water to leach reasonably well one pound of fairly prepared bark, the temperature ranging from 130 degrees at the beginning of the process to 212 degrees near the end. Where liquors are required heavier than the above, the bark column should be lengthened, and in cases where the course above outlined cannot be carried out, some modification may be introduced which will enable the tanner to secure the desired economy, only he must be extremely careful as to the modification.

Next to the preparation of the bark, the question of temperature is the most important in obtaining a good extraction, and must receive the closest attention in order to perform good work. With a system of leaches aggregating the desired length of column, divided in ten-foot sections or consisting of fourteen leaches, the temperature, as previously stated, should run from the boiling point on the tail leach to 130 degrees Fahrenheit, going on the head, the temperature of the intermediate leaches being divided in proportion to their number. Heat is absolutely necessary to remove the last portions of the available tannin, not that it is difficult to dissolve, but in order that the bark may be swollen

and thus disintegrated to an extent sufficient to admit of the removal of the soluble matter. It is, however, undesirable to apply this heat on the head or fresher leaches, as it would remove a quantity of matter that is insoluble in a cold liquor, and therefore objectionable in the yard. By applying the heat to the tail and weaker leaches, the desired effect of removing the tannin is secured, while the liquor, cooling as it is pumped forward, precipitates much of the objectionable matter, which is filtered out as it passes through the cooler leaches to the head, thus yielding clean liquors containing little soluble matter, and which will show up on analysis the proper percentage of tannin for their gravity. In operating such a system of leaches, it is also important that the leaches be kept flooded continually, that is, covered as nearly as possible with water or liquor in order that the bark may be kept in partial suspension, and the circulation thus maintained even throughout the entire mass.

By leaching on the lines here set forth every unit of available tanning substance can be accounted for which the fresh bark originally contained, that not found in the liquor being found in the spent bark. There is one practice, fast dying out, however, which presents a serious obstacle to good extraction—the return of spent hanger or handler liquors to the leach house. Where this is done, the spent bark may show upon analysis thorough extraction, but an examination of the liquors usually proves them to fall short of the normal contents of a good liquor. This old liquor being run on the leaches at a comparatively high temperature, and containing considerable quantities of acid, is responsible for the destruction of much tannin.

To change this way of working may in many yards seem impracticable, but there is always a way around it. It is impossible, however, to prescribe a remedy that will suit every case, and a study should be made of each individual one, with the conditions governing it, before suggestions in the way of improvements are made.

—The following formula has been suggested for an acid-resisting cement for tanks, floors, etc.:—Silicate of soda (water glass) 6 parts, glycerine 1 part, red lead $3\frac{1}{2}$ parts, fine cinders 10 parts. The silicate of soda and glycerine are mixed and then the red lead and cinders added to make a mass resembling putty. This cement soon sets or hardens, and when heated to the temperature of boiling water, unites with brick or Portland cement to form a strong joint.

CROP FORECASTS.

RICE CROP.

Final General Memorandum on the Rice crop of the season 1909-10.

The provinces dealt with in this memorandum ordinarily include some 78 per cent of the total area under rice in British India.

The **total area** reported is 58,249,900 acres, which represents a net increase of 5,161,600 acres or nearly 10 per cent as compared with last year's figures.

The **total estimated outturn** is 558,489,000 cwts of cleaned rice as compared with 390,979,900 cwts of last year, representing an increase of nearly 43 per cent.

The following is a summary of the provincial reports. The **figures in brackets**, following the name of each province, indicate what percentage of the total rice area in British India is ordinarily cultivated in that province.

Bengal (33·8%).—The total area under **winter** rice is now reported to be 21,232,900 acres as compared with 17,909,500 acres last year—an increase of 18·5 per cent. The season has been very favourable this year for the province as a whole. Some damage was however caused towards the end of August by excessive rain and floods in a few districts of Lower Bengal and also in parts of Purnea and Balasore, and the cyclone of October resulted in some loss in the Presidency Division. In addition, insect pests are reported to have injured the crop in some places. According to district officers' returns the outturn works out to 95 per cent of the normal, but considering the favourable season the Provincial Director estimates it at not less than 110 per cent. Accordingly, the total yield is estimated at 257,394,700 cwts as against 142,106,400 cwts last year—an increase of 81·1 per cent.

Adding to these figures those for the summer and autumn crops given in the second memorandum in December last, the total area and yield of all kinds of rice would come to 26,117,000 acres and 292,995,000 cwts as compared with 22,449,500 acres and 164,843,600 cwts for last year. The total estimated increase of outturn would, therefore, be 128,151,400 cwts or 77·7 per cent.

Eastern Bengal and Assam (22·7%).—The area under **winter** rice is now reported to be 11,775,600 acres as compared with 11,048,400

acres last year—an increase of 6·6 per cent. Weather conditions were exceptionally favourable to the crop this year. The plentiful rainfall which was maintained to the end of the season, greatly benefited the late transplanted crop. Excellent harvests have been reaped in most of the important rice-producing districts and it is only in Kamrup, Nowgong and Darrang, where the crop seems to have suffered from an uneven distribution of rainfall and in Chittagong, where damage was done by excessive rainfall while the crop was in the ear, that the outturn may be below the average. According to district returns the average outturn comes to 101 per cent of the normal; but the Provincial Director raises it to 110 per cent, and he accordingly estimates the total yield of the province to be 123,055,000 cwts compared with 86,067,000 cwts last year—an increase of 43 per cent.

Adding to these figures those for the summer and autumn crops given in the second memorandum in December last, the total area and yield of all kinds of rice amount to 16,692,400 acres and 153,343,900 cwts, as compared with 15,708,200 acres and 117,778,100 cwts for last year. These figures indicate an increase of 35,565,800 cwts in the outturn or about 30 per cent.

Madras (11·4%).—The total area under rice in *raiyatwari* villages is estimated to be 7,462,200 acres as compared with 6,963,500 acres last year—an increase of 7 per cent. The crop is reported to be generally fair but has withered or is withering in parts, owing to the failure of the North-East monsoon in some districts. The yield expected is 44,788,100 cwts as against 40,689,200 cwts of last year—an increase of 10 per cent, attributed to sufficient supply of water in some of the irrigation sources to mature the crop. *Villages other than raiyatwari* report a total area of 503,000 acres which is 26 per cent more than the area reported at this date last year. The yield of this area is estimated to be 4,000,000 cwts against 3,010,000 cwts estimated last year—an increase of 33 per cent.

Lower Burma (10%).—The total area under rice in the fifteen chief rice-growing districts is now reported to be 7,475,300 acres as compared with 7,569,100 acres last year—a decrease of 1·2 per cent. The total yield is estimated at 63,362,000 cwts as against 64,659,000 cwts last year—a decrease of 2 per cent. The surplus available for export, as estimated in January last, is 2,500,000 tons of cargo rice equivalent to 42,000,000 cwts of cleaned rice.

The figures below state the total quantity of rice exported to foreign countries by sea in the

last five years (in cwts) :—

	From Burma	From Bengal and Eastern Bengal and Assam	From Madras, Bombay and Sind	Total
1905	34,200,758	8,996,514	2,553,832	45,751,104
1906	28,093,470	6,096,027	4,265,155	38,454,652
1907	28,322,915	3,664,588	6,532,491	38,519,994
1908	25,782,819	2,441,220	5,618,543	33,442,582
1909	25,248,308	5,037,089	3,942,116	34,227,513

The exports from Burma to Indian ports have been for the same period :—

	Cwts
1905	6,615,659
1906	14,462,870
1907	17,857,101
1908	20,432,061
1909	25,614,728

E. SEQUEIRA,

for Director General of Commercial Intelligence

Estimate of the Rice crop of the season 1909-10

PROVINCE		Area in (acres)						
		Of current year's crop (1909-10)	Of previous year's crop (1908-09)	Average of preceding		Percentage by which column 2 exceeds (+), or is less than (—), area in		
						Column 3	Column 4	
1		2	3	4		5	6	
				Five years	Ten years		Five years	Ten years
Bengal	{ Summer crop	148,100	151,800	169,400	177,400	—2·4	—12·6	—16·5
	{ Autumn crop	4,736,000	4,388,200	4,289,500	4,349,400	+7·9	+10·4	+8·9
	{ Winter crop	21,232,900	17,909,500	19,975,500	20,266,500	+18·5	+6·3	+4·7
	Total	26,117,000	22,449,500	24,434,400	24,793,300	+16·3	+6·9	+5·3
Eastern Bengal and Assam	{ Summer crop (a)	262,700	281,300	259,100	289,600	—6·6	+1·4	—9·3
	{ Autumn crop	4,654,100	4,378,500	3,766,300	(b)	+6·3	+23·6	...
	{ Winter crop	11,775,600	11,048,400	12,136,700	(b)	+6·6	—3·0	...
	Total	16,692,400	15,708,200	16,162,100	...	+6·3	+3·3	...
Madras Lower Burma		7,965,200	7,361,500	(c) 8,420,900	(c) 7,696,200	+8·2	(c) —11·4	(c) —3·0
		7,475,300	7,569,100	6,921,900	6,600,900	—1·2	+8·0	+13·2
	Total	58,249,900	53,088,300	55,939,300	...	+9·7	+4·1	...

PROVINCE		Yield (in cwts) of cleaned rice						
		Estimated yield of current year, i.e., of area in column 2	Yield of previous year, i.e., of area in column 3	Average of preceding		Percentage by which column 7 exceeds (+), or is less than (—), yield in		
						Column 8	Column 9	
1		7	8	9		10	11	
				Five years	Ten years		Five years	Ten years
Bengal	{ Summer crop	805,200	814,100	1,112,000	1,184,000	—1·1	—27·6	—32·0
	{ Autumn crop	34,795,100	21,923,100	24,314,800	26,299,800	+58·7	+43·1	+32·3
	{ Winter crop	257,394,700	142,106,400	173,878,000	187,551,500	+81·1	+48·0	+37·2
	Total	292,995,000	164,843,600	199,304,800	215,035,300	+77·7	+47·0	+36·2
Eastern Bengal and Assam	{ Summer crop (a)	2,364,300	2,813,000	2,331,100	2,586,000	—15·9	+1·4	—8·6
	{ Autumn crop	27,924,600	18,898,100	18,929,200	(b)	—3·4	+47·5	...
	{ Winter crop	123,055,000	86,067,000	104,853,100	(b)	+43·0	+17·4	...
	Total	153,843,900	117,778,100	126,113,400	...	+30·2	+21·6	...
Madras Lower Burma		48,788,100	43,699,100	(c) 59,181,400	(c) 53,916,800	+11·6	(c) —24·3	(c) —17·0
		63,362,000	64,659,000	61,631,600	57,376,800	—2·0	+2·8	+10·4
	Total	558,489,000	390,979,900	446,181,200	...	+42·8	+25·2	...

(a) For Eastern Bengal only

(b) Not available

(c) For raiyatwari villages only

SUGARCANE.

Final General MEMORANDUM on the SUGARCANE crop of the season 1909-10

This memorandum summarises reports received from seven provinces, the aggregate sugarcane crop of which, on the average of the five years ending 1907-08, represents about 98·6 per cent of the total area under sugarcane in British India.

The **total area** under sugarcane in these seven provinces is now reported to be 2,127,100 acres, which represents a net decrease of 75,700 acres or 3·4 per cent as compared with the acreage of last year.

The **total yield** is estimated at 2,125,300 tons of unrefined sugar—an increase of 252,400 tons or 13·5 per cent as compared with last year.

The following is a summary of the provincial reports. The **figures in brackets**, following the name of each province, indicate what percentage of the entire sugarcane area in British India is ordinarily cultivated in that province.

United Provinces (52·7 %).—The total area is now reported to be 1,037,600 acres as compared with 1,120,100 acres last year—a decrease of 7·4 per cent. The rainy season was on the whole beneficial to the crop and the favourable prospects held out generally in the second forecast have been redeemed. Of the eastern districts which were reported in that forecast to have suffered from an invasion of grasshoppers and from excessive rain and floods, the Benares Division suffered the heaviest damage. Crushing operations began about the usual time. The total yield of raw sugar (*gaur*) is estimated at 955,200 tons compared with 844,200 tons last year—an increase of 13 per cent.

Bengal (18·1 %).—The total area planted is now reported to be 351,600 acres compared with 375,200 acres last year—a decrease of 6·3 per cent, attributed to defective rainfall at the time of planting in Behar where the crop is most important. The weather conditions were on the whole favourable, except in South-West Bengal where the crop suffered from heavy rainfall at the end of August and in the Presidency Division where it was damaged in places by the cyclone of October. Some injury was also done by insect pests in Sambalpur. The total yield is estimated to be 309,400 tons as against 255,900 tons last year—an increase of 20·9 per cent.

Panjab (12·3 %).—The total area is reported to be 411,700 acres as compared with 365,700 acres last year—an increase of 12·6 per cent. The total rainfall being well above the average, the year has been an exceptionally favourable one, and the crop of the year is the largest on record. The total yield is estimated at 334,000 tons as against 265,600 tons last year—an increase of 25·7 per cent.

Eastern Bengal and Assam (9·1 %).—The area planted is now reported to be 170,800 acres as compared with 177,800 acres last year—a decrease of nearly 4 per cent. Excessive rainfall characterised the season since the issue of the first forecast and resulted in damage to the crop in some parts of the province. The crop in Rajshahi Division suffered in addition from the effects of the violent cyclone of October. The total yield is nevertheless estimated at 198,800 tons as against 174,900 tons last year—an increase of 13·7 per cent.

Madras (2·9 %).—The total area planted in *raiyatwari* villages is reported to be 41,200 acres, which is one per cent less than the area at this date last year. The decrease is attributed to want of timely rain. The prospects of the crop are stated to be either fair or good. The yield is estimated at 77,900 tons which is nearly the same as that estimated last year, namely, 78,000 tons. The total area under sugarcane reported from *villages other than raiyatwari* is 2,000 acres, which is about 5 per cent more than the area reported at this date last year. The probable outturn of this area is estimated at 3,900 tons.

Bombay (2·3 %).—The total area planted is now reported to be 81,600 acres (50,600 in British districts and 31,000 in Native States) as against 92,800 acres (59,800 in British districts and 33,000 in Native States) of last year—a decrease of 12 per cent, attributed partly to deficiency of water-supply in wells and channels at the time of sowing and partly to rotation. The crop has done well except in some places in the eastern tracts where it suffered from prolonged break in the monsoon in July-August and also from deficiency of water-supply at the close of the season. The total yield is estimated at 213,000 tons (135,000 in British districts and 78,000 in Native States) as against 221,200 tons (138,300 in British districts and 82,900 in Native States) of last year—a decrease of 3·7 per cent. Besides the above, 147 acres yielding about 329 tons are estimated for tracts which do not usually furnish statistics.

North-West Frontier Province (1·2 %).—The total area as now returned amounts to 30,600 acres as against 27,500 acres last year—an increase of 11·3 per cent. The increase occurred wholly in the Peshawar district and is attributed to favourable rains at the period of planting and to increased facilities for irrigation. Cane disease is reported to have seriously affected the crop in the Hazara district while in Bannu the cane was attacked by insect. The total yield is estimated at 33,100 tons as compared with 30,100 tons last year—an increase of about 10 per cent.

E. SEQUEIRA,
for Director General of Commercial Intelligence

Estimate of the Sugarcane crop of the season 1909-10

PROVINCE	Area (in acres)						
	Of current year's crop (1909-10)	Of previous year's crop (1908-09)	Average of preceding		Percentage by which column 2 exceeds (+), or is less than (—), area in		
					Column 3	Column 4	
1	2	3	4		5	6	
			Five years	Ten years		Five years	Ten years
United Provinces	1,037,600	1,120,100	1,276,800	1,246,400	— 7·4	—18·7	—16·8
Bengal	351,600	375,200	433,800	467,400	— 6·3	—18·9	—24·7
Panjab	411,700	365,700	297,800	317,900	+12·6	+38·2	+29·5
Eastern Bengal and Assam	170,800	177,800	204,600	...	— 3·9	—16·5	...
Madras	43,200	43,700	50,800	50,700	— 1·1	—15·0	—14·8
Bombay (a)	81,600	92,800	...	...	—12·1	...	...
North-West Frontier	30,600	27,500	28,500	(b) 27,600	+11·3	+ 7·4	...
Total	2,127,100	2,202,800	...	...	— 3·4	...	...

PROVINCE	Yield (in tons) of raw sugar (<i>gaur</i>)						
	Estimated yield of current year, i.e., of area in column 2	Yield of previous year, i.e., of area in column 3	Average of preceding		Percentage by which column 7 exceeds (+), or is less than (—), yield in		
					Column 8	Column 9	
1	7	8	9		10	11	
			Five years	Ten years		Five years	Ten years
United Provinces	955,200	844,200	1,025,100	1,024,300	+13·1	— 6·8	— 6·7
Bengal	309,400	255,900	430,400	463,700	+20·9	—28·1	—33·3
Panjab	334,000	265,600	202,300	(b) 214,500	+25·7	+65·1	...
Eastern Bengal and Assam	198,800	171,900	215,900	...	+13·7	— 8·0	...
Madras	81,800	81,000	96,100	(b) 97,600	+ 0·9	—14·9	...
Bombay (a)	213,000	221,200	...	...	— 3·7	...	...
North-West Frontier	33,100	30,100	27,000	(b) 25,700	+10·1	+22·5	...
Total	2,125,300	1,872,900	...	...	+13·5	...	...

(a) Including Native States

(b) Incomplete

CHAMBERS OF COMMERCE.

BENGAL.

THE details below are taken from the Abstract of the Proceedings of the Bengal Chamber of Commerce for the month of January, 1910 :—

Seventh Congress of Chambers of Commerce of the Empire.

The Committee have published a report by Sir Alex. McRobert and Mr. G. B. Allen, who jointly represented the Upper India Chamber and this Chamber at the Sydney Congress in September last. The report gives an interesting account of the proceedings, and it also deals with a question which was raised with reference to the voting at the Congress. According to the printed rules of procedure, Chambers representing a population of a million and upwards are entitled to five votes. But the Indian delegates found at Sydney that the intention was to allow only two votes to the Bengal Chamber and one vote to the Upper India Chamber. They formally protested against this decision, and asked that the Indian Chambers should be put on the same footing as the other Chambers in the matter of voting. The same point was previously raised by Sir Alex. (then Mr.) McRobert at the London Congress in 1906; but the mistake has not been corrected. He has now suggested that the Bengal Chamber and the other Indian Chambers should approach the authorities of the Congress, and should press to be allowed to exercise their voting power in accordance with the rules.

The Committee of this Chamber are in agreement with Sir Alex. McRobert on the subject, and they are accordingly addressing the London Chamber in the sense indicated.

Railway Risk Note Form B : Carriage of Perishable Goods.

The question of the liability of a railway, under the terms of this risk note, for perishable goods has been before the Committee during the month. A case was brought to notice in which a consignment of mangoes was alleged to have been unduly delayed in transit, with the result that the mangoes had to be destroyed. The Committee were asked for their opinion as to whether a claim would lie against the railway in such a case. They replied to the effect that it was for the court to decide whether there had, or had not been, undue delay. But if undue delay could be proved, the railway might perhaps be held to be liable on the ground of total loss. The Committee were not, however, disposed to express a positive opinion on the point.

Railway Traffic Statistics.

Reference was made in the Abstract for December to a proposal that the monthly abstracts of railway traffic statistics should be discontinued. These abstracts, which are published in the local *Gazette*,

give the traffic returns for the particular month, together with those for the corresponding month of the previous year. But they are not as a rule issued until about three months after the close of the period to which they relate. As they are thought to be too late to be of service to the public, the Railway Board suggested that they should be discontinued. The Director-General of Commercial Intelligence brought the proposal to the notice of the Committee, who consulted the Calcutta Wheat and Seed Trade Association regarding it. A table showing the total annual traffic in the principal commodities is appended to the Railway Administration Report. This report is available by the first week in June, that is to say, five months after the close of the year to which it relates. The Railway Board asked whether this table would not sufficiently serve the purposes of the commercial community.

The Committee replied to the effect that some exception had been taken to the suggested discontinuance of the monthly statements. At the same time it seemed to them to be the general opinion that the particulars given in the Railway Administration Report are sufficient for commercial purposes. And as the publication of the monthly abstracts could not be expedited, the Chamber did not object to their discontinuance. Should experience prove, however, that inconvenience is occasioned by the change, the Committee may bring the matter to the notice of Government again.

Valuation of Sugar.

In the Abstract for January, it was stated that a question had been raised with reference to the valuations of sugars in the Import Tariff Schedule IV. The Karachi Chamber of Commerce recommended the adoption of some definite method as the basis for fixing the valuation; and the particular method which they favoured was that the average prices for one year, or preferably for the three preceding years, should be taken. The idea was that consumers would then be able to calculate in advance, with approximate accuracy, the amount of duty which they would be called upon to pay. The Karachi Chamber further proposed that the tariff valuations should be fixed in future for a period of three years.

The Committee submitted these recommendations to the members of the Chamber. From the replies which were received, it was clear that they were strongly and unanimously supported by the importers of sugar. Importers are distinctly of opinion that the present system should be changed; and they considered that a system whereby the valuations would be based on the average prices for the three preceding years would be fair and reasonable. They likewise favoured the proposal that the valuations should be fixed for a period of three years. In placing this expression of opinion before the Director-General of Commercial Intelligence on the 22nd January, the Committee added that those members of the Chamber who are interested in the trade as refiners, and who are sugar manufacturers in this country, dissent from

the proposals put forward by Karachi. It is understood, however, that these firms would not take strong exception to the adoption of a definite method of fixing the valuations, although they object to the particular method which has been suggested.

Import Duty on Denatured Spirit.

According to the rules in force in Bengal, imported spirit which is to be denatured—i.e. to be rendered effectually and permanently unfit for human consumption—so as to bear the reduced rate of duty, must not be of a lower strength than 30 per cent overproof. But in Bombay imported spirit to be denatured must not be of a lower strength than 50 per cent over London proof. It was mentioned in the last Abstract that the Board of Revenue had asked for the opinion of the Chamber as to raising the minimum strength in Bengal from 30 per cent to 50 per cent overproof. The Board understood that two objections might be urged to this proposal. The first of these was that denatured spirit of the strength of 30 per cent overproof to 40 per cent overproof was said to be suitable for the manufacture of lac. It was said to be principally used in Bengal for this purpose, and that to raise the limit might increase the cost. The second reason was that, in the case of spirit manufactured in India, the fixation of a higher strength would practically penalise the pot still in favour of the patent still.

After consulting the members of the Chamber, the Committee replied to the effect that no exception was taken to the proposal to raise the standard. The objections referred to were not considered, they understood, to be of importance. There seems to be no reason to fear that any injury can accrue to the lac industry, more especially as the difference in the cost of the higher strength of spirit is very small. And as regards the exclusion of the pot still in favour of the patent still, it has to be remembered that with the new system of central distilleries the majority of small pot stills will be abolished.

Adulterated Tea Dust.

In the October Abstract, mention was made of certain consignments of tea dust which the London Customs Commissioners had refused to admit into the United Kingdom, because the dust was excessively adulterated with sand. The Board of Revenue brought the matter to the notice of the Chamber, and stated that the consignments had been re-exported to Calcutta. According to the Calcutta Municipal Act, the Chairman of the Corporation is empowered to seize any article intended for human food, if such article appear to him to be adulterated. In future, cases of re-importation of tea dust would be referred, the Board said, to the Health Officer of the Corporation for disposal, by the Chairman, under the provisions of the Act.

The Indian Tea Association have been subsequently in correspondence with the Board as to the proportion of sand which, in the opinion of the Calcutta Customs authorities, renders tea dust unfit for

human consumption. The Board have replied that the English standard will be followed by the Health Officer, in considering any consignments which may be brought to his notice. Their information was to the effect that, in 1907, a sample of dust was condemned by the Commissioners of H. M. Customs because it contained 2 per cent of iron sand, and 4 per cent of other mineral matter. The Health Officer has also said that, if there should be sufficient sand to defraud the purchaser, the case would be taken up as adulteration within the meaning of section 503 of the Calcutta Municipal Act, 1899. He added that it might happen that a smaller quantity of sand would be injurious, and that much depends upon what is included in the term "sand."

Measurement of Jute.

In the Abstract for December, the Committee referred to a proposal, which had been made by the Calcutta Liners' Conference, in regard to the measurement and weighing of jute. In accordance with arrangements which have been in force for many years, the bulk of the jute exported from Calcutta is measured at the press houses by the Licensed Measurers' Department of the Chamber on behalf of the steamship companies. The Conference proposed that this system should be abandoned, and that all jute should be measured and weighed alongside: that is to say at the Kidderpur docks for vessels loading there, and on the deck of vessels loading in the stream.

The Committee consulted the Shipping Sub-Committee of the Chamber and the Calcutta Baled Jute Association upon this proposal. The general opinion appears to be that the change might be made, if the measurement ton of jute were to be defined in the Calcutta Tonnage Schedule as 54 cubic feet, instead of 52 cubic feet, as at present. But there is some apprehension that delays might occur in measuring and weighing on vessels loading in the stream. With the object of obtaining more definite information upon this point, it has been recommended that an experiment should be made on a vessel loading a full cargo of jute in the stream. It seems to the Committee that this recommendation might be adopted with advantage. But as the season is now too far advanced to permit of its being carried out, they have decided to allow the whole question to stand over until the beginning of next jute season.

Cancellation of Stamps on Receipts.

It has been held by the High Courts to be contrary to the provisions of section 12 of the Indian Stamp Act for stamps on receipts, etc., to be cancelled by a cross. Either the signature, or the date, must be written over the stamp, in order to comply with the requirements of the section. During the month, the Committee pointed this out to a firm who complained that they had been called upon, by the Collector of Stamp Revenue, to pay a fine for so cancelling stamps.

Indians Trading under European Names and Titles.

At their meeting on the 18th January, the Committee had before them a further representation, which the Bombay Chamber of Commerce made on the 26th November to the Government of Bombay on this subject. In the Abstract for August, it was mentioned that difficulty was being experienced in Bombay by reason of the growing practice of Indians assuming, and trading under, European names and titles. The Committee of the Bombay Chamber were of opinion that this practice would have to be checked, and they suggested to the Government of Bombay that action in that direction should be taken. It did not appear to the Committee of this Chamber that, so far as Calcutta and the province of Bengal generally are concerned, there was any need for the question to be raised. But they asked the Calcutta Trades Association for an expression of their views upon the proposals made by the Bombay Chamber. In reply the Association stated that an Act for the registration of partnerships might, it was thought, include provisions for giving publicity to the assumption by Asiatics of European names. This was the suggestion put forward by the Bombay Chamber, and the Association considered that the need in Bombay for such a regulation afforded an additional reason for legislation to provide for the registration of partnerships.

In view of the attitude of the Government of India on the question of the registration of partnerships, the Committee did not see that any useful purpose would be served by their moving in the matter.

TARIFF CHANGES AND CUSTOMS NOTIFICATIONS.

THE *Board of Trade Journal*, published on the 3rd instant, in the section relating to Tariff Changes and Customs Regulations, gives particulars about:—

CUBA.—Proposed Maximum and Minimum Tariff.
DOMINION OF CANADA-FRANCE.—Ratification of Franco-Canadian Conventions.

DOMINION OF CANADA.—Importation and Exportation of Live Stock.

DOMINION OF CANADA (YUKON).—Removal of additional Tax on Ale and Beer.

COMMONWEALTH OF AUSTRALIA.—Customs Decisions.

FRANCE.—Importation of Pepper from Indo-China. Customs Decisions.

FRANCE (MADAGASCAR).—Export Duty on Cattle.

FRANCE (FRENCH ESTABLISHMENTS IN INDIA).—Increase of Consumption Duty on Spirits, etc., Manufactured in or Imported into Pondicherry and Karikal. Abolition of Duties on Tobacco.

GREECE.—Tariff Modifications, Taxation of Malt and Beer.

PRICES OF COMMODITIES.

THE following are the index-numbers of the prices of forty-five commodities, worked out to the month of December last by Mr. A. Sauerbeck, the average of the eleven years 1867—1877 being 100:—

Average.			
1878—1887 . . .	=79	1901 . . .	=70
1888—1897 . . .	=67	1902 . . .	=69
1890—1899 . . .	=66	1903 . . .	=69
1899—1908 . . .	=72	1904 . . .	=70
		1905 . . .	=72
1883 . . .	=82	1906 . . .	=77
1896 . . .	=61	1907 . . .	=80
1899 . . .	=68	1908 . . .	=73
1900 . . .	=75	1909 . . .	=74

The index-number is one point higher than in the preceding year, and is 26 per cent below the standard period, which was equivalent to the average of the twenty-five years 1853—77, but it is 12 per cent above the average of the lowest decade, 1890—1899.

The monthly fluctuations were thus:—

1895 February . . .	69.0	1903 April . . .	74.3
1896 July . . .	59.2	1909 May . . .	74.5
1900 July . . .	76.2	1909 June . . .	75.1
1901 December . . .	68.4	1909 July . . .	75.2
1907 May . . .	82.4	1909 August . . .	74.9
1908 December . . .	72.3	1909 September . . .	74.7
1909 January . . .	72.0	1909 October . . .	75.2
1909 February . . .	71.9	1909 November . . .	75.5
1909 March . . .	72.4	1909 December . . .	76.3

Corn advanced till July, but had a lower market later on. Meat followed a similar course, while sugar, coffee and tea advanced towards the end of the year. Sugar, owing to a smaller crop, rose from 10s. 1d. per cwt. for beet to 12s. 4d. and the coffee standard of Santos went from 26s. 6d. per cwt. to 37s., but closed at 33s. Iron showed on the average very little change, but copper fell from £63½ per ton to £55, and rose again to £61½. Tin was firmer and finished at £153 per ton, against £132 at the end of 1908. Lead was on a moderate level throughout the year, and realised about £13½ per ton. Export coal was on the average cheaper; prices ruled higher from April to September, owing to labour questions, but were lower in October and November. Among textiles we had a very strong advance for cotton from 5d. per lb. to 8½d., against 9d. in 1904 and 23½d. the lowest in 1895. Wool rose from 10 to 30 per cent, according to quality. Flax was also dearer, but jute was cheaper than in the year before. Hemp and silk were on the average unchanged. In the group of "sundry materials," we have a higher market for hides, leather and linseed oil, but not much change for other articles.

Silver, though lower in the course of 1902, had the lowest annual average on record, and the price movements were within moderate compass. Stocks accumulated in the Indian Treasury till October, but are now very much reduced. The prices and

index-number were as follows (60.84d. per ounce being the parity of 1 gold to 15½ silver = 100):—

	Price.	Index- No.
Average, 1889—1898 . . .	35½d.	58.3
" 1899—1908 . . .	27½d.	44.6
" 1893 . . .	35½d.	58.6
" 1902 . . .	24½d.	39.6
" 1908 . . .	24½d.	40.1
" 1909 . . .	23½d.	38.9
Lowest, November, 1902 . . .	21½d.	35.6
End December, 1906 . . .	32½d.	53.1
" December, 1907 . . .	24½d.	40.9
" December, 1908 . . .	23½d.	38.1
" November, 1909 . . .	23½d.	38.8
" December, 1909 . . .	24½d.	39.9

EASTERN BENGAL AND ASSAM.

Crop Reports.

(By Telegram.)

Shillong, Feb. 22nd.

THE following is a summary of the weather and crop reports of Eastern Bengal and Assam for the week ending 21st instant:—

The weather is seasonable. Light showers have fallen throughout the province and have done much good to standing crops, but more rain is needed. The transplantation of spring rice, the harvesting of sugarcane and the pruning and hoeing of tea are in progress. The gathering of mustard still continues.

Fields are being ploughed up for jute and *aus* rice. The prospects of spring rice, tobacco, sugarcane, tea, mustard, linseed and til are good.

The average price of common rice has risen by about one per cent.

Cattle disease is reported in Mymensingh, Faridpur, Darrang, Nowgong and Lakhimpur.

—Owing to the remarkable development of raw silk consumption by American cotton mills, says the *Manchester Guardian*, shipments of tussah silks to the United States have increased considerably, with the result that they have commanded higher prices at a time when weakness has been shown in other descriptions. The competition of cotton-back satins and cotton-warp pongees woven in cotton mills has become a serious matter with manufacturers of light silk fabrics in the United States and also to some extent with importers of similar goods. The new American tariff on spun tussah valued at less than a dollar is 35 cents per lb., and for higher values 55 cents. As the grades of tussah which under normal conditions of the market would come under the lower specific charge have advanced owing to a larger demand for the cheaper material, importers who had contracted ahead for the delivery of large quantities are "out" by the equivalent of 10d. per lb. in many of their calculations.

BOMBAY COTTON INDUSTRY.

Short-time Movement.

THE movement in favour of short-time working in the Bombay cotton mills has, within the past few days, been placed formally before the Committee of the Millowners' Association by Messrs. P. M. Petit, Sons and Co., Agents of the Manockjee Petit Mills, in a letter from which we take the following particulars:—

A comparison of the prices of cotton, cloth and yarn of this year with those of the last year will show immediately what an awkward position the industry is in at present:—

15th January Year.	Class.	Price.	Loss per cent.	Nett cost after cleaning	Difference.
1909 . . .	Bengal fully good	181	12	194	77
1910 . . .	" " " "	252	12	271	
1909 . . .	Khandesh fully good	183	14	201	78
1910 . . .	" " " "	254	14	279	
1909 . . .	Berar fine	3.8	10	218	80
1910 . . .	" " " "	288	10	298	
1909 . . .	Saw-ginned Dharwar	230	2	247	82
1910 . . .	" " " "	306	12	329	
1909 . . .	Compta	236	11	259	87
1910 . . .	" " " "	5	14	346	
1909 . . .	Barsi	225	15	250	106
1910 . . .	" " " "	20	15	3.6	
1909 . . .	Oojein	208	4	229	106
1910 . . .	" " " "	303	14	335	

The prices secured at present for Bombay yarn No. 10s. and 20s. compared with those of the last year are as under:—

1909 . . .	No. 10 5—5½ annas per lb.	Rise in prices 1½
1910 . . .	" 6½—6¼—16 "	anna per lb.
1909 . . .	No. 20 6½—7 annas per lb.	1½ anna per lb.
1910 . . .	" 7½—8½ "	

It thus seems that in yarn No. 10s. the loss is ½ anna per lb. and in yarn No. 20s. ¾ anna per lb.

It is not considered that the short-time movement in Bombay will tend appreciably to lower the price of cotton, as the speculation in America and the exports of Indian cotton to Japan and the Continent play a very important part in determining and regulating the prices of cotton grown in this country, but it is thought that this movement will act as a strong stimulant and will be a decisive factor in raising the prices of yarn and cloth. It seems that 3,750 bales of cotton are consumed every day in Bombay mills alone, so that if it were decided to close the mills one day in a week it would mean a reduction in the consumption of cotton of 15,000 bales per month.

Some 2,800,000 spindles are working in Bombay mills. Taking the average production of yarn of all counts at 8 oz. per spindle, the Bombay mills put forth 1,400,000 of lbs. of yarn every day, of which 350,000 lbs. of yarn are used in the weaving of cloth, leaving 1,050,000 lbs. or 2,625 bales of yarn of 400 lbs. If the mills were closed one day a week, there would be a lesser production of

105,000 bales of yarn in a month and the reduction would be one of 210,000 bales if they were closed twice a week. There are 39,000 looms in Bombay mills. Taking the average production of cloth at 11 lbs. per loom every day, 1,080 bales of 400 lbs. of cloth are daily manufactured in that city. That means that, if the mills were closed once a week, there would be a lesser production of 4,320 bales per month and if closed twice a week the production would be reduced by 8,640 bales.

If, however, the mills were closed one day in a week, there would be an increase of two annas per lb. in the general expenses and if they were closed two days in a week, there would be an increase of a further quarter or even half anna per lb. in the price of yarn and cloth if the short-time movement remained in force in Bombay for, say, three months.

TANNED INDIAN GOAT AND SHEEP SKIN SALES.

The first sale of the present year, after an interval of seven weeks, commenced in London on January 24th and was to finish on February 2nd. The offerings were as follows:—

Madras goat . 713,343 } 992,844 } Madras . 676,399 } 902,449
Bombay goat . 279,501 } goat offered. } Bombay . 226,050 } goat sold.
Madras sheep . 623,711 } 764,949
Bombay sheep . 141,238 } sheep offered.
Total, 1,757,793 skins offered.

Goat Skins.

The supply was again about an average one. There was a good attendance of buyers, and with a fair steady demand a good clearance was effected with unusually little change in values. The quality of the skins was considerably worse, many of them being defective or scratched on the grain, and damage by tick was prevalent. Good to best tannages of spreading character sold without change on average first selections being generally rather dearer, and other sorts rather cheaper, but stout small pattern parcels were rather easier. Middle class tannages were about 1d. per lb. lower. Common and oily tannages were unchanged in value, but in rather better demand. Germany and France again bought largely, America moderately, but the home trade purchased very little.

Best Madras goat tannages brought fully late rates. Town tannages sold at from last sales' prices to 1d. decline, as also did Dindiguls and Trichys. Coimbatore show no change. Ambors and good up-country tannages averaged 1d. per lb. decline. Common and oily tannages were unchanged, but in rather better demand.

Good Bombay goat tannages were unchanged, fair tannages ½d. lower, but common skins were ½d. to 1d. dearer.

Sheep Skins.

The supply is the smallest offered during the past two years. So far the demand is fair. Good to best tannages are ½d. to 1d. per lb. dearer, other

sorts selling at from last sales' prices to a slight decline on undesirable parcels.

The next sales will commence, after an interval of six weeks, on Monday, March 7th, 1910.

BRITISH CENSUS OF PRODUCTION.

AFTER the hopes and fears that were aroused by the proposal for a Census of production, says the *Manchester Guardian*, it seems proper at least to give some little consideration to the information which has now been published relating to the shipbuilding, engineering, and one or two other trades. An interesting table is that which gives the value (including profit) of the net output of the various industries summarised in the present report. The same table also embodies other interesting data, some of which are given below in Table I:—

Table I: Value of Net Output.

	Net output. £	Persons employed.	Net output per person.
Shipbuilding and marine engineering	17,678,000	184,557	96
Engineering and electrical factories	48,425,000	455,561	108
Cycle and motor factories	5,399,000	46,809	115
Leather tanning and dressing factories	3,621,000	27,258	133
Paper-making factories	4,512,000	39,930	113
Government shipbuilding yards and lighthouse authorities	2,489,068	25,053	99

It should perhaps be pointed out that the firms (being those where power is used) were permitted to make returns for any consecutive twelve months ending between June 30th, 1907, and June 30th, 1908, and also that the net output is the amount by which the selling value exceeds the combined cost of materials bought and given out to other firms as sub-contractors. The net output per person employed is a most interesting figure. That for shipbuilding and marine engineering is certainly depressed by the exceptional state of that trade in the year 1907, but the present trade depression had not seriously affected the engineering trade during the period under review. Indeed, whereas shipping showed (so far as the returns went) a decrease of 1·3 per cent as compared with the previous year, engineering showed an increased output of 10 per cent. On the other hand, in the leather industry—the only other in which a comparison with 1906 was made—there was a fall of 2 per cent in 1907. From this it would appear that on the average engineering is a badly paid trade. Another interesting comparison is that between shipbuilding in private and Government yards. It must be pointed out that the net output at Government yards is based on net actual cost, and should be increased 5 or 10 per cent in order to effect a fair comparison with that from private yards. It is thus evident that the average rate of pay is distinctly higher in Government than in private yards. This in itself

is no proof that one is more efficient than the other. On this side of the question other tables throw some light, and reveal rather remarkable facts. Thus it appears that the war vessels built by private firms in the United Kingdom totalled 63,000 tons, and were valued at £3,512,000, or about £56 per ton. In Government dockyards the output of war vessels was 37,300 tons, with a value (i. e., cost of production) of £3,355,481, or £90 per ton, without any allowance for profit. Of course it should not be assumed that this great difference is entirely due to difference in efficiency, as probably the nature of the work was not strictly comparable in the two cases. The discrepancy is, however, very great, and suggests the need for further investigation.

Turning to engineering proper, the tables, which are too extensive to be reproduced here, give a good idea of the relative importance of the various branches. It is interesting, for instance, to note that the total of electrical manufactures, including lamps, cables, and telegraph material, is £13,782,000, as against £76,238,000 for general engineering, exclusive of marine engineering and locomotives built by railway companies. Indeed, textile machinery alone is nearly equal in value to the whole electrical output of the country. This is not, as might be thought possible, due to any very large imports of foreign electrical goods, for the exports were rather more than double the imports, but to the importance of the textile industry and the large export trade in textile machinery. Curiously enough, the report goes out of its way slightly to draw attention to the fact that the value per ton of machinery exported was distinctly higher than the value per ton produced, and by way of illustration mentions that whereas the average value of the textile machinery manufactured in this country was £33 per ton the value of that exported was £44 per ton free on board ship at English port. The report suggests that possibly the exported machinery was more valuable than that retained at home, but at least as regards textile machinery one would be inclined to think otherwise.

—The *Textil Zeitung* of 11th January, states that the German woollen industry effected a remarkably rapid recovery from the depression of 1907-08 and passed in 1909 through a period of great prosperity. The worsted branch of the industry was specially fortunate, and was able to support the steadily rising prices of raw material without difficulty. The woollen yarn branch, which was not so well supplied with orders, had considerable difficulty in meeting the high prices for wool, but its position improved in the latter part of the year. In spite of the large foreign wool clips and of 150,000 bales carried over from the previous year, there was an appreciable scarcity of wool by the autumn; prices rose slowly, with a short break in the summer, until the autumn, and there seems little likelihood of any great fall in the coming spring.

THE FOREIGN SEA-BORNE TRADE OF CALCUTTA.

THERE was again a satisfactory increase in this trade during the month of January and the total value was over 11 crores, an increase of 2 crores or by 22·35 per cent over the trade recorded in the same month of 1909. As in the month of December, imports contributed the larger share of the improved value, and, valued at 5·5 crores, rose by 1·4 crores or 35·74 per cent. Exports, valued at 5·7 crores, appreciated by only 60 lakhs or by 11·77 per cent. Imports of general merchandise were greater in value by 109 lakhs or 29·01 per cent, but there was also a larger demand for the precious metals and the value expanded by 35·6 lakhs (chiefly gold) or 143 per cent. The improvement in the export trade was due solely to larger shipments of Indian produce, the movements of gold and silver being very small.

Turning to the aggregate trade of the current year of which 10 months have passed, the results are more gratifying than they were a few months ago. The accounts show that the total value attained to 103 crores, giving an increase of 5·63 crores or 5·78 per cent. To this imports contributed 3·2 crores and exports 2·4 crores. While merchandise moved freely on both sides, the chief point of interest is disclosed in the large receipts of gold and silver coupled with a smaller export. The total treasure received rose by 162 lakhs in value and with decreased exports, the net sum remaining on balance was 195 lakhs. A glance at the accounts of trade for British India shows that up to the end of December Bengal and Eastern Bengal and Assam were the only two provinces showing an improved import trade in merchandise, and in the latter province the increase was of the smallest: all other provinces gave disappointing results.

Cotton goods as usual account for the chief portion of the increased imports. Their total value was 2·33 crores, or an advance of one crore, in which yarn and twist and all description of piece-goods participated. Up to the end of December Bengal had received cotton goods showing a total value greater by two crores. Bombay's trade was better by 14 lakhs, and the very small trade of the new province was also greater; but Sind, Madras, and Burma all showed a serious decline in this trade which aggregated a loss of 2·3 crores. There was a satisfactory increase of nearly 16 lakhs under metals owing to a larger demand for iron and steel. Sugar was also better by 6½ lakhs and mineral oil, by 7 lakhs. The only decreases of importance were in grain and pulse of 6 lakhs, machinery 10, and railway materials 16 lakhs. The decline in machinery is largely the result of a smaller demand from the local jute industry. In the coasting trade imports of grain and pulse fell from 60 to 22 lakhs in value. There were larger landings of mineral oil.

The one unsatisfactory feature of the export trade is the continued contraction in shipments of raw.

WORLD'S WINTER WHEAT CROP.

THE first issue of the Bulletin of Agricultural Statistics issued by the International Institute of Agriculture in Rome has been received. We quote the introductory note upon the scope of this branch of the service engaged in, and add, as illustrating what is aimed at, the statistics regarding winter wheat which are included in the first issue. The remarks in italics are those added by the Institute itself :—

According to Article 9 (*), paragraphs (a) and (b), of the Convention of the International Institute of Agriculture signed at Rome on June 7th, 1905, one of the principal objects of the Institute is to collect, compile, co-ordinate and unify all official statistical information, relating to agricultural products; and to encourage the collection of such information by the countries which do not now have a regular statistical service for such work; so as to compile information and totals as to the areas, conditions and production of agricultural products to be disseminated to parties interested throughout the world. By means of this statistical service, the Institute plans to present agricultural statistics

furnished by the official statistical services of the different countries, and thereby to publish more complete and reliable information as to growing crops than is now available to the world; with the hope of securing closer correspondence between the prices of agricultural products and the real conditions of supplies.

This service, however, does not comprise the entire scope of the Institute, whose jurisdiction embraces a large number of other objects of large value and interest to the world, all of which are embodied in the Convention of the Institute above referred to, in the Regulations of the Institute, and in the Decisions of the General Assembly.

It is the purpose of this Bulletin to outline only the scope of the service of Agricultural Statistics of the Institute as it is now being organised, and in this connection there are presented the Decisions of the General Assembly of the International Institute of Agriculture adopted at its second session held in December, 1909, in so far as they relate to the International Service of information as to agricultural products in the year 1910-11:—

WINTER WHEAT.

Name of country.	AREA SOWN (AUTUMN, 1909).			CONDITION JANUARY 1ST 100 REPR. AN AVERAGE. (*).			REMARKS. As to weather conditions; Improvement or deterioration, etc.
	Absolute figures.	Compared with har- vested area of last year (1909).	Compared with ave- rage har- vested area of previous years.	1910.	1909.	10 years average.	
	Hectares.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	
Germany (a) . . .	...	...	...	(6) 2.4	(6) 3.3	2.5	<i>Much better than last year, and slightly better than the average for 10 years.</i>
Hungary (b) (3) . . .	3,366,600	103.3	...	110	...	...	Temperature favourable; sufficient rain; in general the crops are progressing favourably. Damage caused by the hessian fly and the trit fly, approximately 10 per cent; by other insects 2 per cent.
Belgium (b) . . .	...	...	...	100	...	...	...
Bulgaria (b) . . .	...	...	...	103	...	...	...
Denmark (b) . . .	(1)	...	...	93	...	...	Sowing delayed by wet weather.
Spain (b) . . .	3,834,000	101.4	...	...	...	...	The condition of the crops is, in general, good throughout the whole of Spain; in most districts sowing took place at the customary time.
United States (a) . . .	13,550,570	(2) 107.9	(2) 106.5	(7) 95.8	(7) 85.3	91.5	<i>Much better than last year, and slightly better than the average for the past 10 years.</i>
Great Britain (b) . . .	...	...	...	...	...	...	On account of the unfavourable temperature which prevailed during the past autumn, it is believed that the area sown in 1909 is smaller than the area sown for the same period in 1903.

WINTER WHEAT—contd.

Name of country.	AREA SOWN (AUTUMN, 1909).			CONDITION JANUARY 1ST 100 REPR. AN AVERAGE. (*)			REMARKS. As to weather conditions; Improvement or deterioration, etc.
	Absolute figures.	Compared with har- vested area of last year (1909).	Compared with ave- rage har- vested area of previous years.	1910.	1909.	10 years average.	
	Hectares.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	
Canada (b)	303,525	113	...	(10) 95	...	...	.....
India (a)	8,986,444	103.2	...	...	...	...	.....
Luxemburg (b)	11,280	105	...	(6) 2.21	...	...	During the commencement of seed- ing the weather was fairly good in all the communes; later, however, from the middle of October until the end of the year, considerable rain fell, delaying seeding in most of the communes. Wheat especial- ly was sown under unfavourable conditions in almost all of the communes.
Russia in Europe (b)	...	...	...	..	...	...	According to the official report pub- lished December 13—26, the condi- tion of the crops was not every- where satisfactory. In almost all the Central, South-Eastern and Eastern Governments the crops were in an unsatisfactory condition when they became covered with snow. The conditions, however, are better outside the Black Soil Zone, in the Governments of the North-West a part of the North, and also the South-West. In the other Governments the conditions of crops are generally satisfactory. There has been a considerable de- crease in the area sown, especially in those Governments where the conditions have been mentioned as unsatisfactory.
							In the Report of XII 20th 1909, 12th 1910 it is stated that the condition of the crops had not much deterio- rated at the commencement of winter, except in three Govern- ments. The general condition of crops has not changed; in several Governments there has even been an improvement.
San Marino (b)	2,059	100	..	100	...	..	Rainy season without harmful results.
Sweden (b) ; (4)	50,000	107	...	100	...	...	Autumn very favourable for the development of crops.
Switzerland (b) ; (8)	(5) 61,900	100	...	100	...	...	Early sown crops are progressing well, though later seedings are less favourable. In many districts field mice and voles, and also slugs have caused some damage.
TOTAL	...	...	...	...	...	...	

(*) The word "average" is intended to represent a condition promising a yield per hectare (or unit or surface) equal to the average yield of the last ten (10) years.

(a) = Reports published regularly.

(b) = Replies to questionnaire.

(1) Area sown, about the same as in 1907 (40,363 ha.).—(2) Percentage of the area sown.—(3) Approximate estimates.—(4) Approximate calculations.—(5) Including 23,700 ha. of Grelt.—(6) Condition of the crops on November 15 of the preceding year; scale 1-5; 3=average.—(7) Percentage of a "normal" condition on December 1st of last year.—(8) Approximate estimate.—(10) Percentages of a "standard" condition.

FOOD-GRAINS AND SALT.

Retail Prices of certain Food-grains and Salt at selected stations for the second half of January, 1910. (Prices are stated in annas and pies per seer of 2·06 lbs.)

	Rice, common	Wheat	Barley	Jawar	Bajra	Ragi	Gram	Salt
	a. p.	a. p.	a. p.	a. p.	a. p.	a. p.	a. p.	a. p.
BURMA—								
Rangoon . . .	1 3	...	...	...	...	...	...	1 2
Toungoo . . .	1 3	...	...	...	...	...	...	1 2
EASTERN BENGAL AND ASSAM—								
Rangpur . . .	1 4	2 1	...	...	...	...	...	0 11
Backerganj . .	1 4	...	...	...	...	...	...	1 0
BENGAL—								
Calcutta . . .	1 10	1 10	...	...	...	...	...	0 10
Patna . . .	1 2	1 6	0 10	...	...	...	...	0 10
UNITED PROVINCES—								
Cawnpore . . .	...	1 9	0 11	0 11	1 0	...	0 11	0 9
Fyzabad . . .	...	1 8	0 11	0 11	1 0	...	1 2	0 10
Meerut . . .	...	1 7	0 10	0 11	1 0	...	0 11	0 9
PANJAB—								
Delhi . . .	...	1 7	0 10	0 10	1 0	...	0 11	0 9
Amritsar . . .	...	1 5	0 9	0 10	0 11	...	0 10	0 7
Rawalpindi . .	...	1 5	0 10	0 11	0 11	...	0 11	0 7
SIND—								
Karachi . . .	...	1 10	...	1 2	1 3	...	1 3	0 7
BOMBAY—								
Belgaum . . .	...	1 7	...	1 1	1 0	...	...	0 9
Ahmadnagar . .	...	1 10	...	1 0	1 0	...	...	0 11
Bombay . . .	...	2 6	...	1 5	1 5	...	...	0 11
Ahmadabad . . .	...	1 8	...	1 0	1 3	...	...	0 7
CENTRAL PROVINCES—								
Jubbulpore . .	...	1 8	...	0 11	...	...	1 2	1 0
Nagpur . . .	1 6	1 8	...	1 2	...	...	1 2	1 0
Raipur . . .	1 3	1 8	...	...	...	...	1 0	1 0
MADRAS—								
Bellary . . .	1 10	...	...	1 1	...	1 0	...	0 10
Madras . . .	2 3	...	...	...	...	1 4	...	0 6
Salem . . .	2 1	...	...	1 4	1 6	1 2	...	1 0

—We translate the following particulars from the Report on the Customs Administration of Persia during the Persian 21st March, 1908, to 20th March, 1909:—The year 1908 was for the whole world a year of intense crisis, more or less acute. This situation, signalled by periodical bulletins, is reflected in the latest commercial statistics which have just been published. In other words, the remarkable strain which commenced in 1904, continued in 1905 and 1906, reacting its limit in 1907, was followed in 1908 by a great commercial depression. The trade returns for England show a diminution of 112 millions sterling, or 9·5 per cent when compared with the figures of the previous year. In the German statistics we find for 1907-08 a diminution of 525 million marks or 3·5 per cent. In the United States this diminution attained the formidable figure of 477 million dollars, or 14 per cent; in France, 447 million francs, or 3·75 per cent; for Belgium, 787 millions (special commerce), or 11·9 per cent; for Austria-Hungary, 102 million of crowns, or 2 per cent; for Italy, 187 millions Lires or 3·8 per cent; for Switzerland, 214 millions of francs, or 13 per cent; for Japan 113 million yen, or 12 per cent; for British India 32 crores of rupees, or 10 per cent; for Egypt

1·75 per cent. This crisis chiefly affected industrial countries, or those that had too rapidly developed. It should consequently have been felt on a small scale in Persia. Unfortunately the uneasiness, purely economic in the countries enumerated above, was complicated in Persia by grave political disturbances, during which security, the indispensable condition for trade, was totally absent in many parts of the country, notably in the South. This second factor has nullified the advantage that Persia would have found in the absence of industry, so that the results now published testify to a situation as unfavourable as in other countries. During the period under report, trade reached 698,691,072 Krans (55 Krans = £1) whereas in the previous year the movement had attained 725,514,945 Krans. There is thus a diminution of 26,823,873 Krans or 3·69 per cent. This sum of 698,691,072 Krans is divided into 372,484,073 Krans for imports and 326,206,999 Krans for exports. In the previous year the import trade reached the value of 408,434,263 Krans, and exports 317,080,682 Krans. The figures for the year under report thus show a diminution of 35,950,190 Krans or 8·80 per cent for imports and an increase of 9,126,317 or 2·87 per cent for exports.

EXPORTS OF WHEAT AND FLOUR.

Statement showing the exports of wheat and wheat flour from British India to Foreign Countries in each of the ten months, April 1909 to January 1910 of the years 1904-1905 to 1909-10:—

	1904-05		1905-06		1906-07		1907-08		1908-09		1909-10	
	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.
BENGAL—												
April . . .	613,129	...	169,368	...	9,014	...	12,855	...	3,360	...	272,044	...
May . . .	1,205,318	...	663,696	...	16,398	...	40,881	...	6,506	...	1,026,554	...
June . . .	1,477,348	...	631,938	...	29,860	...	42,065	...	5,019	...	748,294	...
July . . .	771,105	...	371,322	...	72,099	...	39,656	...	5,924	...	324,373	...
August . . .	738,830	...	52,489	...	10,967	...	16,770	...	6,610	...	264,333	...
September . .	605,516	...	39,210	...	13,722	...	10,020	...	4,719	...	13,956	...
October . . .	601,563	...	112,865	...	12,545	...	10,256	...	9,432	...	4,985	...
November . . .	1,072,242	...	141,709	...	9,843	...	8,998	...	4,591	...	6,077	...
December . . .	628,404	...	179,542	...	5,930	...	3,153	...	5,817	...	6,819	...
January . . .	744,332	...	28,119	...	8,977	...	4,314	...	3,613	...	5,233	...
TOTAL		8,457,817		2,390,258		189,355		188,968		55,591		2,672,668
BOMBAY—												
April . . .	523,551	...	646,148	...	88,333	...	68,828	...	20,921	...	168,321	...
May . . .	1,149,299	...	881,105	...	167,451	...	166,153	...	42,477	...	716,519	...
June . . .	577,691	...	534,526	...	148,807	...	167,294	...	59,088	...	751,301	...
July . . .	384,209	...	333,117	...	189,630	...	276,581	...	45,539	...	465,304	...
August . . .	363,345	...	306,811	...	61,663	...	104,744	...	38,365	...	251,753	...
September . .	572,222	...	349,378	...	72,300	...	107,104	...	68,259	...	64,433	...
October . . .	612,310	...	341,095	...	163,977	...	143,734	...	72,798	...	97,054	...
November . . .	938,795	...	304,367	...	110,542	...	111,818	...	70,846	...	100,746	...
December . . .	796,275	...	239,770	...	91,367	...	49,513	...	50,948	...	49,614	...
January . . .	656,353	...	253,153	...	132,755	...	39,082	...	32,963	...	71,456	...
TOTAL		6,574,050		4,249,380		1,217,825		1,231,851		502,254		2,736,501
SIND—												
April . . .	1,321,955	...	718,621	...	439,238	...	1,395,557	...	20,968	...	17,306	...
May . . .	1,379,457	...	1,542,800	...	1,147,804	...	1,341,517	...	14,573	...	212,803	...
June . . .	2,753,545	...	3,365,233	...	2,724,525	...	1,851,899	...	117,881	...	3,263,113	...
July . . .	3,180,587	...	2,501,383	...	3,178,056	...	2,886,485	...	490,141	...	4,831,931	...
August . . .	2,934,607	...	1,889,121	...	1,764,921	...	2,879,693	...	247,313	...	3,044,522	...
September . .	2,658,385	...	502,399	...	665,183	...	2,775,133	...	467,967	...	416,967	...
October . . .	2,335,563	...	569,923	...	1,372,291	...	2,429,341	...	686,313	...	757,944	...
November . . .	3,397,137	...	1,002,671	...	956,909	...	1,061,105	...	220,400	...	698,865	...
December . . .	3,163,243	...	662,303	...	8,20 2	...	343,783	...	15,321	...	630,334	...
January . . .	2,320,373	...	209,283	...	487,397	...	65,599	...	33,978	...	1,139,369	...
TOTAL		25,444,852		12,903,827		13,534,526		17,030,112		2,314,855		15,018,154
OTHER PROVINCES—												
April . . .	513	...	110,370	...	136	...	212	...	90	...	...	...
May . . .	...	...	13,485	...	30	...	1	...	...	...	2,112	...
June . . .	715	...	4,056	...	37	...	225	...	3	...	...	...
July . . .	1,095	...	7,649	...	4	...	...	...	7	...	2,007	...
August . . .	369	...	268	...	...	...	6	...	...	...	...	...
September . .	542	...	6	...	...	...	1	...	...	...	...	...
October . . .	421	...	63	...	7	...	5	...	...	...	...	...
November . . .	870	...	...	...	2,001	...	...	...	...	...	...	...
December . . .	1,057	...	17	...	1,190	...	...	...	2	...	...	...
January . . .	2,900	...	...	...	1,522	...	...	...	10	...	35	...
TOTAL		8,482		135,914		4,927		450		118		6,162
TOTAL—												
April . . .	2,459,148	...	1,644,507	...	536,721	...	1,477,452	...	45,339	...	457,671	...
May . . .	3,734,104	...	3,101,176	...	1,329,633	...	1,543,552	...	63,556	...	1,957,988	...
June . . .	4,809,299	...	4,475,753	...	2,903,229	...	2,061,483	...	181,991	...	4,767,708	...
July . . .	4,336,996	...	3,213,471	...	3,430,789	...	3,202,722	...	541,661	...	5,623,615	...
August . . .	4,037,151	...	2,248,689	...	1,837,551	...	3,001,213	...	292,288	...	3,562,612	...
September . .	3,636,665	...	890,993	...	751,205	...	2,892,258	...	540,951	...	495,360	...
October . . .	3,549,857	...	1,023,856	...	1,548,820	...	2,583,336	...	768,543	...	859,983	...
November . . .	5,409,044	...	1,448,747	...	1,079,295	...	1,181,921	...	295,837	...	805,688	...
December . . .	4,588,979	...	1,141,632	...	893,689	...	396,449	...	72,088	...	636,767	...
January . . .	3,723,958	...	490,555	...	630,651	...	108,995	...	70,564	...	1,216,093	...
GRAND TOTAL		40,485,201		19,679,379		14,916,633		18,454,381		2,872,818		20,493,485

N.B.—The figures of wheat flour included in this statement are taken as representing 70 per cent of wheat used in its manufacture.

LAND TRADE OF BRITISH INDIA.

Total Value of Imports from, and Exports to, each country in the eight months, April to November of each year.

NAME OF COUNTRY	IMPORTS			EXPORTS			TOTAL		
	1907	1908	1909	1907	1908	1909	1907	1908	1909
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
LUS BELA— Sind and British Baluchistan . . .	5,48,033	4,00,267	4,05,036	1,16,835	1,66,919	1,81,404	6,64,868	5,67,186	5,86,440
KHELAT— Sind and British Baluchistan . . .	5,64,052	6,46,480	2,89,874	3,09,329	4,24,299	3,41,645	8,73,381	10,70,779	6,22,519
PERSIA— Sind and British Baluchistan . . .	2,82,689	1,33,190	2,69,262	3,04,755	3,00,750	4,04,939	5,87,444	4,33,940	6,74,201
AFGHANISTAN— Northern and Eastern (including Kabul and Ghazni)— North-West Fron- tier Province . .	21,24,563	22,94,262	23,75,127	62,86,829	55,86,367	54,95,631	84,11,392	78,80,629	78,70,758
Southern and Western (including Kandahar and Herat)— Sind and British Baluchistan . . .	45,78,137	35,24,401	44,60,909	38,19,613	40,37,752	37,60,106	83,97,750	75,62,153	82,21,015
North-West Fron- tier Province . .	3,04,670	1,34,433	1,88,882	1,68,685	3,03,300	3,30,306	4,73,355	4,37,733	5,19,188
Panjab . . .	7,077	12,660	10,463	1,096	17,597	11,366	8,173	30,257	21,829
TOTAL . . .	70,14,447	59,65,756	70,35,381	1,02,76,223	99,45,016	95,97,409	1,72,90,670	1,59,10,772	1,66,32,790
TIRAH— North-West Frontier Province . . .	3,68,784	3,36,987	3,17,152	3,88,184	3,64,141	3,22,276	7,56,968	7,01,128	6,39,428
DIR, SWAT, AND BAJAUR— North-West Frontier Province . . .	34,36,266	31,20,501	33,47,303	47,26,302	42,93,014	43,95,250	81,62,568	74,13,515	77,42,553
BUNER— North-West Frontier Province . . .	76,895	1,01,640	1,38,323	79,909	1,52,178	1,89,636	1,56,804	2,53,818	3,27,953
WAZIRISTAN (a)— North-West Frontier Province . . .	...	2,32,022	1,88,434	...	59,602	1,91,682	...	1,91,624	3,80,116
KURRAM VALLEY (b)— North-West Frontier Province . . .	...	1,22,355	1,84,111	...	6,21,350	6,13,559	...	7,43,705	7,97,670
LADAKH— Panjab . . .	3,05,740	1,34,928	1,29,503	1,58,587	1,43,697	81,382	4,64,327	2,78,625	2,10,885
TIBET— Panjab . . .	1,87,084	2,62,331	2,44,480	30,064	28,837	60,232	2,17,148	2,91,168	3,04,712
United Provinces of Agra and Oudh . .	7,26,827	6,77,380	7,09,288	4,79,127	4,32,058	3,45,061	12,05,954	11,09,438	10,54,349
Bengal . . .	11,11,944	9,91,710	5,15,556	7,86,496	9,19,940	4,44,646	18,98,440	19,11,650	9,60,202
TOTAL . . .	20,25,855	19,31,421	14,69,324	12,95,687	13,80,835	8,49,939	33,21,542	33,12,256	23,19,263
Nepal— United Provinces of Agra and Oudh . .	47,11,104	46,93,177	54,17,331	19,74,252	21,06,211	16,51,583	66,85,356	67,99,888	70,68,914
Bengal . . .	1,19,84,427	1,52,09,827	93,52,817	55,97,776	70,86,826	64,48,692	1,75,82,203	2,22,96,658	1,58,01,509
TOTAL . . .	1,66,95,531	1,99,03,004	1,47,70,148	75,72,028	91,93,037	81,00,275	2,42,67,559	2,90,96,041	2,28,70,423

(a) Registration commenced from April 1908

(b) Registration commenced from May 1908

LAND TRADE OF BRITISH INDIA—continued.

Total Value of Imports from, and Exports to, each country in the eight months, April to November of each year—continued.

NAME OF COUNTRY	IMPORTS			EXPORTS			TOTAL		
	1907	1908	1909	1907	1908	1909	1907	1908	1909
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
SIKKIM— Bengal . . .	4,66,439	5,60,782	5,17,716	5,40,379	5,38,997	6,63,323	10,06,818	10,93,779	11,81,039
BRUTAN— Bengal . . .	7,466	7,406	3,944	10,716	10,951	3,303	18,182	18,357	7,247
Eastern Bengal and Assam . . .	66,121	53,692	49,751	75,032	71,051	60,492	1,41,153	1,24,743	1,10,243
TOTAL . . .	73,587	61,098	53,695	85,748	82,002	63,795	1,59,335	1,43,100	1,17,490
TOWANG— Eastern Bengal and Assam . . .	5,046	1,104	52	...	...	...	5,046	1,104	52
NAGA AND MISHMI HILLS— Eastern Bengal and Assam . . .	59,559	46,915	26,407	3,287	1,325	1,666	62,846	48,240	28,073
DUFFLA AND AKA HILLS— Eastern Bengal and Assam . . .	38,674	4,678	6,156	...	...	201	38,674	4,678	6,357
WESTERN CHINA— Burma . . .	20,70,371	18,69,711	15,93,667	26,97,945	26,36,208	21,28,289	47,68,316	45,05,919	37,21,956
NORTH SIAM— Burma . . .	19,40,728	15,70,216	21,39,982	12,57,199	14,16,487	16,78,990	31,97,927	29,86,703	38,18,972
SOUTH SIAM— Burma . . .	3,51,401	3,86,743	4,68,825	3,32,064	3,53,334	4,91,628	6,83,465	7,40,077	9,60,453
N. SHAN STATES— Burma . . .	44,51,102	48,19,170	67,38,538	55,51,304	51,53,481	47,77,830	1,00,02,406	95,72,651	1,15,16,368
S. SHAN STATES— Burma . . .	35,29,030	36,20,170	36,79,328	53,93,166	57,71,955	57,92,666	89,22,196	93,92,125	94,71,994
KARENNEE— Burma . . .	16,42,549	11,53,207	15,55,411	12,43,657	5,81,968	8,87,144	28,86,206	17,35,175	24,42,555
GRAND TOTAL . . .	4,59,46,778	4,71,22,345	4,53,14,628	4,23,32,588	4,35,80,595	4,17,54,922	8,82,79,366	9,07,02,940	8,70,69,550
Share of each Province in the total trade—									
Sind and British Baluchistan . . .	59,72,911	47,04,338	54,16,081	45,50,532	49,29,720	46,88,094	1,05,23,443	96,34,058	1,01,04,175
North-West Frontier Province . . .	63,11,178	63,42,200	67,39,332	1,16,49,909	1,13,79,952	1,15,38,334	1,79,61,087	1,77,22,152	1,82,77,666
Panjab . . .	4,99,901	4,09,919	3,84,446	1,89,747	1,90,131	1,52,980	6,89,648	6,00,050	5,37,426
United Provinces of Agra and Oudh . .	54,37,931	53,70,557	61,26,619	24,53,379	25,38,269	19,96,644	78,91,310	79,08,826	81,23,263
Bengal . . .	1,35,70,276	1,67,69,725	1,03,90,033	69,35,367	85,56,714	75,59,964	2,05,05,643	2,53,26,439	1,79,49,997
Eastern Bengal and Assam . . .	1,69,400	1,06,389	82,366	78,319	72,376	62,359	2,47,719	1,78,765	1,44,725
Burma . . .	1,39,85,181	1,34,19,217	1,61,75,751	1,64,75,335	1,59,13,433	1,57,56,547	3,04,60,516	2,93,32,650	3,19,32,298
GRAND TOTAL . . .	4,59,46,778	4,71,22,345	4,53,14,628	4,23,32,588	4,35,80,595	4,17,54,922	8,82,79,366	9,07,02,940	8,70,69,550

IMPORTS OF SUGAR.

Imports of Foreign Sugar (excluding Confectionery and Molasses) into British India in the month of January, 1910, and in the ten months ending 31st January, 1910, compared with the corresponding periods of the previous year. The statement shows, as far as possible, the original sources of all such sugar imported:—

Countries of production of total imports.	Share of each country in the total imports in January 1909.	Share of each country in the total imports in January 1910.	Share in the ten months ending 31st Jan. 1909.	Share in the ten months ending 31st Jan. 1910.	Countries of production of total imports.	Share of each country in the total imports in January 1909.	Share of each country in the total imports in January 1910.	Share in the ten months ending 31st Jan. 1909.	Share in the ten months ending 31st Jan. 1910.
Russia	Cwt.	Cwt.	Cwt.	Cwt.	Philippines	Cwt.	Cwt.	Cwt.	Cwt.
Denmark	...	...	340	...	China	436	4,455	6,183	7,007
Germany	306	228	2,535	51,974	Japan	...	...	...	36
Holland	40	49	406	669	Natal	...	11	2	11
Belgium	59	131	875	1,371	Réunion	19,505	...	19,505	...
France	...	31	418	252	Mauritius	344,552	317,842	2,115,851	1,918,582
Spain	3	...	4	6	West Indies	32	11	115	99
Italy	...	1	27	1	South America	107	21	454	524
Austria-Hungary	252,397	58,636	1,477,857	637,627	Australia	...	...	105	7
Straits Settlements	114	52	726	1,587	From non-producing countries—Origin unknown	32	6	469	439
Java	530,178	516,969	5,671,585	6,962,741	TOTAL	1,147,701	898,443	9,322,499	9,604,133

Quantity of Beet and Cane Sugar imported by sea from Foreign countries into each province of British India in the month of January, 1910, compared with the corresponding period of the year 1909:—

PROVINCES.	Beet Sugar.		Cane Sugar.		TOTAL.	
	1909.	1910.	1909.	1910.	1909.	1910.
	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
Bengal	49,718	19,129	372,159	427,630	421,877	446,759
Eastern Bengal and Assam	...	...	1,494	2	1,494	2
Bombay	40,515	15,390	290,965	258,053	331,480	273,443
Sind	153,485	20,297	170,101	112,868	323,586	133,165
Madras	7,761	4,168	570	13,800	8,331	17,968
Burma	1,280	95	59,653	27,011	60,933	27,106
TOTAL	252,759	59,079	894,912	839,364	1,147,701	898,443

IMPORTS OF COTTON YARN.

Quantity of Cotton Yarn No. 31 and higher counts, imported by sea from other countries into each province of British India in the month of January, 1910:—

	Bengal.	Eastern Bengal and Assam.	Bombay.	Sind.	Madras.	Burma.	TOTAL.
	lb	lb	lb	lb	lb	lb	lb
Mule and water, Nos. 31 to 40	283,000	...	156,913	2,500	160,200	...	602,613
" " " 41 to 50	24,625	...	76,766	...	44,000	...	145,391
" " " above No. 50	103,375	...	143,128	...	72,000	...	318,503
Orange, red and other colours, Nos. 31 to 40.	556,285	...	151,440	133,236	173,700	79,255	1,093,916
Orange, red and other colours, Nos. 41 to 50.	...	...	19,744	...	3,200	15,850	38,794
Orange, red and other colours, above No. 50.	2,200	...	21,581	...	28,100	30,630	82,511
TOTAL	969,485	...	569,572	135,736	481,200	125,735	2,281,728

WEEKLY TRADE MOVEMENTS.

For the week ending 19th February, 1910.

COTTON GOODS.

Twist and Yarn.

Foreign—	Calcutta lbs.	72,694
Imports by sea into	Bombay "	216,491
	Madras "	210,950
Indian—	Calcutta "	...
Exports by sea from	Bombay "	5,038,350
	Madras "	...

Grey Piece Goods.

Imports by sea from	Calcutta yds.	12,027,895
Foreign ports into	Bombay "	2,781,321
	Karachi "	412,532
	Madras "	870,112
	Rangoon "	142,514

White Piece Goods.

Imports by sea from	Calcutta yds.	3,889,173
Foreign ports into	Bombay "	3,275,268
	Karachi "	3,533,680
	Madras "	559,498
	Rangoon "	735,219

Other Piece Goods.

Imports by sea from	Calcutta yds.	1,726,739
Foreign ports into	Bombay "	4,774,250
	Karachi "	2,216,665
	Madras "	1,474,215
	Rangoon "	1,456,996

Piece Goods.

(Indian and Foreign.)

Despatches by rail from	Calcutta owt.	19,943
	Bombay "	6,059
	Karachi "	15,102
	Madras "	3,504

Raw Cotton.

Imports into Bombay	By sea cwt.	398
	Coastwise "	36,874
	By rail "	389,747
Imports into Karachi by rail		66,808
" " Calcutta by rail and river		* 11,544

JUTE.

Arrivals by all routes in	Calcutta	cwt.	* 284,143	
Exports by	{ Calcutta .	{ Gunny bags No.	11,232,450	
		{ " cloth yds.	8,963,370	
		{ Jute	cwt.	147,657
		{ Chittagong—Jute	"	18,746

COTTON SEEDS.

Exports by sea from Bombay owt.	204,485
---	---------

OIL SEEDS.

Linseed.

Imports into	Calcutta by rail and river owt.	* 2,959
	By sea "	475
	Bombay " Coastwise "	...
	By rail "	51,269
	Karachi by rail "	...
Exports by sea from	Calcutta "	3,001
	Bombay "	31,201
	Karachi "	...

Rape and Mustard Seed.

Imports into	Calcutta by rail and river owt.	* 57,828
	By sea "	...
	Bombay " Coastwise "	...
	By rail "	19,282
	Karachi by rail "	316,075
Exports by sea from	Calcutta "	8,568
	Bombay "	38,977
	Karachi "	279,873

RICE.

739	Arrivals by all routes in Calcutta owt.	* 409,019
250	Calcutta "	128,611
665	Chittagong "	...
215	Exports by sea from Bombay "	14,242
996	Karachi "	7,297
	Madras "	217
	Rangoon "	1,051,491

TEA.

	Arrivals by all routes in Calcutta	lbs.	*1,228,105
943	Exports by sea from	{ Calcutta	1,865,373
059		{ Chittagong	123,352

WHEAT.

Imports into	Calcutta by rail and river owt.	* 59,312
	Karachi by rail "	155,497
	By sea "	...
	Bombay " Coastwise "	6,159
	By rail "	24,646
Exports by sea from	Calcutta "	161
	Bombay "	4,006
	Karachi "	237,887

* B.N. Ry. figures not included.

EXPORTS—RUNNING TOTALS INCLUDING FIGURES RECORDED ABOVE.

	FROM APRIL		FROM JANUARY					
	1908.	1909.	1909.	1910.	1909.	1910.	1909.	1910.
	Wheat.		Linseed.		Rape and Mustard Seed.		Cotton Seed.	
Calcutta . . . Cwt.	50,916	3,377,407	65,489	16,492	9,553	114,953	Not reported.	
Bombay "	81,020	2,651,086	71,511	126,564	18,463	120,010	1,533,020	2,869,529
Karachi "	3,834,916	16,801,993	...	...	800,124	1,593,120	Not reported.	

KEROSENE OIL, WEEK ENDING 19th FEBRUARY, 1910.

Imports by sea into—	FROM			
	Russia.	America.	All other foreign countries.	TOTAL.
	galls.	galls.	galls.	galls.
Calcutta	...	...	480,837	480,837
Bombay	...	8	...	8
Karachi	...	751,319	...	751,319
Madras	...	...	...	...
		Bengal	...	761,196
		E. B. & Assam	...	...
		Bombay	...	...
		Sind	...	...
		Madras	...	880,148
		Indian Ports, Non-Br.	...	...
		Foreign Ports	...	...

IMPORTS OF SUGAR, WEEK ENDING 19th FEBRUARY, 1910.

Country of Shipment.	REFINED SUGAR IMPORTED INTO						TOTAL
	Calcutta.	Chittagong.	Bombay.	Karachi.	Madras.	Rangoon.	
	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.
United Kingdom	138	...	34	12	3	15	202
Germany	...	...	...	509	...	...	500
Austria-Hungary	...	...	...	...	1,000	...	1,000
Other European Countries	...	...	...	...	...	38	38
Java	8,011	...	57,185	31	...	...	65,227
Mauritius	...	...	4,106	41	...	...	4,147
Other Non-European Countries	...	...	2	1	...	4,512	4,515
					Total refined		75,629
					Total unrefined		...
					Grand Total		75,629

RESULTS OF AUCTION TEA SALES IN CALCUTTA.

DISTRICTS.	SEASON 1909-10.				SEASON 1908-09.			
	Sold in sale of 16th February.		Sold to 16th February		Sold in sale of 16th February.		Sold to 16th February.	
	Packages.	Average price per lb.	Packages.	Average price per lb.	Packages.	Average price per lb.	Packages.	Average price per lb.
Assam	1,392	6 7	176,032	7 4.2	1,084	5 11.4	183,948	6 7.5
Cachar	3,887	5 10.5	160,713	5 10.2	3,892	4 9.6	139,947	4 11.5
Sylhet	2,293	5 6.8	112,082	5 9.7	3,085	4 8.1	111,479	4 11.4
Darjeeling	14	8 9	61,747	10 0.5	...	...	62,919	8 7.8
Dooars	32	5 0	192,305	6 10.8	273	5 11.3	185,699	6 0.3
Tera	...	...	17,980	6 3.3	...	...	25,006	5 1.6
Chittagong	95	5 4	7,964	5 10.4	41	4 2.4	7,878	4 11
Chota-Nagpore	...	...	1,901	6 4.4	...	...	1,838	5 1.5
Kumaon and Kangra	...	...	3,318	5 8.1	100	5 0	2,221	5 7.8
Madras	...	...	110	5 11.7	...	...	169	5 2.9
Dehra Dun	...	...	356	5 11.2	...	...	...	...
Nepal	...	...	608	6 2	247	4 2.2	1,003	4 8.1
All other places	...	...	76	5 5	...	...	...	...
TOTAL	7,713	5 11	735,192	6 10.1	8,722	4 11	722,107	5 11.8

(The above do not include stand-hand Tea, damaged Tea and Dust from those concerns which sell only that grade on this market.)

Season 1909-10 Average price of 46,247 packages Dust* sold to 16th February 5 4.7
 " 1908-09 " 42,213 " " " 16th " 4 11.5

* On account of gardens which sell only that grade on this market.



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[ANNAS 4.]

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NOTES.

MONEY MARKET.

Wednesday Evening.

PRESIDENCY BANK RATES	Calcutta	6 per cent. (Dec. 9).
	Bombay	6 per cent. (Nov. 25).
	Madras	7 per cent. (Jan. 4).
EXCHANGE	On demand	1-4 ³ / ₄
	Telegraphic Transfers	1-4 ³ / ₄
	3 months	1-4 ³ / ₄
	6 months	1-4 ³ / ₄
GOVERNMENT PAPE		(3 ¹ / ₂ per cent.) Rs. 93 ⁷ / ₈ .

The following general memoranda on crops of the season 1909-10 will appear in the *Indian Trade Journal* of the 10th instant:—

Wheat—Second General Memorandum.

Spring oilseeds—Second General Memorandum.

The gist of these in tabular form will be exhibited, as usual, at the street door of the Office of the Director-General of Commercial Intelligence, No. 5, Clive Street, Calcutta, on the 9th instant, at 4 P.M.

Subscribers to this *Journal* should make arrangements in their offices for the regular scrutiny of the **Enquiries Column**, and for following up such enquiries as appear suitable. There is a steady increase in the number of enquiries received from firms of position in other countries who desire to find agents in India and who would naturally prefer to deal with a firm of high standing. But it is a

rule in this Department not to suggest the name of any such firm in India unless expressly authorised to do so, the reason being that such selection might appear to give an opening for undue preference. It has been ascertained that the failure to respond to these enquiries is often due to a neglect to arrange for such a regular scrutiny of the Enquiries Column as is here suggested.

The spot price of wheat at Karachi on the 26th February was Rs. 32-12-0 per candy of 656 lbs. This is for white wheat on a basis of 30 per cent red wheat, 5 per cent barley and 3 per cent dirt; the price of bags included. The price of Indian grey yarn (20's) at Bombay on the 1st March was Rs. 0-7-6 to Rs. 0-8-0 per lb. and of Muttia Bhawnagar cotton, March delivery, Rs. 262 per candy of 784 lbs.

The wholesale spot prices of the undermentioned articles in Calcutta on the 2nd instant were as under :—

Jute—C. D. M. and Co. (Red) Group	
per 400 lbs.	Rs. 35 0 0
" M. per 400 lbs.	" 32 0 0
Rice—Ballam No. 1 per B. md.	" 3 14 0
" Moonghy "	Nil.
Linseed—Bold 4% per B. md.	Nil.
Rapeseed—Yellow, mixed, bold,	
Cawnpore, 4% per B. md.	Nil.

The following return shows the number of bales of cotton imported and exported at the various ports of the United Kingdom during the week and 5 weeks ended 3rd February, 1910 :—

	IMPORTS.		EXPORTS.	
	Week ended 3rd Feb., 1910.	5 weeks ended 3rd Feb., 1910.	Week ended 3rd Feb., 1910.	5 weeks ended 3rd Feb., 1910.
	Bales.	Bales.	Bales.	Bales.
American . . .	58,375	275,806	2,161	16,952
Brazilian . . .	5,861	6,573	644	1,089
East Indian . . .	2,789	23,129	1,820	3,537
Egyptian . . .	6,930	45,439	3,406	15,952
Miscellaneous . . .	2,370*	8,928†	228	1,369
Total . . .	76,325	359,875	8,259	38,899

* Including 173 bales British West Indian, 96 bales British West African, and 1,218 bales British East African.

† Including 712 bales British West Indian, 125 bales British West African, and 1,931 bales British East African.

NOTE.—Cotton "in transit" or "for transshipment under bond," if described as such in the ships' reports, is not included in this return.

In their weekly report on the Shanghai piece-goods market, dated the 3rd ultimo, Messrs. Noel, Murray and Co., Ltd., say :—While the bulk of the

demand for Indian yarn continues to be supplied by second hand holders, importers have also met with a fair inquiry from the Szechuen and Kiukiang buyers, for delivery after the Native holidays. The sales from first hands, as reported during the interval, amount in the aggregate to 1,643 bales, the prices paid showing a steady to firm market.

The following statement shows the quantity of cotton goods calendered and the proportion thereof to the total production in Indian mills in the month of December, 1909, and in the 9 months from April to December, 1909, compared with the corresponding period of 1908-09 :—

	1908-09.		1909-10.	
	December.	Nine months, April to December.	December.	Nine months, April to December.
BRITISH INDIA—Quantity calendered lbs.	9,393,023	77,744,957	11,482,261	98,199,013
Ratio of calendered goods to production %	52.78	55.11	53.73	57.74
NATIVE STATES (excluding Hyderabad)—Quantity calendered lbs.	99,690	580,691	126,511	1,241,095
Ratio of calendered goods to production %	15.95	12.91	14.41	23.48
TOTAL INDIA (excluding Hyderabad)—Quantity calendered lbs.	10,092,713	78,325,648	11,608,772	99,441,008
Ratio of calendered goods to production %	51.6	53.81	52.18	56.71

In their weekly Report on the Australian wool sales dated Melbourne, February 3rd, Messrs. Goldsbrough, Mort and Co., Ltd., say :—Since our report of the 26th ultimo sales have continued in this centre, and fair catalogues have been brought forward. The competition is keen and animated, with rather a hardening tendency for the great bulk of wool, the exception being best merinos, which, although moving off readily, show no material change, and as reported are not realising the extreme rates they fetched earlier in the season. Crossbreds of all descriptions, with the exception of the finest comebacks, are as dear as at any period of the season, and meet with very ready sales. Our next sale will be held on the 16th instant, when a final clearance will be made.

The London auctions of colonial wool which began on the 18th January came to an end on February 4th. The net quantity available amounted to 180,000 bales, of which 178,184 bales were offered and 175,000 bales sold, so that only about 5,000 bales remain to be carried forward to the next sales. Of the total sold the home trade secured 80,000 and the Continent 83,000 bales, whilst buyers from the United States only took 12,000 bales, the great bulk of which was cross-bred. Messrs. Helmuth, Schwartz and Company state that, "taking the market all round, merino wool may be quoted par to 5 per cent dearer compared with the close of the last series. Earthy lots and some of the rougher-haired wools did not always fetch last sales' values, but the great bulk of merino realised December parity, while all really fine wools, both greasy and scoured, were 5 per cent dearer. As regards cross-breds, the finest sorts showed practically no change, whilst coarser kinds, dependent for the most part on the Bradford demand, sold throughout at a half-penny to a penny over December. Medium wools, especially the light, bright wools suitable for the States, at first suffered from the absence of any pronounced American demand, but after this had made itself felt, during the latter half of the sales, they hardened considerably, and may now be quoted (they were not represented in the last series) 5 to 7½ per cent over September values." South African greasies sold at the November closing rates, whilst snow whites, which were in small supply, were a penny dearer. About 2,500 bales of Punta Arenas sold at an advance of 5 per cent. The second series of London auctions for the present year will begin on March 8th, and the offerings will be limited to 175,000 bales. Supplies, therefore, are likely to prove ample even if the present rate of consumption is maintained, especially when it is remembered that direct purchases from all oversea sources of supply are arriving in unprecedented quantities. Prices are on a high level, but it is useful to remember that at the end of last September a top of super 60's quality was worth at Bradford 28½d. per lb. and notwithstanding the many and various impediments which have prevented shipments from Australia can to-day be bought from some makers at 26d. Notwithstanding the firmness of prices both at Bradford and on the Continent, top makers are losing heavily on their purchases made before the drop took place at all the selling centres of the Commonwealth.

The daily prices of opium per chest for the periods mentioned below were as follows :—

For the week ending 26th February, 1910—

In the Calcutta market—

Behar opium—Rs. 2,352; 2,338; 2,325; 2,325; 2,330; 2,431; 2,475.

Benares opium—Rs. 2,400; 2,390; 2,375; 2,375; 2,380; 2,480; 2,525.

The prices in the time bargains for the Behar opium of the 3rd sale of 1910 were exactly same as mentioned above in case of Behar opium.

In the China market—

At Hongkong—(Exchange Rs. 130 to 131½ per \$100.)

Behar opium—\$1,825; 1,825; 1,825; 1,800; 1,800; 1,800; 1,900.

Benares opium—\$1,850 on the 23rd ultimo.

At Shanghai—(Exchange, no quotations received.)

Behar opium—No quotations received.

Benares opium—No quotations received.

For the week ending 19th February, 1910—

In the Bombay market—

On the 13th and 14th ultimo (new, 1909-10) Rs. 1,350 to 2,300; (new, 1908-09) Rs. 2,400 to 2,425; (old, 1907-08) Rs. 2,450 to 2,500. From the 15th to 19th ultimo (new 1909-10) Rs. 1,350 to 2,300; (new 1908-09) Rs. 1,400 to 2,425; (old, 1907-08) Rs. 2,500 to 2,560. The latest prices at Hongkong and Shanghai were (new) Rs. 2,299 and 2,336; (old) Rs. 2,371 and 2,389, respectively.

His Majesty's Consul at Para (Mr. G. A. Pogson) has forwarded the following statistics of the exports of rubber, *via* Para, during the year 1909 :—

	Fine.	Medium.	Coarse.	Caucho.	Total.
	Kilogs.	Kilogs.	Kilogs.	Kilogs.	Kilogs.
TO THE UNITED STATES FROM—					
Para . . .	4,153,518	651,617	4,134,359	715,729	9,655,223
Manaos . . .	5,356,652	1,149,302	1,734,648	1,897,507	10,138,109
Itacoatiara . . .	3,777	2,166	3,877	1,867	11,687
Iquitos . . .	22,798	1,423	8,552	72,920	105,693
Total . . .	9,536,745	1,804,508	5,881,436	2,688,023	19,910,712
TO EUROPE FROM—					
Para . . .	5,277,492	575,743	1,869,178	1,950,409	9,672,822
Manaos . . .	3,672,077	719,842	725,064	2,240,318	7,357,301
Itacoatiara . . .	71,132	10,896	53,298	13,258	148,584
Iquitos . . .	795,933	127,421	325,724	1,401,763	2,650,841
Total . . .	9,816,634	1,433,902	2,973,264	5,605,748	19,829,548
Grand Total . . .	19,353,379	3,238,410	8,854,700	8,293,771	39,740,260

The total exports of rubber, *via* Para in 1908, amounted to 37,686,487 kilogs, and in 1907 to 37,514,152 kilogs.

Writing on February 5th the *Manchester Guardian* says :—With the continuance of the spate of rubber flotations it is interesting to consider what authorities in the industry regard as the normal cost of bringing rubber plantations into bearing. This is a point which, although vital, entirely escapes the attention of many prospective investors.

in new plantation companies. In not a few cases the promoters of such companies seem to take great credit to themselves for being able to state that the capitalisation of their property does not largely exceed £40 per acre when brought to full bearing. An examination of the balance-sheets and accounts of some of the most successful companies would indicate, however, that it is possible to bring a rubber estate in the Middle East into full bearing at an overhead cost of less than £20 per acre. It is only fair to add that among the trade authorities there is considerable difference of opinion on this point, probably attributable to the fact that costs vary widely according to the situation, etc., of the estate. It would probably be fair to assume £25 per acre as the average of well-managed estates, and capitalisation on an appreciably higher basis than this should be viewed with suspicion, for it is not to be expected that anything like the present level of prices for raw rubber can be maintained for an indefinite period. The cost of production, in which labour forms the chief item, has been materially reduced, and it has been shown to be quite possible to market plantation rubber at less than 1s. per lb. The average may be placed at that figure, and in any case should be found between the limits of 9d. and 1s. 6d. A few months ago 300 lb. per acre was regarded as a maximum production, but that is now being exceeded on quite a number of estates. At the end of last year the area planted in the tropics was computed at 700,000 acres, and it is being increased almost daily. The theory that the consumption of rubber shows an annual increase of from 7½ to 10 per cent can hardly be said to be borne out by the actual facts. High prices as well as low prices have the their effect upon the consumption, manufacturers being compelled when the former prevail to have recourse to cheaper substitutes and inferior grades. Thus last year the world's consumption was estimated at 69,000 tons, which certainly showed an increase over the previous year, but was practically the same as in 1907. Careful consideration of the whole circumstances points to the conclusion that it would be unsafe to base estimates of future earnings on an average price of more than 3s. to 3s. 6d. per lb., but even at that figure, with the cost of production not exceeding 1s. per lb., all well-managed companies stand to earn at least a moderate return on their capital.

It is proposed to hold the next **International Rubber and Allied Trades Exhibition** in London in May or June, 1911. The President will be Sir Henry A. Blake and the Chairman Colonel W. J. Bosworth.

The total approximate gross earnings of State and Guaranteed Railways from 1st April, 1909, to 12th February, 1910, show a gain of Rs. 2,22,23,915 and Rs. 11,31,192 as compared with the corresponding figures for 1908-09 and 1907-08, respectively.

C. Czarnikow's *Weekly Price Current*, of the 10th February, gives comparative figures of the **Cuban sugar crop** as follows in thousands of tons:—

	1910.				1909.			
	Six ports.	Out-ports.	Total.	Factories.	Six ports.	Out-ports.	Total.	Factories.
Estimate	1,300	530	1,830	175	978	422	1,398	169
Production	...	...	...	...	1,064	450	1,514	170
Per cent of total	71	29	...	...	70	30	...	...
Number of factories	140	35	...	175	134	35	...	169
Production, December-January	248	133	381	160	170	50	228	165
" February	300?	...	?	...	254	102	356	170
" Previous week	70	20?	...	160	55	10	...	165
" " "	74	26?	...	160	61	22	...	168
" following week	...	...	...	...	65	23	...	170

Complete January returns (probably Guma's) are now cabled as 381,000 tons, whilst Willett had calculated apparently on 339,000 tons. Guma's figure means a production of 133,000 against 59,000 tons in the outports, and if the latter have increased their capacity to that extent, whilst the remaining factories in six ports will join work now, it is not out of question that February may witness a production nearer 450,000 than 400,000 tons. In that case, with favourable weather, the estimated total could be reached during the first fortnight in May, provided all factories worked till then, which they never do. February figures will gradually begin to get interesting, though the final result cannot be fairly estimated till April.

The *Corn Trade News* gives the following summary of the world's crop as on the 8th ultimo:—**United States of America**—Winter wheat less favourable, damage in Kansas specially mentioned; weather severe and some parts without snow. Receipts continue liberal, but visible decreased. **Canada**—Ploughing commenced southern Alberta. Receipts smaller, visible decreasing. **Argentina**—Continued mention of badly shrivelled wheat and light natural weight; quality arrivals very variable and mostly poor. Shipments large scale and expected to continue. **Australia**—Estimate yield increased moderately, but tonnage fixed very little larger than year ago. **Chili**—Unofficial reports less favourable. **India**—Crops flourishing; some vermin damage; prices keep high. **Russia**—Weather mild, interior south-west has snow cover, but large area elsewhere without protection. Crop conditions reported normal, but absence snow causes some fears. Port stocks continue to decrease owing small arrivals; good quantities expected later. **Roumania**—Weather mild, favourable. **Bulgaria**

and **European Turkey**—Crops favourable. **Hungary**—Weather mild, snow disappeared; crop conditions very good. **France**—More rain last week. Crop damage feared and much re-sowing expected necessary. Supplies scanty, markets firm. **Germany**—Weather keeps mild, crop reports mostly favourable; good native wheat scarce. **Italy**—Much rain crop outlook considered good. Drought mentioned in Sicily. **Portugal**—Serious floods reported. **North Africa**—Outlook improved. **United Kingdom**—Crops satisfactory condition; drier weather wanted for ploughing and seeding.

The prices of British corn per quarter of eight bushels, as received from the inspectors and officers of Excise in the week ended 5th February, 1910, were as follows:—Wheat, 33s. 7d.; barley, 24s. 10d.; and oats, 17s. 7d.

Applications in respect of the following new inventions were filed in the Patent Office, Calcutta, during the week ending 21st February, 1910:—**Société Anonyme "La Photographie des Couleurs"** 24, Courte rue de l'Hopital, Antwerp. J. Sury, engineer-chemist, Wyneghem, Belgium, and E. Bastyns, druggist, 29, rue des Tanneurs, Antwerp—Printing on paper of photographs in colour. **G. Y. Jones**, engineer, 218, Shaftesbury, Avenue, London, W.C.—Improvements in and connected with pneumatic tyres. **Yarrow and Co. (Bolton)**, Ltd., sanitary engineers, Bolton, and M. Yarrow, surveyor, same address—Improvements appertaining to machines for manufacturing earthenware pipes or mains, retorts and the like. **J. Stone and Co. Ltd.**, engineers, Deptford, England, and A. H. Darker, engineer, in the employ of the said Company—Improvements in secondary batteries. **H. A. Westmoreland**, manufacturers, La Court Terrace, London, S.W.—Improvements in Droppers and Standards. **A. Worswick**, engineer, Woodlands, Gathurst, Lancashire—Improvements in propellers and the like. **M. R. Rangachari**, Superintendent, Coles Memorial High School, Hindu Hostel, Kurnool, Madras.—Nava supari or the new substitute for arecanut. **G. Walker**, engineer, 31, Wills Street, Melbourne, Australia—Improvements in and relating to air-bridges of boiler furnaces. **T. V. Sundaram Aiyar**, clerk, Archaeological Survey Department, Madras—A key-board for typing tamil language. **Munshi H. Buksh**, Military Works, Meerut Cantonment—A double acting hand-power water lift. **P. B. Godrej**, safe maker, Godrej and Boyce Manufacturing Co., Parel, Bombay—Improvements in safes. **W. J. A. Morrow**, engineer and contractor, 8, Kyd Street, Calcutta—A hot water apparatus adaptable for Indian chulas or fire places made of bricks. **A. E. W. Sharpe**, 129, Dhurumtollah Street, Calcutta—An improved type of journal bearing for railway rolling-stock. **W. P. Notcutt**, merchant, 8, White Street, Moorfields, London—An improved machine for cutting

abrasive files. **J. J. Rawlings**, engineer, 82, Gloucester Road, South Kensington, London, and H. W. Hancock and A. H. Dykes, consulting engineers, both of 1, Victoria Street, London—Improvements in and connected with the sheathing of electrical wires. **G. H. B. Steele**, engineer, 220, Lake Street, Perth, Australia, and A. H. Boulter, carpenter, 221, Park Street, Subiaco, Western Australia, and J. Hargreaves, carpenter, Kimberly Street, Leederville, Western Australia—An improved spark arrester. **H. Kuhl**, doctor of philosophy, 4a, Zehlendorfers-trasse, Grosslichter felds near Berlin—New and useful manufacture of cement. **A. Ross**, junior, engineer, 1, Glengal Road, Old Kent Road, London—Improvements in or relating to water-feeding and circulating devices for steam boilers. **Dr. W. Schmidt**, engineer, 2, Rolandstrasse, Cassel-Wilhelmshohe, Germany, and P. Thomson, same address—Improvements in steam superheaters for locomotives. **A. Spencer**, engineer, 77, Cannon Street, London—Improvements in central buffer and draw gear apparatus for railway and like vehicles. **J. P. Crough**, engineer, Ely House, Newton Heath, Manchester and J. J. Etchells, electrician, 27, Lily lane, Moston, Manchester—Improvements in or relating to electric lighting or heating systems, especially applicable to train lighting and improvements in or relating to electrical distribution system. **H. Donner** of Sophieka 17, long 8. Moscow, Russia—An improved process and apparatus for obtaining an increase in the pressure of a liquid. **Société Anonyme Electrometallurgique** Procédes Paul Girod, of Ugine (Savoie), France—Improvements in the process of refining steel. **A. V. Naylor**, engineer, Engineers' Workshop, G. I. P. Railway, Byculla, Bombay—Improvements in coupling gear of railway vehicles. **W. H. Crutchley**, Bury House, Wolverley, Kidderminster, England, Schoolmaster **A. E. Boucher**, Lowethorpe, near Kidderminster—Improvements in slate pencils. **Syamala**, 582, Goods Shed Street, Madura District, Madras—A waterlift.

In the Final General Memorandum on the Rice crop published in our last issue it was pointed out that the total area under rice in 1909-10 is 58,249,900 acres which is more by 2,310,600 acres or 4.1 per cent than the average of five years ending 1907-08. The outturn is estimated as 558,489,000 cwts against 446,181,200 cwts.—an increase of 25.2 per cent. The average yield per acre in 1909-10 is therefore 9.6 cwts while the average for the five years ending 1907-08 was only 8 cwts. In 1904-05 which had largest outturn in any of the last five years the average of yield per acre was 8.7 cwts. Taking for each province the average wholesale price of rice in January, the value of the crop in 1909-10 would be Rs. 2,63,29,04,187 (£175,526,946), giving a mean price of Rs. 4.71 per cwt, while in 1908-09 it was Rs. 2,75,45,44,063 (£171,636,271), the mean price being Rs. 6.58 and in 1904-05 Rs. 1,74,16,53,068 (£116,110,205) with a mean price of Rs. 3.88.

cannot be assumed that these sums represent the farm values or what the cultivator has received; but the comparison shows that while the exceptional yield has caused a substantial drop in price it has added something like Rs. 583 crores (€389 millions) to the aggregate value of the crop. The facts are perhaps best seen in the following statement:—

	Average price of rice in second half of January, 1910.	Value of total outturn in 1909-10.	Average price of rice in second half of January, 1909.
	Rs. Per cwt.	Rs.	Rs. Per cwt.
Bengal	4.63	1,35,65,66,850	6.76
Eastern Bengal and Assam	4.38	67,16,46,282	6.55
Madras	6.55	31,95,62,055	7.86
Lower Burma	4.50	28,51,29,000	5.34
TOTAL	4.71	2,63,29,04,187	6.58

	Value of total outturn in 1908-09.	Average price of rice in second half of January, 1905.	Value of total outturn in 1904-05.
	Rs.	Rs. Per cwt.	Rs.
Bengal	1,11,43,42,736	(a) 3.68	(a) 1,27,78,03,088
Eastern Bengal and Assam	77,14,46,555	...	...
Madras	34,34,75,712	5.29	21,42,29,130
Lower Burma	34,52,79,060	4.11	24,96,20,850
TOTAL	2,57,45,44,063	3.88	1,74,16,53,068

(a) Including Eastern Bengal but excluding Assam.

A Resolution issued by the Commerce and Industry Department notifies that the Edward Medal, now awarded for heroic acts performed by Miners, Quarrymen and others, is also in future to be awarded to those who in the course of industrial employment endanger their lives in saving or endeavouring to save others from perils incurred in connection with such employment. In such cases the medal is to bear the King's effigy on the obverse, and, on the reverse, a suitable design with the words "For Courage".

Enquiries have been received in this Department as to the best method of packing lemon-grass oil for shipment to the London market, and it seems as well to state for the information of readers that the most suitable packages for shipment to London are cases containing twelve bottles of about 22 ounces each—that is to say, ordinary wine bottles.

The weather conditions in India during the week ended February 26th were marked by the passage of a disturbance in North-East India followed by a few falls of rain in Assam. The weather was generally cool over North-West India due to low humidities caused by dry winds.

NOTICES.

INDIAN CROP FORECASTS. SEASON 1909-10.

Dates of Publication.

The following are the dates on which the general memoranda on crops of the season 1909-10 are expected to be published in the *Indian Trade Journal*:—

WHEAT—			
Second memorandum	March	10,	1910
Final	May	26,	"
LINSEED, RAPE AND MUSTARD (spring oilseeds)—			
Second memorandum	March	10,	1910
Final	May	26,	"
SESAMUM—			
Supplementary memorandum	April	21,	1910

CALLS FOR TENDERS.

Tea.

The Divisional Contract Officer, 3rd (Lahore) Division, is inviting tenders up to 14th instant for the supply of Indian grown black tea during 1910-11.

Charcoal.

The Supply Officer, Presidency Brigade, Calcutta, is calling for tenders up to the 11th instant for the supply of about 600,000 lbs. of charcoal.

ENQUIRIES.

(For particulars address the Director-General of Commercial Intelligence, 5, Olive Street, Calcutta. An asterisk (*) preceding an enquiry indicates that bank references are offered.)

Hardware, Cutlery, Tools, etc.

(602)—A firm in Belgium desires to be placed in communication with commission houses in Calcutta who are in a position to handle hardware, cutlery, tools, earthenware, glassware, linen and cotton piece-goods, laces, soaps and provisions.

Pith Helmets.

(603)—An Australian firm desires to be placed in communication with manufacturers of pith helmets.

Pressure Filters for Water Works.

(604)—A London firm controlling certain patent-pressure filters, largely used for the purification of the water-supply of towns and cities, desires to be placed in communication with firms in the principal towns of Burma who may be willing to handle the filter concerned on a commission basis.

Cinematograph Films.

(605)—A Karachi correspondent desires the addresses of firms in Europe and America who manufacture cinematograph films.

Boot-making Machinery.

(606)—A firm in Kashmir desires to be placed in communication with firms dealing in machinery for making rope soles and shoes with rope soles and cloth uppers.

Steam Vehicles.

(607)—A British company manufacturing steam vehicles for the conveyance of passengers and goods is desirous of being placed in communication with firms or individuals interested in that class of vehicle.

Wire and Wire Ropes.

(608)—A firm in Scotland manufacturing wire and wire ropes desires to appoint agents in India.

Iron Rods, Rails, Plates and Screws.

(609)—A correspondent in Madras desires to secure the agency of a firm manufacturing iron rods, plates, rails, screws and other articles used in the construction of factories.

Commission Agency.

(610)—A firm in North Shields manufacturing wagons, bolts and nuts desires the addresses of commission agents in Bombay.

BOOKS OF REFERENCE.

The following publications have been received and may be consulted by any desirous of studying them at the Office of the Director-General of Commercial Intelligence, 5, Clive Street, where they will be displayed in the ante-room till Wednesday, the 9th March, 1910:—

Parliamentary Publications.

Colonial Reports—Annual Series No. 630, Southern Nigeria, Report for 1908; No. 631—British Honduras, Report for 1908. United Kingdom—Accounts relating to Trade and Navigation of the United Kingdom for each month during the year 1910.

Foreign and Colonial Publications.

Canada—Laboratory of the Inland Revenue Department—Lard, Bulletin No. 193. Bulgaria—Mouvement Commercial de la Bulgarie avec les pays étrangers, mouvement de la navigation par ports et prix moyens dans les principales villes pendant le troisième trimestre de 1909. Spain—Resúmenes Mensuales de la Estadística del Comercio Exterior de Espana Publicados por la Dirección General de Aduanas, Diciembre de los años 1907, 1908 y 1909. Norway—Norges Officielle Statistik, V. 97—Industristatistik for Aar 1905;—V. 99—Ulykkesforsikringen 1904-1906. Egypt—Revue de la Société Khediviale d'Economie Politique, de Statistique et de Législation. United States, Department of Commerce and Labour—Bureau of Statistics, No. 5—Monthly Summary of Commerce and Finance

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Indian Publication.

Annual Progress Report on Forest Administration in the Lower Provinces of Bengal for the year 1908-09.

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The Indian Trade Journal.

THURSDAY, MARCH 3, 1910.

A POSSIBLE INDUSTRY FOR INDIA.

THE increasing popularity of calabash pipes made from the fruit of a South African calabash, or gourd, has aroused interest in the growing of this vine, and as this gourd is extensively cultivated in various parts of India and is used as a vegetable by both Europeans and Natives as well as for the manufacture of certain musical instruments, oil bottles, and for a variety of other purposes, though not, we believe, for the manufacture of tobacco pipes, it may be as well to draw attention to this new aspect of the calabash industry, as it is possible that it may be worked profitably in this country. At all events, we base our remarks on the ascertained facts as published in Circular No. 41, Bureau of Plant Industry, just published by the United States Department of Agriculture, and the method of manufacturing the new fashionable pipe may, if nothing else, prove both interesting and instructive.

Calabash pipes made from imported South African gourds have been the fashion in England for some time and are now coming into vogue in America. These pipes are formed from the crooked necks of a large gourd (*Lagenaria vulgaris*) belonging to the well-known group of plants which includes the cucumber, the melons, and the squashes. Pipes made from the imported gourds are expensive, American dealers usually charging Rs. 25 and even as much as Rs. 37-8 a piece for them. They are the lightest pipes made for their size, are graceful in shape, colour like meerschaums, and are delightful smokers. Unlike the cheap pipes which are turned out by machinery, no two of these calabash pipes are alike. In this lies much of their charm. In these, likewise, lies their cost, for, unlike the great mass of pipes turned out by machinery, the crook of the calabash varies so that each mouth-piece must be made to fit it and each lining of meerschaum or plaster-of-Paris must be specially adapted.

It appears that the calabash, as a pipe bowl, was discovered by the Boers; and, after the Boer war, the fashion of using these pipes was introduced into England, whence it has reached America. Knowing that so long as seeds were not sent out of the country they might hope to hold the culture as a monopoly, it is reported that the Boers tried to prevent the exportation of seed; but, as has been the history of all such things, sooner or later a few seeds were exported and to-day there are in America enough seeds to produce all the gourds that it would be possible to market in America. The vines are very luxuriant growers. In the vicinity of Washington, D. C., four of the broad-leaved runners early in the season covered a 6-foot trellis 25 feet long and climbed to a height of 20 feet over some half-grown cedars near by, where they produced dozens of the long, slender-necked fruits.

To grow the vine for the sake of its gourds is where the chief interest lies, and to do this well it should not be trained on a trellis, but allowed to trail over the ground. The reason for this is that otherwise, despite attempts to force them into the right shape, the gourds straighten out into long, club-like specimens, worthless for pipe making. If the fruits are allowed to lie on the ground they form their crooked necks quite naturally without assistance, and while not all of them by any means make suitable necks for pipes, a good proportion do. It seems to induce a more perfect neck to stand the gourds up when half grown so that they rest on

their big ends. Unless care is exercised in doing this the necks snap off, for they are extremely brittle even when fully grown. It is only when almost mature that they become hard and then they are indeed almost unbreakable. The gourds should be left as long as possible on the vines to thoroughly thicken their shells. If picked green the shell will be no thicker than stiff cardboard and in drying it is very liable to crack.

It has been discovered that with a little care and patience it is possible to cause these gourd necks to grow into any desired shape. To do this, it is necessary to provide half-inch boards 6 by 8 inches in size, riddled with quarter-inch holes as close together as they can be bored. Each board has its accompaniment of 5 or 6 pegs, which should be about 3 inches long, whittled to fit the holes, and padded with cloth so that they will not scratch the tender gourd. One of these boards is required for each pipe until its neck is set at the right curve; then it can be removed and used for another. The young gourd, when still quite young and before its delicate neck has hardened, is laid on the board and gently bent in the desired direction and pegged in place. By the following day the tension will be relaxed and the fruit can be still further forced into shape. Three or four resettings of the pegs are usually enough to carry the gourd to the point where the neck is fixed in form. Pipes formed in this manner become invested with still greater individuality. Unlimited opportunity is afforded for the exercise of ingenuity in the making of new forms, and individual tastes regarding the shape of a pipe can be fully gratified. By this method gourds have been formed with a double curve in the neck, making unnecessary a curved mouth-piece. If the vines run over the ground, the boards used serve the additional purpose of keeping the gourds off the soil.

To make a pipe the neck end of the gourd should be cut off and all pith carefully removed from the inside. The thin outside cuticle should be scraped off with a sharp knife before it dries. Whiting or pumice may be used for polishing the hard surface, if not smooth enough after thoroughly scraping. Sand-paper will scratch it and should not be used. The drying of the gourds seems a simple thing, but it is in reality so difficult that it should be specially explained. After the pipe gourds are harvested, the necks, particularly if not properly cleaned and scraped, are in great danger from moulds. If stored in a warm, close room for only a few days the

cuticle will be covered with unsightly spots, which ruin the hard layer beneath by discolouring it. The necks, after being cleaned and scraped, will cure best if hung up in a cool, dry room where plenty of air is circulating.

The making of the pipe should be postponed until the gourds have become well seasoned. The necessary accessories are a vulcanite mouth-piece, a cheap meerschaum inner bowl, and some thin cork strips, the cost of which should not exceed Rs. 1-8. In addition to these a few pice worth of plaster-of-Paris will be needed. Cut off smoothly the tip of the small end and bore through it with a knife blade into the narrow cavity of the neck. Into this screw firmly a crooked rubber mouth-piece with its ivory-threaded nipple. If there is difficulty in getting the hard ivory to cut its own thread, even after soaking the tip of the gourd neck in hot water, a number $\frac{1}{16}$ or $\frac{1}{8}$ machinist's die, according to the thread of the nipple, should be used to cut the thread. The large trumpet-like end of the gourd neck is next cut with a fine saw at the proper angle and low enough so that a regular cheap meerschaum bowl will fit into it, having its rim flush with the outside of the gourd. A few teaspoonsful of plaster-of-Paris mixed with water to form a stiff paste is spread as a thick layer for half an inch inside the rim of the gourd neck. The meerschaum bowl is first greased and then forced into place against the fresh plaster and left just long enough to allow the plaster to set slightly—not over three minutes at most; otherwise it will stick fast.

The setting for the bowl is now made, but not perfected until a strip of thin cork, such as many cigarettes are tipped with, has been glued smoothly over the surface of the plaster. Before doing this a little of the plaster-of-Paris should be scraped out to allow for the thickness of cork. If too much is removed and the bowl is loose the difficulty can be corrected by cutting down the edge of the gourd. This can best be done with a flat file or by holding the end of the gourd against the side of a grindstone. When properly done this meerschaum bowl fits snugly, but is easily removed by a twist of the fingers when the pipe is to be cleaned.

This is the completed pipe; and, with all the necessary things at hand, it can be made in half an hour. A well-made calabash pipe will appeal to the discriminating pipe smoker as possessing the much valued characteristics of the long German pipe in a much more convenient form.

The bowl occupies but a small part of the hollow neck and the remainder of the space forms a receptacle below the bowl that answers the same purpose as the lower bowl of the German pipe in keeping juices from entering the stem and allowing the smoke to cool.

TARIFF CHANGES AND CUSTOMS NOTIFICATIONS.

THE *Board of Trade Journal*, published on the 10th ultimo, in the section relating to Tariff Changes and Customs Regulations, gives particulars about :—

SIERRA LEONE.—Proposed Free Importation of Articles for Garrison, etc., Institutes.

DOMINION OF CANADA.—Importation of certain Prison-made Goods Prohibited.

COMMONWEALTH OF AUSTRALIA.—Invoice Values : Buying Commission.

NEW SOUTH WALES.—Pure Food Act, 1908. Amended Regulations.

NATAL.—Regulation of Exportation of Elephant Tusks, etc. Importation of Animals from certain Eastern Countries Prohibited.

RHODESIA.—Importation of Live Stock from Cape Colony.

FEDERATED MALAY STATES : SELANGOR.—Revised Customs Tariff. Regulations respecting Importation of Dutiable Liquors. Warehouse Rents for Liquors and Opium. Opium Regulations.

FEDERATED MALAY STATES : NEGRI SEMBILAN.—Revised Customs Tariff. Regulations respecting Importation of Dutiable Liquors. Opium Regulations.

GRENADA.—Additional Import Duty of 10 per cent during 1910.

EGYPT.—Revised Valuation Tariff for Linen, Hemp and Jute Yarns and Tissues. Revised Valuation Tariff for certain Oils. Valuation Tariff for Charcoal.

NETHERLANDS.—Import Duties on certain Alcoholic Products.

SPAIN.—Increase of Taxes on Alcohol and Alcoholic Products.

ITALY.—Customs Classification of certain Animal Hair.

SERVIA.—Marking of Exported Merchandise.

GREECE.—Customs Disputes and Inaccurate Customs Declarations. Prohibition of Importation of certain Animals, etc., from Durazzo.

UNITED STATES OF AMERICA.—Customs Decisions.

UNITED STATES OF AMERICA (PHILIPPINE ISLANDS).—Refund of Import Duties on Articles used in Shipbuilding. Treatment of Articles imported through the Mails.—Free Entry of Mules, etc.

COLOMBIA.—Customs Duty on certain Articles for Mining.

VENEZUELA.—Duty on Unsized Printing Paper.

PERU.—Importation of Animals.

PARAGUAY.—Importation of Medicinal Specialities.

JAPAN.—Customs Classification of Reclaimed Rubber.

We give the following particulars of changes interesting to Indian trade :—

EGYPT.

Revised Valuation Tariff for Linen, Hemp and Jute Yarns and Tissues.

The *Egyptian Journal Officiel* for the 10th January contains the following revised Valuation Tariff for use in assessing import duties on various manufactures of linen, hemp and jute. The Tariff was to come into force on the 1st January, 1910, and is to remain in operation for a period of three months (i.e., until the 31st March next), or until denunciation :—

Articles.	Value per kilogramme.*
	Milliemes.†
Tow, Hemp and linen yarns, gray, bleached or creamed :—	
Up to No. 20 inclusive	70
No. 22 up to No. 30 inclusive	92
Linen serims	140
Union serims	70
Striped jute or linen or cotton cloths for mattresses	145
Bed-tick checks	97

The trade allowance for bales is fixed at 3 per cent.

Revised Valuation Tariff for Certain Oils.

The *Journal Officiel* for the 24th January contains the following revised Valuation Tariff for use in assessing import duties on certain kinds of oil. The Tariff was to come into force on the 22nd January, and is to remain in operation for a period of two months (i.e., until the 21st March), or until denunciation :—

Articles.	Valuation for kilogramme, net.*
	Milliemes. †
Cotton-seed oil, "prime winter yellow" or double refined	36
Cotton-seed oil, "prime summer yellow"	34
" " refined	30
Linseed oil, raw	31
" " boiled	32

* Duty is leviable on these valuations at the rate of 8 per cent 1 kilogramme = 2.2046 lbs.

† 1,000 milliemes = £1 = £1 0s. 6d.

BENGAL CHAMBER OF COMMERCE.

ANNUAL MEETING.

THE Annual Meeting of the Bengal Chamber of Commerce was held on the 25th ultimo. The Hon'ble Mr. Graham presided and in the course of his speech said :—

You were all, I am sure, gratified to see the recent announcement that the Eastern Bengal State Railway is to remain under State control. This was a question which came prominently before us at the beginning of our year of office, and the Committee expressed a very decided opinion in favour of continued State control and against the Railway being handed over to the Bengal and North Western Railway. It is also hoped that some arrangement may be come to by which a few representatives of the various commercial bodies, more directly interested in the working of the Railway may be associated with its management by way of an Advisory, or a Consulting, Committee. This is a matter which we are taking up with the Railway Board, and I hope that our efforts will lead to the adoption of some such arrangement as I have indicated. Another railway matter of importance which has lately come before us is that of a bridge across the Ganges at Mokameh. When the Agent of the East Indian Railway invited our views upon this project, we had no hesitation in reiterating the previously expressed opinion of the Chamber in its favour. Such a scheme cannot, it seems to us, fail to be of the utmost advantage to the trade of Calcutta.

Waterways.

Closely connected with railways, as far as commerce is concerned—though perhaps, often in opposition to them in actual working—thereby creating a healthy competition from which the public may sometimes reap some small advantage—come the waterways of the country, and the Inland Steamer Companies and Country Trade which make use of them. The vast waterways of Bengal, and the great convenience they offer for transport, have perhaps been rather overlooked in the past. But I think the Government are quite alive to the great possibilities that they afford for cheapening transport generally, and—when funds are available—will always be found willing to give careful consideration to any feasible scheme by which those waterways may be improved and extended. It will be for the Chamber to lose no opportunity of pressing their views in the direction on Government, as Port and Trade of Calcutta are bound to be very big gainers from any such improvements and extensions.

Factories Bills.

There are one or two matters of great importance to the mercantile community which are at present in course of preparation for the Legislative anvil. I would refer first to the Factories Bill.

This is a Bill about which opinions are very divided. At the most it can but be a great experiment, and it is impossible for those who will be most affected by it to forecast in the least what its ultimate effect will be. Only experience will show that, and I for one cannot see why India should be chosen for an experiment of this nature. Indian labour being what it is, and coming and going as it does, is surely no field for experiments in such legislation. Anyhow, I think we should do our utmost to impress upon Government the importance of keeping as open a mind as possible on the subject, and being at all time ready to make alterations in whatever direction the experiments may prove to cause hardship to those to whom it may apply, and to lend a sympathetic ear wherever it may hereafter be found to be the cause of the dislocation of those industries which will come under its operation. The Bill will not, however, come very urgently before the Chamber for the next few months, but it is one of the big problems which the new Committee are bound to be called on to deal with before the year is out.

Revision of the Indian Companies' Act.

Another big problem is the proposed revision of the Indian Companies' Act, a lengthy and arduous task. We have prepared the way for the new Committee, so far as may be, by having the English and Indian Acts printed side by side for the sake of ready comparison. But beyond this we have not gone, except to the extent of consulting members of the Chamber and our legal advisers, and asking for their views. It is, I believe, the general opinion that the Indian Companies' Act requires some revision, but until the details of the English Act, which it is proposed to adopt for India, are thoroughly mastered, it is impossible for the Chamber to come to any definite decision. It will be no light task to go thoroughly into the details of both the English and the Indian Acts, point out defects or suggest improvements.

Partnership Registrations.

There is only one other matter which I should like to bring before you this afternoon, the Registration of partnerships. Most people seem agreed that some such measure is necessary, but Government have stated that they are not prepared to take action, unless the commercial community agree as to the best lines on which legislation should be undertaken. Unfortunately our Bombay friends do not seem able to see eye to eye with us in the matter, or perhaps they may say we do not see eye to eye with them; and as Government will not put forward a scheme which we might discuss jointly but will insist on unanimity between the big commercial communities, before they move, things seem to have arrived at a deadlock.

However, as the big commercial communities are at one the desirability of legislation, and as there is every probability of our respective Chambers

being presided over by gentlemen who are not only partners in the same firm, but who also happen to be brothers, we may hope that this will prove a happy augury for the disappearance of that divergence of views which has hitherto characterised the correspondence, and that before long we may find the various Indian Chambers sending up a united recommendation to Government on which definite legislation can be initiated.

The Budget.

In regard to the Budget introduced this morning in the Imperial Council, it is unfortunate that a probable deficit has to be met, and, therefore, new taxation to be inaugurated. I do not propose to say anything about the new taxation, because we as a Chamber have had no opportunity to consider it. The items proposed are a tax on tobacco, an increase in the petroleum duty, a duty on silver, an increase in some of the stamp duties and an increase in the beer and spirit duties. This taxation is rendered necessary by a deficit brought about partly by a decrease in the opium revenue, which was bound to occur in consequence of the present arrangement with China, and partly on account of the settlement with the new province of Eastern Bengal and Assam, under which that province requires considerably more finance. To meet the deficit thus caused, these five new items of taxation are proposed.

Gold Reserve.

I think we can all welcome what the Finance Member said this morning about the gold standard reserve. His idea is that 25,000,000 should be the sum kept apart, and certainly until that point is reached the whole profits of the coinage will go to the credit of the gold standard reserves, and there will be no taking out half of it for railways. He considers that we just managed to meet the slump in exchange caused by short exports eighteen months ago with the reserve then in hand, but that apart from the last this reserve should be able to stand two years of short export. I think we should all agree with him upon that. He also pointed out that the gold standard was to be always ready. There was to be no question of hoarding it, but when it was wanted to uphold exchange it was to be used at once. With this end in view, the Secretary of State will hold a million in his own hand and not invest it, so as to be ready to meet the first rush of any sale of drafts in London.

So far as the actual Fund is concerned at the present moment, it is very satisfactory, because it has nearly got back to what it was a few years ago. From the 14½ millions, at the end of January they had 5½ millions in gold, and it has been steadily rising since.

Tariff Reform.

The Hon'ble Mr. J. C. Shorrock followed and

spoke in favour of tariff reform, which, he considered, would have in the near future to engage more of the attention of the Chamber than had been the case in the past. Free Trade principles, if universally accepted, theoretically formed the only sound basis on which to conduct business; but such principles were not universally accepted. He proceeded:—

Great Britain no longer stands predominant as the world's workshop and chief producer of manufactured goods. The great industrial cities of Northern Europe have regained the commercial position they lost during the devastating wars of the 18th and first-half of the 19th centuries, and during the past fifty years in North America has been gaining strength annually. Therefore Great Britain, from being the dominating factor in guiding the destinies of commercial enterprise throughout the world, has become a factor of secondary importance, and we unfortunately find that the trading principles upon which our own success was nurtured, which we believe to be right and sound, are not those which have been adopted by the majority of the commercial communities existing throughout the world at the present day. In fact the masses of industrial populations now outweigh us, and two strong arguments in favour of some fiscal revision are first the consternation throughout commercial Europe and America at the bare idea of Great Britain and our dependencies changing and consolidating their fiscal system, and secondly that we are to-day in a minority, powerless to force our principles, sound as they may be, upon the majority.

Tariff Reform is only in its infancy, but at any moment problems arising therefrom may become the question of the hour for discussion in the Indian Chambers of Commerce. From what standpoint will such references be judged on this Chamber? Personally I am a free trader by up-bringing and in principle, but I am not that class of free trader who sets his doctrine upon the summit of an inaccessible pinnacle to be worshipped as a fetish. Whilst strongly deprecating the bolstering up of rotten industries by protective methods pure and simple, I am in favour of utilising to their fullest advantage such fiscal measures as other communities and countries take, in order to shield from unfair competition natural and indigenous industries, and as a matter of practical politics under present commercial conditions my support and sympathy will be given to Tariff Reform—particularly to Imperial Tariff Reform and not to a platform which advocates Free Trade at any cost and at any price in isolated portions of the British Empire.

The following Committee was elected:—Hon'ble Mr. Shorrock (Vice-President), Mr. Dring, Mr. Monteath, Mr. Harris, Mr. Mitranga, Mr. Tyffe, Mr. Crum and Mr. Stewart. As the elected President (Mr. Dowding) was unable to accept office, a new election for President is necessary. Mr. Monteath has expressed his willingness to serve.

UPPER INDIA CHAMBER OF COMMERCE.

The Factory Bill.

MR. E. A. WEST presided at the annual meeting of the Upper India Chamber of Commerce held on Friday last at Cawnpore.

The President, in moving the adoption of the Report, referred to the Allahabad Exhibition. He said:—Although the movement is essentially non-official in character we are indebted to Sir John Hewett, Lieutenant-Governor of the United Provinces, for its initiation, and it has his personal support and the hearty co-operation and assistance of the Local Government. It is indeed another proof of the intense and practical interest Sir John Hewett takes in all industrial and commercial matters, and in the general welfare of the people over whom he rules. I understand the last exhibition took place at Allahabad in 1864 just 46 years ago, so the time has most certainly arrived for another, and one which will bring before the public the great advance that has been made during the last half-century in agriculture and other industries.

Cotton.

The most disturbing feature from the cotton manufacturer's point of view at the present time is the phenomenal rise in the price of raw cotton, which began in July last year, and, with a few fluctuations, has been maintained for the past eight months, and as far as local supplies are concerned appears likely to continue, for the supply is small and the United Provinces crop which promised to be a bumper one was seriously damaged in October by west wind and boll worm. The price of the staple locally has increased from Rs. 20-4 per hundred lbs. in November, 1908, to Rs. 30 at the present time, a figure it has not touched since, I believe, 1900, and 16s. yarn which was Rs. 3-11 per 10-lbs. bundle in November, 1908, is now Rs. 4-8, so the margin is considerably reduced, for, whereas cotton has advanced over 48 per cent, the yarn market has only responded to the extent of 22 per cent, and the position is one not free from anxiety to all interested in our leading industry. I think Indian mills might with advantage follow the example of Lancashire and America by adopting short time, and if this movement was a general one it would have a marked effect in not only lowering the price of the raw material but, by reducing production, bring about an improvement in the price of both yarn and cloth.

Indian Factory Bill.

The Bill which was introduced at the Viceroy's Legislative Council at Simla on the 30th July 1909, contains a most radical change in the regulations affecting the conditions of labour in textile factories by limiting the hours of adult labour in such factories to 12 per diem.

The speaker then proceeded to criticise the Bill in detail urging that if restrictions were necessary

they should be made general, and be applied to every factory in the country, and also extended to the railways.

The President concluded by referring to the honour recently conferred upon a member of the Chamber, one of the oldest residents of Cawnpore, and taking the opportunity of most heartily congratulating Sir Alexander McRobert upon his Knighthood.

The Report was adopted.

The President then announced that the election had resulted in the following gentlemen being elected:—The Hon. Mr. W. G. Bevis, President; Messrs. A. H. Silver, Vice-President; A. A. Black, H. H. Hunter, S. H. Taylor, Lala Deena Nath, and J. B. Sunderland, members.

The Chairman moved that Sir Alexander McRobert be elected an Honorary Member of the Chamber, and the Hon. Mr. W. G. Bevis having seconded, the resolution was carried with acclamation.

EASTERN BENGAL AND ASSAM.

Crop Reports.

(By Telegram.)

Shillong, March 1st.

THE following is a summary of the weather and crop reports of Eastern Bengal and Assam for the week ending the 28th ultimo:—

The weather is seasonable. There has been no rain except light showers in the Surma Valley and the Assam Valley Division. More rain is needed for the tea and *rabi* crops.

The transplantation of spring rice has finished. The harvesting of mustard and sugarcane continues. *Jhum* cutting in the hills and the preparatory cultivation of soil for winter rice and *bhadoi* crops in the plains are progressing. The prospects of spring rice, sugarcane, tea, linseed and *til* are good; wheat and tobacco fair.

The average price of common rice is almost stationary.

Cattle disease is reported in Goalpara, Darrang, Nowgong and Lakhimpur.

—The tonnage of vessels entered at ports in the United Kingdom from foreign countries and British possessions, with cargoes during January, 1910, amounted to 3,085,902 tons, and the tonnage cleared to 4,107,896 tons, as against 2,903,740 tons entered, and 4,206,761 tons cleared, during January, 1909. With regard to the coasting trade, the tonnage entered with cargoes during January, 1910, amounted to 2,469,027 tons, and the tonnage cleared to 2,439,656 tons, as against 2,504,402 tons entered, and 2,465,272 tons cleared in January, 1909.

THE HIDE AND SKIN SUPPLY.

ACCORDING to the *Leather Trades' Review*, the gentlemen connected with the scientific and practical side of the leather industry who have been appointed to form an International Commission for the Preservation, Cure and Disinfection of Hides and Skins, will be in a position to secure all the available data bearing upon so important a subject. The Chairman, Mr. A. Seymour Jones, suggests that each member should collect and forward to him the various methods of preservation and cure employed in his country and district, as the collection of this data is important and cannot be too clearly described. Members are also asked to pursue independent investigations relating to disinfection and cure, and report to the Chairman from time to time, so that the information collected may be tabulated and transmitted to the other members of the Commission. Doubtless, Mr. Seymour Jones will also welcome any suggestions from readers outside the Commission. The writer proceeds:—Bearing in mind the steadily advancing values of raw hides and skins, and the growing scarcity of the better qualities, it is obvious we need make no apology for again drawing attention to the subject: many thoughtful men are convinced that the position is more serious than the trade seem to recognise, as statistics show a gradual decrease in the number of cattle and sheep in the world, whilst the uses to which leather is put naturally greatly increase with the advance of civilisation. Not only at home is leather in increased demand, but we have evidence that the Far East is beginning to awake to the fact that our staple plays a very important part in the economy of nations. Tanneries, for instance, are gradually being opened up in China, and as these are being financed by the Government, and managed by highly skilled men from Europe, the day will not be far distant when the abundant supplies of hides from China will probably show a decided falling off. The Army is, we believe, to be reorganised, and the quantity of leather required for this purpose alone will be enormous. China, in fact, appears to be awaking from her long sleep of centuries, and once she takes her place in the Councils of the world, the effect on such industries as our own will soon be felt. Japan, too, is gradually becoming a consumer of leather and leather products, and as she does not appear to be a large hide producing country, any demand on her part for raw material will also have a permanent effect on the international position. But whatever the cause, or causes, of the comparative shortage of raw hides and skins, the fact remains that they are dear, and as far as we can see, there is very little immediate prospect of any serious decline in values. Naturally, we shall see fluctuations, as in all other commodities, but the best authorities seem agreed that the old low range of values is gone for ever, and that the leather producer will have to base his calculations of finished products on an established higher standard. This, doubtless, has led up to so much consideration being given to the

subject under discussion. In the old days when profits were tolerably certain, and an abundant supply of hides and skins at reasonable prices was assured, it was, to use an Americanism, hardly a business proposition to waste much time on improved methods of the treatment of hides and skins. Neither did it matter very much, commercially, whether hides and skins carried infection and disease; anthrax was regarded as "all in the day's work," and as one of the risks any leather man should be prepared to run. With the advent of Workmen's Compensation Acts, however, it became necessary to guard against the disease, and the attention of employers was at once drawn to suggestions likely to be of service in this respect. This again provided an opportunity for the scientific men of the trade, and for years past chemists have been at work investigating the problem and attempting to devise some inexpensive treatment for hides and skins, which, whilst arresting decomposition and preserving the hide, should at the same time destroy the anthrax germ or spore. The problem has been a very difficult one, and even now it is questionable whether it has been conquered, although we happen to know some of our investigators have of late achieved most encouraging results. Apart from the commercial value of a really anti-septic cure, most of us would hear with satisfaction that the deadly anthrax germ had been killed, and all of us hope to see this deadly disease relegated to the bad old days of the leather trade. Humanity alone calls for all the efforts of the scientist and practical man in stamping out a disease, as deadly as it is indefensible. In all countries of late, legislation has been passed dealing with the question of anthrax, much of it is of a very drastic nature, and calculated to cause serious loss and disturbance to the tanning industry if strictly enforced. For this reason, then, if for no other, leather manufacturers should take an interest in and support the work of the Commission.

East Indian Tanned Hides.

On the 4th February 92,721 Madras, Bombay, and Ceylon were offered (including about 20,000 calf), and 60,307 sold. There was a very fair attendance of buyers, and an improved demand. Fair to good Madras tannages were well competed for, and light parcels show a gain of $\frac{1}{4}d.$ per lb. on average, while the heavier parcels sold at firm prices. "Light" and "small" were very firm, "3rd small" and "thirds" were firm to $\frac{1}{4}d.$ dearer, and "heavy" and "extra heavy" $\frac{1}{4}d.$ to $\frac{1}{2}d.$; "3rd heavy," however, were quietly received, and declined about $\frac{1}{4}d.$ per lb. "Fourths" show no change. Best calf were firm to $1d.$ dearer in stouter kinds. Buffalo hides were scarce and $\frac{1}{4}d.$ higher. Buffalo calf gained $\frac{1}{4}d.$ per lb. Bombays of mellow tannages sold at late rates to $\frac{1}{4}d.$ advance. Ceylon sold at very full rates.

Weighing about.	Light and small, 3 to 7 lbs.	Heavy, 8 to 9½ lbs.	Extra heavy, 10 to 15 lbs.	Third class.	Fourth class.	Calf.		Buffalo, 1 to 7 lbs. Firsts.
						Firsts.	Thirds.	
Madras—	d. d.	d. d.	d. d.	d. d.	d. d.	d. d.	d. d.	d. d.
Good to prime tannage	16 to 20½	13½ to 15½	12½ to 13½	14½ to 16½	11½ to 13½	22½ to 29½	14½ to 19½	12 to 16½
Common to medium tannage	16½ „ 17	11½ „ 13	9½ „ 10½	12 „ 14½	10½ „ 12½	12½ „ 22	10 „ 15	9½ „ 10½
Bombay—								
Good to prime mellow tannage	20 „ 27	15½ „ 20½	14 „ 17	14½ „ 16½	11½ „ 12½	19 „ 23½	15 „ 17	„
Fair to good tannage	14 „ 17	12½ „ 15½	10 „ 14	10½ „ 14½	9½ „ 10½	13 „ 18	10 „ 15	8 to 10½
Stitched and common tannage	8½ „ 10½	7½ „ 11½	7½ „ 11	7½ „ 11	6½ „ 8	10 „ 12½	7 „ 8	6 „ 9
Singapore—								
Dark red tannage	8 „ 9	8 „ 9	8 „ 9	7 „ 8½	5½ „ 7	„	„	„
Calcutta	14 „ 18	12 „ 15	10 „ 13	8½ „ 13	8 „ 11	„	„	„
Ceylon	14½ „ 16	11 „ 12	10½ „ 11½	10 „ 11	8 „ 9½	„	„	„

BRITISH HIDE AND LEATHER TRADE IN 1909.

IN its issue of January 12th the *Leather Trades Review* writes:—A brief digest of the Board of Trade returns for December last will be specially useful at the present time, when all sorts of statements are being made by political partisans as to the position of our group of industries. Many of these gentlemen doubtless are animated with the best intentions, but we strongly advise some of them to leave statistics alone and to stick to the accepted lines of political tub-thumping; at any rate, they would show more common-sense if when quoting special trades they took the precaution to go to men who really know something of the industries mentioned. All this, however, by the way; now let us open the official volume mentioned, and get some idea as to the course our trade has taken during the last year. Figures, we are told, may be made to prove anything; this being so, we shall comment as little as possible on these official returns, and leave readers to draw their own conclusion as to whether the net result of the past year's trading has been good or bad in our special group of industries.

As usual, the total trade figures are colossal, imports being £624,740,517 and exports £378,379,444. Compared with 1908 the imports have risen £31,787,030, and British exports £1,275,620, whilst re-exports have advanced by £11,741,718, the total increase from all sources amounting to £44,804,418. Whether the disparity between the value of imports and exports is a good feature the electorate will be called upon to decide during the next week or two.

In the limited space at our disposal we cannot do more than just glance at the figures which are of special interest to our readers. First, tanners, raw materials. During the year just ended 468,993 cwt. of dry hides, valued at £1,602,094, were imported; the weight of this class of hides re-exported amounted to 225,793 cwt., and the value to £834,096, thus leaving 243,793 cwt. for domestic consumption,

valued at £767,198. Wet hides weighing 737,602 cwt. were imported last year, valued at £2,185,974, as against 681,086 cwt., valued at £1,836,849, for 1908. Deducting weight and value of re-exports for last year we find that 537,419 cwt. of wet imported hides, value £1,631,977, were worked up in British yards last year.

There is a decided increase in the weight and value of British hides exported as compared with 1908, probably due to the increased demand from the United States. In 1908 242,569 cwt. (value, £570,672) left this country, advancing to 286,473 cwt. (value, £805,495) during last year. The export of pickled sheep and lamb skins also shows a decided advance from 4,965,536 to 8,312,850 in number, and from £370,368 to £572,015 in value. The increase in this direction is entirely due to the American demand, the other markets showing a decrease.

• As regards the position of the tanning industry as tested by the imports of tanning materials, we see little to complain about, as the decline in gambier and myrabolams is more than made up by the increases in other materials. Imported extracts have advanced in value from £712,998 for 1908 to £779,397 for 1909; barks from £186,966 to £225,059, whilst valonia about holds its own, the decline being very small.

Turning to exports of British "unwrought" leather, the position seems satisfactory, 183,348 cwt. for 1908 having advanced to 214,427 cwt. this year, the values being £2,210,666 and £2,554,408, respectively. It might be more under better conditions, but, anyway, the balance is on the right side. The increase is mainly due to the better demand from France, the United States and Canada, Germany showing a slight decline. Exports of harness and saddlery make the worst showing, as might be expected. Even here, however, things are much better than we were afraid they would be, judging by the pessimistic reports we have read from Walsall and Birmingham during the past year. Shortly, the value of British exported saddlery has declined from £434,033 to £430,631 during the past two

years, the decline being partly due to the lessened demand from some Colonies. The North American demand has advanced from £43,723 to £56,804, and the South African from £33,880 to £50,164.

There are so many figures to wade through in the volume of statistics before us, that a further analysis is impossible, and we pass on to exports of British gloves, which have advanced from £294,527 for 1908 to £365,630 during 1909, showing this section of the trade is in a healthy condition. Machinery belting has declined from £480,984 to £465,302 for 1909, but the export of "other sorts" of leather goods has advanced from £406,948 to £440,119, which more than compensates for the falling off. The total value of exports of leather and leather manufactures (excluding footwear) amounted in 1908 to £3,862,258, and in 1909 to £4,246,150, an increase of £419,892 in favour of last year.

As regards exports of boots and shoes, these advanced from 764,197 dozen pairs valued at £2,083,754 in 1908 to 840,830 dozen pairs valued at £2,925,442 in 1909, a most satisfactory increase considering the difficulties manufacturers have had to encounter in the way of increased tariffs abroad, and high-priced material throughout the year just ended. Now we come to the sore point with leather men, *viz.*, the enormous import of tanned and dressed leather; still, let us get what consolation we can from the fact that there is a decrease from £9,479,395 for 1908 to £9,377,729 for 1909, or in weight from 1,175,062 cwt. to 1,171,659. America's bill has decreased from £3,958,820 to £3,831,382 and Germany's increased from £1,422,036 to £1,484,648. France has also slightly improved her position as her bill has advanced from £577,533 in 1908 to £597,679 for 1909. British India has sent us leather to the value of £2,267,173 for 1909 as against £2,311,624 for last year. Last year's re-exports of imported foreign leather from all sources were 123,973 cwt. valued at £1,646,721, leaving 1,047,686 cwt. of imported leather valued at £7,731,008 for British consumption, as against 4,055,028 cwt. valued at £8,001,071 for 1908.

Imports of foreign gloves for 1908 were valued at £1,381,635, advancing in 1909 to £1,526,706. After deducting £236,410, the value of re-exports foreign gloves to the value of £1,290,296 have been consumed in this country during the past year, showing the enormous possibilities of this business under more encouraging conditions.

We have endeavoured to give readers just a *précis* of the figures for the past year, which are especially useful at the moment, and we trust some will find them handy to correct the many absurd statistics, which are in circulation, usually twisted and distorted to suit the views of biassed politicians.

—This office is prepared to communicate the names of certain firms that make **machinery** and **appliances** for the extraction of **vegetable stearines** and the **manufacture of butter substitutes**.

EGYPT AND THE SUEZ CANAL.

THE following is a summary of the new draft Convention between the Government of Egypt and the Suez Canal Company for a renewal of the concession:—

Art. I. The concession of the Suez Canal Company, which expires on the 17th November, 1968, is renewed for another period ending the 31st December, 2008.

Art. II. The annual net revenue of the Canal from the 1st January, 1969, up to 31st December, 2008, will be divided in equal parts between the Company and the Government on the following conditions:—

(1) In case the annual net revenue is inferior to one hundred million francs the Company will take fifty million francs and the Government the remaining amount.

(2) In case the annual net revenue does not exceed fifty million francs it will be allotted in its entirety to the Company.

The Government will forego the 15 per cent of the receipts allotted to the Egyptian State from the 1st January, 1969, by article 63 of the Convention in force.

Art. III. The Company will pay to the Government four million Egyptian pounds in four equal instalments, payable on the 15th December, 1910, and the same date of the following three years.

Art. IV. The Company will pay to the Government the following percentage of the net revenue from the year 1921 up to the end of 1968:—From 1921 to 1930, 4 per cent; from 1931 to 1940, 6 per cent; from 1941 to 1950, 8 per cent; from 1951 to 1960, 10 per cent; from 1961 to 1968, 12 per cent. This share of the Government will be calculated in the same way as the dividend of the shareholders, and paid on the same dates as fixed for the payment of the dividends. The Company benefiting by the 15 per cent share of the Government up to the 17 November, 1968, provided for by article 18 of the Convention dated 5th January, 1856, will in no way be affected by the engagements taken by the Suez Canal Company as per this article and the preceding one.

Art. V. In calculating the share of the Government after the year 1968, according to article 8 of this Convention, only the amounts due for interest and amortisation of loans contracted for improvement works undertaken in the Canal and the harbours connected with it will be taken account of.

The share of the Government will be calculated on the same principles as the dividend of shareholders unless the application of the conditions stipulated in the preceding paragraph entails a different procedure.

At any rate the Government share will be paid on the dates fixed for the payment of dividends.

Art. VI. The system of dividing the receipts in equal parts between the Government and the Company will apply to the balance of the Company's capital on the expiration of the concession and the

reversion of the Canal to the Government according to the conditions laid down in the Convention of January 5th, 1856.

Art. II. The Government may be represented on the board of administration of the Company from the beginning of the year 1969 by three members.

Art. VIII. The Government undertakes to pay all pensions and indemnities which may be due to the staff of the Company on the expiration of the concession according to the Company's regulations of which a copy has been delivered to the Government.

Art. IX. The Company undertakes to carry out its expense all repairs and improvements which may deem necessary in the southern entrance of the Canal. It will also take on its charge up to a maximum of ££90,000 the dredging operations undertaken by the Government in the harbour of Suez with the object of deepening the pass leading to the Canal.

Art. X. The renewal of the concession as provided for in this Convention will not be affected by previous Conventions concluded between the Government in regard to the duration of the concessions.

Art. XI. This Convention will not become binding until it has been approved by the general assembly of the shareholders of the Company.

The letter forwarding this draft Convention to the Public Assembly states that the Council of Ministers sitting under the presidency of His Highness the Khedive on the 27th instant unanimously decided to reject the Convention unless the following modifications are agreed to:—

(1) That the net revenue of the land be divided in equal parts between the Government and the Company irrespective of its amount.

(2) That this partition of the revenue should take effect from the 17th November, 1968, instead of the 1st January, 1969.

(3) That Art. VIII which lays down that the Government should pay the pensions due to the staff of the Company on the expiration of the concession be eliminated.

As the Company undertook to defray the ££90,000 provided for in Article IX in return for the Government paying the pensions of its staff, the Council of Ministers is disposed to relieve the Company of this engagement.

In regard to the lands which will be reclaimed from the sea at Port Said on certain works being undertaken by the Company, the Council is not disposed to agree to the Company becoming sole owner of these lands, but will consent to their being transferred to the Common Property Service.

—Order No. 486 issued by the Government of Madras, shows that high-class **Australian potatoes** have been **successfully cultivated in the Nilgiris** and that so much interest has been created in this experiment that the demand for seed far exceeds the supply. Arrangements are being made to have a larger supply of seeds next season.

METHOD OF ANALYSING SHELLAC.

MR. PARKER C. McILHINEY contributes the following article to the *Journal* of the American Chemical Society:—The method of analysis which is in most common use at the present time both in England and the United States for the determination of the amount of rosin in shellac is an indirect method depending on the different powers of shellac and of rosin to absorb iodine from a suitable solution. Different operators prefer different methods of making this test, some preferring to use the old Hubl method, and others the more modern Wijs method, as modified by Langmuir. Either of these methods is capable of giving reasonably satisfactory results, although the Langmuir method is certainly much to be preferred both on the score of accuracy and of speed. Another method which is in use is that proposed by Parry, depending upon the solubility of the resinates of silver made from common rosin in ether, while the corresponding resinates from shellac are insoluble. This method labours under several disadvantages and sources of error, of which the two principal ones are the solubility of the unsaponified portion of the shellac in ether, and the danger of a decomposition of the resinates of silver before it can be separated and determined.

A direct method of separating shellac and rosin and recovering the rosin, at least in a substantially unchanged form, is greatly to be desired, and several experimenters have attempted to make such a separation by taking advantage of the solubility of rosin in petroleum ether, a solvent in which shellac is insoluble. No method of extracting from even a finely pulverised sample of shellac the portion soluble in petroleum ether seems to be capable of removing more than a small part of the rosin contained in the sample.

Shellac dissolves in alcohol, except for the wax contained in it; petroleum ether dissolves to some extent in alcohol, and it was thought that by first dissolving the shellac to be analysed in alcohol, then adding to the solution all the petroleum ether which it would dissolve and then adding water, so as to dilute the alcohol that it would no longer have any material solvent power upon either rosin or shellac, there should result a separation of the dissolved petroleic ether containing in solution the rosin and the wax, but free from the resinous constituents of the shellac. Upon trying that process, it appeared that it was correct in principle, but is on account of the limited solubility of petroleum ether in alcohol the separation was not quite complete. Upon substituting for ordinary alcohol, glacial acetic acid or absolute alcohol, in which the sample of shellac to be examined is dissolved, and then adding to it petroleum ether, which is miscible in all proportions with acetic acid, or absolute alcohol, it was found practicable to combine with the rosin and the wax so large an amount of petroleum ether that, upon adding water, an almost complete separation of the rosin and wax from the resinous part of the shellac could be effected.

Based upon these facts, the following process was devised:—Dissolve in 20 cc. of glacial acetic acid (about 99 per cent.), or the same volume of absolute alcohol, 2 grms. of the sample to be analysed. This requires a gentle heat. Add to the solution, after cooling, 100 to 300 cc. of petroleum ether, boiling under 80°. This addition of petroleum ether should be made slowly, because the addition of so large an amount of petroleum ether precipitates from its solution a part of the shellac, combined, apparently in case acetic acid was the original solvent, with acetic acid to form a liquid precipitate. It is manifestly desirable that this precipitation of part of the shellac should not be effected by too sudden an addition of petroleum ether, as it might then contain some rosin carried down mechanically with it.

We now have a solution containing both petroleum ether and glacial acetic acid, or absolute alcohol, and containing in it, in solution, all the rosin, all the wax, and most of the resinous part of the shellac. Add now to this solution, drop by drop, 100 cc. of water, agitating the liquid during the addition. The water "unites with" the alcohol or acetic acid, and separates from the liquid the petroleum ether with whatever is soluble in petroleum ether. This includes the rosin and the wax. The shellac is also precipitated, but as it is insoluble in petroleum ether it remains as a precipitate suspended in the diluted alcohol or acetic acid. The separation of the two liquids takes place very rapidly, and it is an easy matter to effect a complete separation of the two layers in a separating funnel. The petroleum ether layer is washed once or twice with water, and then filtered through a dry paper into a weighed flask from which the petroleum ether is then distilled off, leaving the residue of rosin mixed with wax, which is weighed. To the weighed residue neutral alcohol is added, and the flask heated to dissolve the rosin in the alcohol. The liquid is then titrated with N/5 or N/10 caustic potash. This gives a measure of the amount of rosin present, as the average combining equivalent of rosin does not vary greatly from 346. This is the figure used for his titration in the Twitchell process. It is much better, however, not to depend upon his determination of the rosin, but to proceed to an actual separation by adding to the neutralised alcoholic solution a distinct excess of alkali and a sufficient quantity of petroleum ether; the mixture is then transferred to a separating funnel, thoroughly agitated, and some water added. The liquids are then separated, the petroleum ether layer being washed with water, and the alcoholic solution of the rosin extracted once more with petroleum ether. The petroleum ether solutions are then united, the petroleum ether distilled off, and the residue of wax weighed. The alcoholic solution containing the rosin is then boiled till the alcohol has been expelled, and, if necessary, further addition of water made; then diluted with hydrochloric acid is added, so as to precipitate the rosin. This should be done in a weighed flask; the acidified liquid can now be decanted off through a wet filter-paper, so as to leave behind in the flask the major part of the rosin, which is washed with

water. The remainder of the rosin on the filter paper, after sufficient washing, is extracted with petroleum ether back into the weighed flask from which the water has been decanted as perfectly as possible. Upon distilling off the petroleum ether, the rosin is left behind in a condition to weigh. If the whole of the last traces of water have not been removed by the distillation with petroleum ether, it is well to add a further quantity of dry petroleum ether and distil again.

Attempts were made to use other solvents, particularly coal tar benzine instead of petroleum ether. It was found, however, that benzine dissolved considerably more out of the shellac than the wax.

If it is desired to determine only the rosin in the shellac, it is unnecessary to distil off all the petroleum ether from the solution containing the wax and the rosin. This solution may, instead, be treated directly with an alkali capable of combining with the rosin while leaving the wax unattacked. The most convenient method which I have found for accomplishing this is to add to the petroleum ether solution, after filtering it to remove from it anything which it may contain in suspension, a solution of sodium hydroxide in absolute alcohol. Such a solution I have found it convenient to make by dissolving in ordinary 95 per cent. alcohol the appropriate amount of metallic sodium. Such a solution, when added to the petroleum ether solution, mixes perfectly with it, and the alkali combines with the rosin, and the mixed solution allows the saponified rosin to be extracted from it by agitation with water, or, better, with slightly diluted alcohol. Instead of using a solution of sodium hydroxide in absolute alcohol, it should be possible to use the method of separating rosin from neutral substances in petroleum ether solution, that is used in the Twitchell process of determining rosin in admixture with fatty acid. This consists in agitating the petroleum ether solution with an alkaline aqueous solution containing some alcohol, made by dissolving 1 gm. of potassium hydroxide with 10 cc. of alcohol in water, and diluting to 100 cc. I have found the other method of procedure advantageous, however, and believe it to give a more exact separation. The solution drawn off from the petroleum ether, after extraction by alkali, and containing in solution the rosin combined with potassium or sodium, together with whatever alcohol has been used to promote the combination and to facilitate the mechanical separation of the two liquids is heated for some time to remove the alcohol, and is then acidified with hydrochloric or with sulphuric acid to precipitate the rosin. The precipitated rosin is then weighed as before.

Without entering into a discussion of the exact chemical composition of shellac wax, it may be proper to state that the wax may be separated commercially from shellac by two essentially different methods, which will probably give waxes having somewhat different compositions. If the shellac is dissolved in an alkaline solution and the wax which remains in suspension is filtered out it is probable that different results will be obtained

from what would be obtained by the other process, consisting of a solution of the shellac in alcohol, and filtration of the solution to remove the wax which will remain in suspension. It is to be expected that these two processes of solution would leave, in the undissolved wax, small amounts of ingredients of different characters, and, furthermore, the alcohol used in the second process would dissolve small amounts of the wax which would probably be quite insoluble in an alkaline aqueous solution. Again, it is quite probable that a caustic solution would behave towards shellac wax somewhat differently from a dilute carbonate solution. For the sake of uniformity and simplicity, I am assuming that shellac wax is quite free, when pure, from all acid substances capable of uniting with free alkali. It is nevertheless true that the user of shellac who wishes to have a determination made of the amount of wax which it contains usually desires this information in order that he may know how much of the shellac will remain undissolved in alcohol. This amount of insoluble wax will, of course, vary to some extent, depending upon the strength of the varnish that he prepares with it; that is to say, the number of pounds of shellac which he uses to a gallon of alcohol. As the analyst can hardly be expected to take account of this in making his test, it appears more rational to regard as wax the whole of those matters contained in the shellac that remain insoluble in an alkaline solution.

In making a determination of the amount of wax in a sample of shellac by this method, it is to be observed that some constituent of shellac wax is evidently only difficultly soluble in petroleum ether. Upon submitting several portions of the same lot of shellac to analysis in this way, the only difference made in the different determinations being that varying amounts of petroleum ether were used, the series of analyses gave, with increasing amounts of petroleum ether, increasing percentages of wax, until the proportion of about 125 to 150 cc. of the solvent to 1 gm. of a shellac containing about 5 per cent of wax was reached. It may be that by using some other solvent such as benzine for the determination of wax in this way, a smaller amount will suffice, but as it seldom happens that only wax without resin is to be determined, petroleum ether is the most generally applicable solvent. The solubility of rosin in petroleum ether is so easy and complete that no difficulty is experienced in extracting from 2 grms. of shellac 50 per cent of rosin, using 100 cc. of petroleum ether.

Whenever in the course of an analysis by this method a quantity of material is separated by acidifying the aqueous solution which should contain the rosin, its identity may be established with some certainty by determining its iodine figure by the Langmuir method, and its acidity by titrating with alkali in alcoholic solution.

The petroleum ether referred to here is a solvent made by re-distilling 71° B. benzine, separating for use that part which distils below 80°. This fraction constitutes a large proportion of 71° benzine,

and such a redistillation gives at a comparatively small cost, a satisfactory solvent for the purpose. If a determination of only the rosin is desired, it is of course, unnecessary to be very particular as to the volatility of the solvent used, as it is unnecessary in such case to distil it off before extracting the rosin by alkali.

By treating pure shellac according to this process it is possible to separate from it a small amount, sometimes as much as 1 per cent., of materials soluble in petroleum ether. This small amount of resinous matter, when examined, proves to be something essentially different from common rosin. Its odour and its low iodine figure indicate that it is some resinous constituent of shellac, perhaps a small amount of the major constituent, which is slightly soluble in petroleum ether. As it is difficult to imagine that by this process rosin if a normal constituent of pure shellac would escape detection, and as the small amount of resinous matter here obtained is essentially different from rosin, it is reasonable to conclude that, contrary to the idea held by many, common rosin or a material similar to it is not a natural constituent of pure shellac, but that any rosin or colophony which can be separated in a state of reasonable purity from the sample of shellac was originally added to the shellac as an adulterant.

The process here described allows the analyst to separate in a form convenient for exhibition either as evidence in court or as an ocular demonstration for his client any rosin which may have been added as an adulterant to shellac.

Shellac varnishes may contain besides true shellac not only rosin, but other gums and resins soluble in alcohol. It becomes therefore a matter of interest to ascertain how some of these other resins behave when treated by this process. Two samples of manilla, when treated, using absolute alcohol as the first solvent, gave, respectively, 41.2 and 43.3 per cent. of matter soluble in petroleum ether. The acidity of these two lots of matter soluble in petroleum ether was in the case of the first sample such that 1 cc. of normal alkali neutralised 411.7 mgrms., and in the case of the second 470.7 mgrms. Two samples of Kauri gave, respectively, 37.9 and 27.0 per cent. Upon titrating with standard alkali these portions soluble in petroleum ether, it appeared that 1 cc. of normal alkali was capable of neutralising 903.6 mgrms. and 724.5 mgrms. respectively. Of Sandarac, two samples, when similarly analysed gave 34.96 and 36.19 per cent. having such an acidity that of the first, 541.2 mgrms. would neutralise 1 cc. normal alkali, and of the second 552.5 mgrms. would neutralise 1 cc. Of Dammar, 89.9 per cent. proved to be soluble while the resin of Shorea robusta, a sample of which was kindly sent by Mr. W. Risdon Cripser, of Calcutta, gave 69.5 per cent. of soluble matter.

A number of attempts were made to effect a satisfactory separation of the wax before separating the rosin from the shellac. It was found, however, that on account of the solubility of wax

in alcohol and in glacial acetic acid, this separation could not well be made by filtering out the wax before the addition of petroleum ether. Neither were attempts which were made to separate the wax by a preliminary solution of the shellac in aqueous alkali successful in furnishing a method that at all approached in feasibility to the method already described.

A NEW INVENTION FOR ROAD LOCOMOTION.

WITH the increased study of the wind, as a direct factor in aiding locomotion in the air, inventors have taken up again the problem of utilising the wind for transportation by land. It is true that early experiments with horseless vehicles included sail wagons as well as steam wagons, but both at the time failed to promise any measure of practical utility. In these days of light construction, rubber tyres, ball-bearings, and, above all, of smooth, solid roads, the conditions are totally changed. The feasibility of sailing easily over the frozen surfaces of rivers and lakes has long been recognised and utilised, and it would now appear as if the wind can render helpful service to some extent in connection with locomotion over normal roads. According to the American Consul at Chemnitz, a German inventor has perfected and patented a simple sail vehicle which makes fair progress over good roads and across sandy stretches, such as a sea beach. The dominating features in the construction are lightness and effective steering facilities. The present form is a light framework supporting a saddle and a mast for the sail, and resting upon four wheels, one wheel on either side, and one before and one after. The two latter are of a larger diameter than the former, and all are far apart, as is the practice with automobile wheels. The chief peculiarity in the device is the connection of the wheels with one another. The rear wheel and the right side wheel are rigidly connected together, and the same is the case with the front and the left wheels. The two connecting bars are joined with each other by means of an axle or cross-bar, the attachment at each end being of a hinged type. A person sitting on the saddle rests his feet on this transverse axle, and by suitable pressure can alter at once the relation of the wheels to the main axis of the framework. This arrangement furthermore leaves his hands completely free for adjusting the position of the sail or using a brake. The whole device has a certain lightness and elegance which will appeal probably at first to the lover of sport. Contests of speed will involve but little of the danger accompanying competition with cycles or automobiles, but will afford play rather for the quickness and deftness required of the "mariner" in utilising to the utmost the surrounding atmospheric conditions. It is said that experiments made with the new vehicle on smooth roads give good promise of its availability, especially in flat districts, where no serious grades are to be encountered.

THE WORLD'S SHIPBUILDING.

THE *Statist* of February 5th has an article on this subject in the course of which it says:—While we had an increase in our tonnage output last year, there was actually a decrease, in so far as can be at present estimated, in the tonnage output of the world, as will be seen from the following table:—

	1909.		1908.	
	Vessels.	Tons.	Vessels.	Tons.
Scotland	418	427,325	680	400,194
England	642	633,299	623	517,752
Ireland	37	120,904	22	158,626
U. K. Totals . .	1,097	1,181,528	1,325	1,076,572
Colonial	130	17,425	137	28,029
Foreign	1,378	1,088,799	1,421	1,170,753
GRAND TOTAL .	2,605	2,287,752	2,883	2,275,354
Lloyd's figures .	1,214	2,006,532	...	...

This table is compiled from the returns of the correspondents of the *Glasgow Herald*. We do not regard it as absolutely accurate, for we think that in respect of the colonial and foreign returns it must be incomplete. But it is sufficiently approximate to be informing and interesting.

The number and tonnage of the vessels launched outside of Britain and British dependencies continue to show the tendency to decrease which characterised the figures of the previous year. Last year there was a decrease of about 30 vessels and 100,000 tons. The decreases in tonnage are in the returns from the United States, Germany, Japan, Norway, Italy, Denmark, Sweden, and Spain, but there were increases in the outputs of Holland, France, Austria-Hungary, Belgium, Russia, and China. More than a usual number of destroyers, torpedo-boats, coast defence ships, and special vessels have been launched. The building of warships, indeed, has saved the foreign shipbuilding from showing a heavy decrease in tonnage if new mercantile shipping alone were tabulated. The returns, however, illustrate the tendency on the part of the principal shipbuilding countries to each do their own building. The United States builds entirely for its own services, which are made greater by the extension of the term "coasting trade" to the Philippines. The law prevents ships built in other countries from trading between the United States and these islands. Germany has been encouraging its shipbuilding for years, and her industry has prospered. Few vessels for German owners are now built outside the country. Its shipping companies are, however, recovering very slowly from the depression of 1907, and shipbuilding has not yet begun to revive. In France the industry is only holding its own. In Holland it is making headway, and it is noteworthy that last year one Dutch firm built a steamer for British owners. Japan is now doing all its own shipbuilding, and Austria has a new yard which is doing much of the work that previously came to this country. Our shipbuilders are now competing keenly in all the non-shipbuilding countries with other nations, particularly with Germany and Holland.

The following was the production of the several foreign countries in 1909 and 1908:—

	1909.		1908.	
	Vessels.	Tons.	Vessels.	Tons.
United States . .	201	281,271	180	320,361
Germany	289	277,155	302	327,399
Holland	413	174,920	354	153,502
France	40	132,877	76	104,353
Austria-Hungary .	24	55,196	37	76,808
Japan	165	54,174	191	79,258
Norway	58	32,206	84	53,100
Italy	32	40,000	14	43,996
Denmark	27	11,952	30	19,082
Belgium	33	11,659	40	22,542
Sweden	20	7,095	38	10,919
China	53	5,896	56	5,665
Russia	22	2,205	10	647
Spain	1	2,173	1	3,061
	1,378	1,088,799	1,421	1,170,753

As America was the next largest producer to ourselves last year we may review first the production of the United States. In volume it was not so large as that of 1908, and it included only two battleships. The American Shipbuilding Company and the Great Lakes Works turn out many large freight carriers, but their output is confined to Lake vessels. At Newport News and Philadelphia there were produced battleships and torpedo-boat destroyers; and submarines at Quincy and other places. There are always a considerable number of sailing vessels built in the smaller coast yards. The Cramp Company are building three high-powered destroyers for the United States Navy, the Newport News Company a destroyer and nine large freight steamers, the New York Company a battleship and two freighters, the Maryland Steel Company four large steamers and the Harlan and Hollingsworth Company two steamers each of 3,300 tons. The Neafie and Levy Yard at Philadelphia is closed down, and is now being dismantled. San Francisco reports the launch of only one steamer of 2,100 tons.

Shipbuilding Output of United State.

	1909.		1908.
	Vessels.	Tons.	Tons.
The American Company (7 yards)	20	87,951	103,246
The Newport News Company	11	41,574	19,150
The New York Company	21	41,232	38,260
The Great Lakes Works	7	31,212	46,952
The Maryland Steel Company	8	18,906	12,809
The Fore River Company	19	11,980	23,768
Harlan & Hollingsworth	6	8,678	2,656
The Toledo Company	1	5,408	9,223
The Manitowoc Company	4	4,984	...
Wm. Cramp & Sons	6	2,835	20,623
The Union Iron Works	1	2,100	75
The Staton Island Company	7	2,097	1,335
The Moran Company	3	975	6,085
Gas Engine and Power Company	57	860	438
J. H. Dialogue & Son	3	854	204
The Rison Iron Works	2	600	...
Other Firms	25	18,988	35,438
	201	281,271	320,361

As next on the list we turn now to Germany, whose shipyards have not been quite so busy as they were in 1908. Among the products were three of the new *Dreadnought* battleships, one *Dreadnought* cruiser, two other cruisers, one gunboat, eight torpedo-boats, and five destroyers. The shipping companies are, however, looking round, and within the past month or two several of them have ordered new vessels.

Shipbuilding Output of Germany.

	1909.		1908.
	Vessels.	Tons.	Tons.
Dockyard Warship	1	20,500	33,000
The Flensburg Company	10	30,500	26,600
The Howaldt Works, Kiel	10	27,935	12,369
The Woser Company	3	27,900	30,100
F. Schichan	12	25,181	...
John C. Tecklenborg	6	21,496	14,638
Blohm and Voos	2	20,600	33,500
Bremer Vulcan Works	11	18,217	10,053
The Vulcan Company	10	13,204	47,030
Rickmers Reismuhlen Company	3	12,311	11,084
The Neptune Company	13	10,262	16,167
J. Freriches & Company	24	8,410	6,502
The Germania Works	7	7,797	27,424
The Older Works	10	6,380	4,560
The Reiherstieg Works	3	4,767	14,516
Sachsenburg Brothers	13	4,114	4,590
Nuscke and Company	11	2,590	4,227
Henry Koch	8	2,569	3,702
George Seebeck	11	1,717	2,384
I. H. Hitzler	8	1,100	...
The Eider Works	2	1,003	4,099
J. W. Klawitter	6	753	1,110
H. Pauksch	10	650	...
J. H. N. Wichhorst	7	434	539
R. Holtz	33	416	253
Hamburg S. and E. Company	7	388	1,109
Stocks and Kolbe	5	249	...
Union Glessere	3	132	...
Other Firms	40	5,471	11,901
	289	277,155	327,399

The German decrease was about half as much as the British increase.

Next on the list is Holland, which has a steadily progressive, though not extensive, shipbuilding industry. By way of exception there was last year a warship in the Dutch returns a dockyard-built battleship of 6,525 tons, the first of four coast defence ships. The Netherlands Company, Amsterdam, launched a steamer of 6,000 tons, the Royal Company de Schelde, Flushing, one of 7,500 and one of 5,600 tons, and Messrs. Bonn and Mees, Rotterdam, one of 6,000 and one of 3,500 tons. At Schiedam, four large dredgers were built for the Italian Government as well as two for home ports.

Dutch Shipbuilding Output.

	1909.		1908.
	Vessels.	Tons.	Tons.
Dockyard Warship . . .	1	6,525	...
The Netherlands Company . .	7	15,054	7,581
The Royal Company do Schelde	2	13,040	11,080
Boot Brothers	40	11,333	16,308
Bonn and Mees	17	9,830	...
A. F. Smulders	36	9,249	5,380
The Fijenoord Company . . .	9	8,260	11,624
Van Vliet and Company . . .	9	7,700	10,295
L. Smit and Son	10	4,556	...
Rotterdam Dry Docks Company . .	4	4,134	5,940
The Arnhem Company	13	2,050	1,900
Royal Netherlands Forge . .	19	1,898	1,420
E. J. Smit and Son	10	1,548	3,410
Wilton's Slipway Company . .	7	887	2,813
H. J. Koopman	5	400	...
Huiskens and Van Dijk . . .	11	306	870
Holland Motor Company . . .	6	190	...
J. and A. Van der Schuijt . .	2	181	988
Botje, Ensing and Company . .	4	150	300
Other Firms	201	77,500	74,403
	413	174,920	153,502

Of course, a very large proportion of the shipbuilding output of Holland is in the form of canal craft, dredgers, pontoons, tugs, etc., that can hardly be called merchant tonnage.

Turning next in order to France, we find that the tonnage launched by French shipbuilders is greater than that of 1908, although the number of vessels is less. Four battleships of the *Danton* class were built, and a fair number of trading steamers, including one of 12,000 tons. There is a turbine steamer of 21,000 tons now building at St. Nazaire, three vessels of 12,000 tons are building at Rouen, and four of a similar tonnage at Dunkirk.

Shipbuilding Output of France.

	1909.		1908.
	Vessels.	Tons.	Tons.
Dockyard Warships	2	35,420	14,000
Chantiers Mediterranee . . .	10	24,630	17,211
The St. Nazaire Company . . .	3	20,819	16,109
The Loire Company	2	18,670	16,964
The Provence Company	2	15,600	12,200
Chantiers de France	10	15,304	18,108
A. Doubigeon and Sons	3	1,200	1,650
A. Blasse and Sons	4	489	...
Schneider and Company	1	455	1,355
Baheux Brothers	3	290	...
Other Firms	...	...	6,746
	40	132,877	104,353

But while France shows an increase, her output is really small, and is plainly not encouraged by her shipbuilding and shipping subsidies.

Outside of Europe and America the largest shipbuilder is, of course, now Japan, but for last year the returns from Japan so far show a falling off.

In warship building only one destroyer was launched during the year. There is still one of the ships captured from Russia under reconstruction—the *Tango* (ex *Poltava*). The Government work in hand includes the battleships *Settsu* at Kure and *Kawachi* at Yokosuka. Large battleship-cruisers are yet in the future, but two 5,000-ton protected cruisers have been begun in private yards—at Nagasaki and Kobe. Among the merchant ships launched during the year was the Volunteer Fleet steamer *Umegaka Maru* at Nagasaki, with Parson's turbines. The *Mitsu Bishi* Works are building a third turbine steamer for the Toyo Kisen Kwaisha, and three 6,000-ton cargo steamers. The Kawasaki Dockyard Company have on hand a protected cruiser, a floating dock, a submarine, and some other small vessels, and the Osaka Iron Works and the Uraga Dock Company have each some small vessels.

Shipbuilding Output of Japan.

	1909.		1908.
	Vessels.	Tons.	Tons.
The Imperial Dockyards . . .	1	381	760
The Mitsu Bishi Works	3	21,104	32,250
Kawasaki Dockyard Company . .	4	18,267	24,410
The Osaka Iron Works	13	2,682	7,720
The Ono Shipyards	3	1,231	1,130
The Fujinagata Shipyards . . .	3	330	417
The Uraga Dock Company	4	162	367
Other Firms	134	9,997	12,204
	165	54,154	79,258

The decrease in the Japan output is remarkable, considering the development of trade in the Far East; but Japanese vessels have as yet had no share in the new traffic in soya beans from Manchuria.

We need not go in detail into the smaller outputs of the other countries included in the second table above. They are interesting in the world total, but are of no great importance in the world competition of ocean traffic. But Austria, as we have said, is extending her shipbuilding preparations, and both Russia and Spain contemplate restoring their navies in their own shipyards. Russia, too, proposes to add extensively to the Russian Volunteer fleet, which was nearly depleted during the Russo-Japanese war; but the present idea seems to be to acquire some ready, or nearly ready, steamers of foreign construction. While according to the first table, the output of the shipbuilding countries in 1909 increased 12,395 tons, compared with the tonnage put out in 1908, the total included a large number of warships. If these be deducted, it is obvious that a much smaller tonnage of merchant craft must have been launched, and it may be recalled that in 1908 about a million tons less of seagoing merchant craft was produced than in 1907. This fact, along with the natural wastage of the two years and the abnormal amount of old vessels broken up last year, should tend to the improvement of shipping prosperity in the present year.

RUBBER AND ITS SUBSTITUTES.

IN its issue of January 1st the *Chemist and Druggist* has an article on this subject, in which it says:—The circular which was issued recently by the Synthetic Rubber Company announcing the proposed voluntary winding-up, on the grounds that further expenditure was not justified, has given great satisfaction to dealers and brokers in rubber, although it may be said that in Mincing Lane the synthetic bogey never caused much apprehension, even though Professor Dunstan, at the British Association meeting in 1906, confidently predicted the synthetic production of rubber before the Association met again at York. At present there is still no likelihood of the prophecy coming true, but the commercial production is by no means an impossibility. It is interesting from this point of view to give a *résumé* of the many attempts, especially during the last decade, to make artificial rubber or prepare satisfactory substitutes for it. The only known actual synthesis of caoutchouc is that accomplished by Bouchardet and Tilden by polymerising isoprene (CH₂: (CH₃)₂). (CH₃)₂: (CH), which is itself one of the distillation-products of caoutchouc. Wallach and Tilden (1892) also showed that isoprene obtained from turpentine behaves similarly to that obtained in the destructive distillation of rubber. Kondakow, in 1902, prepared a substance closely resembling caoutchouc, by the action of light for a year on di-iso-propenyl or methyl isoprene. A British patent granted in 1907 proposes to convert acetylene and ethylene into di-vinyl under the influence of a dull red heat, which latter product yields methyl di-vinyl or isoprene or treatment with methyl chloride. The isoprene is then to be condensed to rubber. Other processes have been patented on the assumption that coal tar contains polymers of isoprene or compounds convertible into such substances. Thus Seguin and Boussy de Sales patented in France during 1903 a process according to which tar (containing isomers of caoutchouc) is seeded with caoutchouc particles or treated with other appropriate ferment at 60°C. in an atmosphere of nitrogen. Later a method was patented of preparing the "ferment." To obtain this the "thick deposit" from a caoutchouc solution in benzene, kept at a temperature of 50°C. and exposed to daylight in a closed bottle, is re-dissolved and then precipitated again by alcohol. The precipitate is scattered over the surface of a mixture of coal tar and boric acid which is maintained at 50°C. in an atmosphere of oxygen. A brownish-grey powder is stated to be formed on the walls, and this is the "ferment" in an active form. Prior to the last process, Jasset (1902) stated in his specification that coal tar (4 parts) and boric acid (1 part), heated until the burning vapours were coloured green and then kept at 60°C. in a current of oxygen, yielded a brown highly elastic body to suitable solvents after drying on a water-bath. Phosphoric or iodic acid may replace boric acid. An American patent, by Dupont and Franklin (1903)

gives a variation of the above, since the tar and boric acid are dissolved in alcohol, heated until vapours burning with green flame are evolved, then oxygen is passed through the mixture. Blum and Carpenter (French patent, 1909) propose to obtain a glutinous mass consisting of a hydrocarbon of the formula (C₅ H₈)₄ by subjecting vegetable substances, such as peat, to fermentation at about 60°C., and simultaneously or subsequently to a reducing process. The enzyme is stated to be present in imperfectly formed caoutchouc, or an "enzyme which will produce alcohols of a series higher than the olefine series" may be used. The reducing agent is a nitrogenous compound, preferably the red substance resembling seed in red Upper Congo rubber, with the addition of mineral salts. In 1908 the same two patentees specified a process to produce "synthetic Para rubber" by treating with a nitrogenous derivature of iron the mucilaginous mass "containing a large percentage of isoprene" produced from fermented peat, etc. The iron was stated in a subsequent patent to be obtained from roots of species of *Iris*. The iron is converted by chlorine into a hydrochloride, then by addition of a suitable substance, preferably an amide, into a nitrogenous compound. Protein-coagulating enzymes are known to occur in the latex of rubber-producing plants, but exactly in what form caoutchouc pre-exists is not known; but to produce artificial rubber from tar by a volatile enzyme capable of growth does not accord with known facts.

Rubber substitutes have met with greater success since at present considerable difficulty is experienced in obtaining rubber goods free from substitutes. Their use as a cheapener is responsible for many of the defects to which rubber articles are liable. The non-resistance of rubber substitutes to the action of potassium hydrate is the method used for the detection and estimation of substitutes. Among the multifarious substances proposed to be employed for diluting rubber the oxidation-products of drying-oils are the basis of the main modern class. Dry oxidation of a suitable fixed oil, usually linseed oil, is effected with manganese dioxide, etc., or in the wet process nitric acid is used, the object being to form elastic substances similar to linocyn. Stiffeners such as resin, pitch, tar, acacia, tragacanth, and albuminoids such as gelatin or casein, may be added, as also "filling" materials, including chalk, magnesia, silica, kaolin, zinc oxide, cork, sawdust, chopped feathers, and waste leather. The product is vulcanised in the usual manner, frequently with the addition of waste or regenerated rubber, and is then used for lower-grade goods. The elastic product yielded by heating nitrated castor oil to 130°C. for ten hours is the subject of a patent by the Velvrl Co. Passing ozone through a mixture of castor oil containing colophony and sulphur is a variation of the oxidation process patented in America, the product being finally heated with sulphur chloride. Ditmar (1906), in his specification for a process for the removal of unvulcanised

oil by means of solvents, states that the defects in substitutes are due mainly to its presence. Gelatin or glue, with or without admixture of glycerin, rendered insoluble by treatment with formaldehyde or chromic acid, gives another form of rubber substitute. The viscous masses obtained by heating carbohydrates, such as sugar and starch, are the subjects of patents, as also elastic plastic masses stated to result from the action of acetylene and oxygen on a mixture of copper and nickel, the metals acting as catalyses. Rouxville (1906) filed a specification in France for producing caoutchouc, etc., from terpenes (turpentine), but did not complete the patent in England. The conclusion arrived at is that cheaper rubber of improved quality is more likely to be derived from increased production by recent rubber-plantations than by artificial production.

RUSSIAN PETROLEUM INDUSTRY IN 1909.

THE course of naphtha production and the market in 1909 is traced in the *Torgovo Promyshlennaya Gazeta*, on the occasion of the announcement of the December production, which amounted to 41,097,000 poods. This with the totals for the eleven preceding months, makes a grand total for the year of 490,500,900 poods, as compared with 467,000,000 poods in 1908 and 476,200,000 poods in 1907. Thus, says the journal, the production of 1909 exceeded that of 1908 by 5 per cent, and that of 1907 by 3 per cent. This increase, it continues, must not be considered as symptomatic of a continued advance. One of the features of the year's production was the large result from the gushers which made in the first ten months of the year 19,700,000 poods against 12,100,000 in 1907 and 9,500,000 poods in 1908. The production, it will be remembered was very weak at the beginning of 1909, raising fears of a large reduction on previous years; but later on it increased with the result above stated. Divided into districts, the largest yields are from Sabuntchy, Bibi Eibat, Romaninsk and Balachany. Turning to the state of the market a table is shown with the prices that ruled from month to month. The value of naphtha in January was 19.04 copecks per pood rising to 22.46 in March, then declining to 21.88 copecks in May, rising again to 23.14 in June, and then declining through the succeeding months to 18.30 copecks average (estimated) in the month of December. Naphtha, therefore, has lost ground on the year. The despatches in 1909 to Astrachan, the great inland petroleum market, of Ostatki crude naphtha and lighting oil were much larger than in the preceding year, the total for naphtha and products having been 279,269,807 poods, against 260,599,304 poods in 1908.

But, of course, the Batoum shipments have most interest for the outside world. These were as follows: Lighting oil, 20,762,000 poods to Europe in 1909, against 16,710,000 poods in 1908; the corresponding figures for the East and the interior of Russia being 8,097,000 poods in 1909 and

9,265,000 poods in 1908 for the former, and 3,954,000 poods and 3,492,000 poods in 1909 and 1908 for the latter. The figures for Ostatki were 4,796,000 poods in 1909, and 2,093,000 poods in 1908, with only 8,000 poods for the East in 1909. The returns, for other naphtha products were as follows: Europe, 10,046,000 poods in 1909 and 9,338,000 poods in 1908; the East, 295,000 poods and 189,000 poods, and the interior of Russia 170,000 poods and 126,000 poods, always for 1909 and 1908, respectively. The figures show that the Eastern market is practically lost for Russia, as far as lighting oil is concerned. That is the only ground on which there is a loss, and it is a very decided one. A feature of the year has been the return of many of the previous consumers of oil fuel to their old friend. They had gone over to coal in consequence of the extravagant prices that followed on the great strikes and disturbances of 1905; but with the establishment of a more steady order of things, they are rapidly giving up solid fuel again in favour of oil.

The Grosny situation continues to show improvement. Figures are now available for eleven months of 1909, and they show a production of 52,100,000 poods, against 52,000,000 poods for the whole of 1908.

A review of the Russian naphtha business in 1909 would not be complete without a reference to the grand naphtha gusher at Maikop, which continues to give most encouraging results, and to inspire the hope that outside the immediate Baku and Grosny regions a naphtha area has been discovered that may put the Russian industry on a firm footing again.

—An association, known as the **Manufacturers and Inventors Co-operative Association**, has recently been formed in London, with the objects, among others:—(1) Of encouraging and assisting inventors and manufacturers; (2) of furthering the objects sought to be attained by the Patents Act of 1907, by, among other things, bringing together inventors or owners of patents and manufacturers and capitalists for the purpose of establishing new manufactures in Great Britain; and (3) of bringing into closer touch with each other inventors, manufacturers, and other business men actually engaged in the promotion of industrial enterprise. The honorary secretary of the association, Mr. E. J. Crosier, of Messrs. Crosier, Stephens and Company, of Newcastle, feels strongly the waste of time, thought, and money that occurs in connexion with inventions. He points out that on an average quite 50 per cent of applications for patents with provisional specifications are abandoned each year, and he is convinced that if inventors of limited experience could have the assistance of a council of honourable men of greater experience, some of them would be helped to develop their inventions into commercial successes. The greatest kindness that could be done to many inventors would be to advise them to give their best thought and strength to their daily calling until such time as an idea for a more hopeful invention occurred to them.

FOREIGN TRADE OF THE UNITED KINGDOM IN JANUARY, 1910.

I.—GENERAL.

THE trade returns for January, 1910, when compared with those for the corresponding month of 1909, show increases in the values of the Imports into the United Kingdom, and of the Exports both of the Produce and Manufactures of the United Kingdom and of Foreign and Colonial Merchandise.

The value of the Imports in January was 55,921,154*l.*, an increase of 2,420,790*l.*, or 4.5 per cent, as compared with January, 1909; whilst the total Exports amounted to 42,950,279*l.*, an increase of 7,459,682*l.* The Exports of Produce and Manufactures of the United Kingdom show an increase of 6,000,069*l.* or 20.8 per cent, as compared with January, 1909; whilst there is an increase of 1,459,613*l.*, or 21.8 per cent, in the Exports of Foreign and Colonial Merchandise.

II.—IMPORTS.

The following table shows the value of the Imports for January, 1910, as compared with the corresponding month of 1909 and 1908, according to the different categories of merchandise:—

Imports of Foreign and Colonial Merchandise.*

	MONTH OF JANUARY			Increase (+) or Decrease (—) in 1910 as compared with 1909.	Increase (+) or Decrease (—) in 1910 as compared with 1908.
	1908.	1909.	1910.		
I.—FOOD, DRINK, AND TOBACCO—	£	£	£	£	£
A. Grain and flour	6,002,289	5,553,316	7,103,476	+ 1,555,160	+ 1,106,187
B. Meat, including animals for food	4,164,780	4,172,361	3,838,472	— 333,889	— 326,308
C. Other food and drink—					
1. Non-dutiable	5,258,649	5,355,750	5,861,065	+ 505,315	+ 602,416
2. Dutiable	4,008,029	3,713,690	4,442,644	+ 728,954	+ 434,615
D. Tobacco	514,808	366,212	359,398	— 6,814	— 155,410
Total, Class I	19,948,555	19,161,329	21,610,055	+ 2,448,726	+ 1,661,500
II.—RAW MATERIALS AND ARTICLES MAINLY UNMANUFACTURED—					
A. Coal, coke, and manufactured fuel	647	550	733	+ 183	+ 86
B. Iron ore, scrap iron, and steel	436,983	345,048	461,544	+ 116,496	+ 24,561
C. Other metallic ores	788,904	733,863	740,920	+ 7,057	+ 47,984
D. Wood and timber	1,206,679	830,054	1,013,133	+ 183,079	+ 193,546
E. Cotton	10,504,113	9,290,867	5,840,176	— 3,450,691	— 4,663,937
F. Wool	4,612,665	4,641,966	4,850,649	+ 208,683	+ 237,983
G. Other textile materials	1,741,775	1,714,131	1,634,779	— 79,352	— 106,996
H. Oil-seeds, nuts, oils, fats, and gums	2,549,362	2,387,072	2,920,364	+ 533,292	+ 371,002
I. Hides and undressed skins	835,890	920,150	1,146,688	+ 226,538	+ 310,798
J. Paper-making materials	326,016	286,148	411,278	+ 125,130	+ 85,262
K. Miscellaneous	1,966,447	1,910,687	2,688,033	+ 777,346	+ 721,586
Total, Class II	24,969,482	23,060,536	21,708,297	— 1,852,239	— 3,261,185
III.—ARTICLES WHOLLY OR MAINLY MANUFACTURED—					
A. Iron and steel and manufactures thereof	523,524	610,847	714,616	+ 103,769	+ 191,092
B. Other metals and manufactures thereof	1,859,320	1,870,407	2,231,099	+ 360,692	+ 371,779
C. Cutlery, hardware, implements (except machine tools) and instruments	314,480	246,271	270,357	+ 24,086	+ 44,123
D. Electrical goods and apparatus (other than machinery and telegraph and telephone wire)	76,985	120,908	109,471	— 11,437	+ 32,486
E. Machinery	351,404	309,468	333,816	+ 24,348	+ 17,568
F. Ships (new)	128	80	103	+ 23	+ 25
G. Manufactures of wood and timber (including furniture)	137,223	142,435	165,985	+ 23,550	+ 28,762
H. Yarns and textile fabrics—					
1. Cotton	812,590	852,422	844,290	— 8,132	+ 31,700
2. Wool	927,075	792,405	856,276	+ 63,871	+ 70,799
3. Silk	1,073,717	977,583	1,015,041	+ 37,458	+ 58,676
4. Other materials	568,638	576,036	668,730	+ 112,694	+ 120,092
I. Apparel	291,468	310,787	319,956	+ 9,678	+ 28,488
J. Chemicals, drugs, dyes and colours	821,719	740,827	881,270	+ 140,443	+ 59,551
K. Leather and manufactures thereof (including gloves, but excluding boots and shoes)	826,675	947,089	958,168	+ 11,079	+ 181,493
L. Earthenware and glass	278,835	251,301	277,511	+ 26,210	+ 1,224
M. Paper	462,388	409,988	516,248	+ 106,260	+ 53,860
N. Railway carriages and trucks (not of iron) motor cars, cycles, carts, &c.	280,691	254,248	373,834	+ 119,586	+ 93,143
O. Miscellaneous	1,666,808	1,651,626	1,817,750	+ 166,124	+ 150,942
Total, Class III	11,273,668	11,014,219	12,374,521	+ 1,360,302	+ 1,100,853
IV.—MISCELLANEOUS AND UNCLASSIFIED (INCLUDING PARCEL POST)	171,674	264,280	228,281	— 35,999	+ 56,607
Total value	56,363,379	53,500,364	55,921,154	+ 2,420,790	+ 442,235

* The values of the Imports represent the cost, insurance, and freight; or when goods are consigned for sale, the latest sale value of such goods.

III.—EXPORTS.

The following table shows the value of the Exports of produce and manufactures of the United Kingdom for the month of January, 1910, as compared with the corresponding month of 1909 and 1908 and the increase or decrease in each principal category:—

Exports of Produce and Manufactures of the United Kingdom.*

	MONTH OF JANUARY.			Increase (+) or Decrease (—) in 1910 as compared with 1909.	Increase (+) or Decrease (—) in 1910 as compared with 1908.
	1908.	1909.	1910.		
I.—FOOD, DRINK, AND TOBACCO—	£	£	£	£	£
A. Grain and flour	245,285	221,306	260,520	+ 39,214	+ 15,235
B. Meat, including cattle, sheep and swine	69,408	62,366	73,449	+ 11,143	+ 4,041
C. Other food and drink	1,065,140	1,033,769	1,129,168	+ 95,399	+ 64,028
D. Tobacco	116,901	129,146	160,465	+ 31,319	+ 43,474
Total, Class I	1,496,824	1,446,527	1,623,602	+ 177,075	+ 126,778
II.—RAW MATERIALS AND ARTICLES MAINLY UNMANUFACTURED—					
A. Coal, coke, and manufactured fuel	3,381,907	2,677,360	2,631,690	— 45,670	— 750,217
B. Iron ore, scrap iron, and steel	37,175	33,163	91,737	+ 61,574	+ 57,562
C. Other metallic ores	8,924	3,575	3,732	+ 157	— 4,292
D. Wood and timber	7,665	8,466	8,592	+ 126	+ 927
E. Cotton	—	—	—	—	—
F. Wool	214,332	319,174	406,163	+ 86,989	+ 191,931
G. Other textile materials	15,202	14,506	34,843	+ 20,337	+ 19,641
H. Oil-seeds, nuts, oils, fats, and gums	259,446	217,027	312,044	+ 95,017	+ 52,604
I. Hides and undressed skins	109,051	175,849	206,704	+ 30,855	+ 97,653
J. Materials for paper making	45,397	50,416	59,923	+ 9,506	+ 14,525
K. Miscellaneous	196,459	216,516	223,661	— 7,145	+ 27,202
Total, Class II	4,274,552	3,716,052	3,982,088	+ 266,036	— 292,464
III.—ARTICLES WHOLLY OR MAINLY MANUFACTURED—					
A. Iron and steel and manufactures thereof	3,231,811	2,822,070	3,478,872	+ 656,802	+ 247,061
B. Other metals and manufactures thereof	737,218	600,432	825,413	+ 224,981	+ 88,195
C. Cutlery, hardware, implements (except machine tools) and instruments	529,390	400,794	468,522	+ 67,728	— 60,868
D. Electrical goods and apparatus (other than machinery and telegraph and telephone wire)	194,897	126,307	155,074	+ 28,767	— 39,822
E. Machinery	2,684,187	2,281,923	2,100,753	— 181,170	— 583,434
F. Ships (new)	686,876	404,093	2,140,286	+ 1,736,193	+ 1,478,410
G. Manufactures of wood and timber (including furniture)	110,318	90,438	140,924	+ 50,486	+ 30,606
H. Yarns and textile fabrics—					
1. Cotton	9,884,271	7,213,264	8,545,359	+ 1,332,095	— 1,338,912
2. Wool	3,195,547	2,831,911	3,466,518	+ 634,607	+ 270,971
3. Silk	149,122	140,761	168,771	+ 28,010	+ 19,640
4. Other materials	1,076,559	994,373	1,175,037	+ 180,664	+ 98,508
I. Apparel	806,080	774,877	948,062	+ 173,185	+ 141,982
J. Chemicals, drugs, dyes, and colours	1,462,528	1,317,332	1,367,105	+ 49,773	— 95,423
K. Leather and manufactures thereof (including gloves, but excluding boots and shoes)	307,696	291,149	372,543	+ 81,394	+ 64,847
L. Earthenware and glass	323,598	266,003	306,339	+ 40,336	— 17,229
M. Paper	296,108	178,332	228,036	+ 49,704	+ 21,928
N. Railway Carriages and Trucks (not of Iron) Motor Cars, Cycles, Carts, etc.	631,916	491,675	532,991	+ 41,316	— 98,925
O. Miscellaneous	1,916,301	1,691,247	2,188,388	+ 497,141	+ 272,087
Total, Class III	28,114,423	22,916,981	28,609,053	+ 5,692,072	+ 494,630
IV.—MISCELLANEOUS AND UNCLASSIFIED (INCLUDING PARCEL POST)	521,968	723,486	588,372	— 135,114	+ 66,404
Total value	34,407,767	28,803,046	34,803,115	+ 6,000,069	+ 395,348

Exports of Foreign and Colonial Merchandise.*

	£	£	£	£	£
Total value	6,599,209	6,687,551	8,147,164	+ 1,450,613	+ 1,547,955

*The values of the Exports represent the cost and the charges of delivering the goods on board the ship, and are known as the "free on board" values.

SEA-BORNE TRADE OF INDIA.

THE following is a summary of the accounts relating to the Sea-borne Trade and Navigation of British India for the month of January 1910, and for the ten months, 1st April 1909 to 31st January 1910, compared with the corresponding period of the years 1907-08 and 1908-09:—

	MONTH OF JANUARY			TEN MONTHS, 1st APRIL to 31st JANUARY		
	1908	1909	1910	1907-08	1908-09	1909-10
IMPORTS—						
MERCHANDISE, PRIVATE—	R	R	R	R	R	R
Bengal	5,17,94,671	3,77,19,732	4,86,64,573	44,77,36,151	37,66,81,940	39,29,02,276
Eastern Bengal and Assam	3,69,229	6,98,109	4,87,258	43,62,056	50,75,051	49,28,877
Bombay	4,58,61,454	3,53,25,096	3,74,20,113	36,73,76,392	34,60,58,776	33,02,80,161
Sind	1,15,25,846	82,45,907	75,18,323	8,36,96,537	9,81,98,818	8,38,77,624
Madras	1,09,58,050	91,83,757	87,78,376	8,40,34,048	9,98,23,671	8,04,80,021
Burma	1,36,97,904	1,08,06,126	90,97,970	9,07,67,630	11,10,75,387	8,92,88,216
TOTAL	13,42,07,154	10,19,78,727	11,19,66,613	107,79,72,814	103,69,13,643	98,17,57,175
DITTO, GOVERNMENT STORES	67,28,461	64,42,190	48,43,126	5,40,64,781	6,59,75,340	5,05,05,912
TOTAL MERCHANDISE	14,09,35,615	10,84,20,917	11,68,09,739	113,20,37,595	110,28,88,983	103,22,63,087
TREASURE, PRIVATE—						
Bengal	24,43,989	28,85,096	64,54,490	6,40,21,678	2,96,34,527	4,58,69,098
Eastern Bengal and Assam	—	—	15,366	99,820	87,491	1,61,302
Bombay	1,50,10,657	1,80,50,532	6,08,82,806	18,82,64,803	15,66,04,030	23,58,69,501
Sind	4,55,845	2,75,716	6,72,728	59,79,868	47,75,406	62,28,917
Madras	49,895	5,45,351	19,39,832	65,40,648	55,06,392	1,16,16,564
Burma	2,72,415	1,88,690	2,11,741	12,86,741	3,90,725	12,01,192
TOTAL	1,82,32,801	2,19,45,385	7,01,76,963	26,61,93,563	19,69,98,571	30,09,46,574
DITTO, GOVERNMENT	—	1,81,246	—	9,46,40,685	11,23,146	9,73,999
TOTAL TREASURE	1,82,32,801	2,21,26,631	7,01,76,963	36,08,34,248	19,81,21,717	30,19,20,573
GRAND TOTAL OF IMPORTS	15,91,68,416	13,05,47,548	18,69,86,702	149,28,71,843	130,10,10,700	133,41,83,660
EXPORTS—						
MERCHANDISE, PRIVATE—						
(Foreign Merchandise)—						
Bengal	1,27,004	1,83,759	1,04,043	17,21,580	18,19,703	13,62,537
Eastern Bengal and Assam	—	—	1,715	750	8,729	2,440
Bombay	25,47,420	21,07,947	27,64,559	2,45,26,550	1,87,21,544	2,12,55,260
Sind	5,36,099	5,80,776	2,60,380	42,23,978	39,43,899	31,34,217
Madras	56,321	70,148	9,62,941	8,94,549	12,84,254	12,84,254
Burma	49,109	67,891	59,784	5,58,253	4,23,025	4,06,083
TOTAL	33,14,953	30,10,521	35,22,644	3,19,94,052	2,58,11,459	2,74,44,791
(Indian Merchandise)—						
Bengal	5,04,95,438	5,13,49,805	5,75,71,818	60,60,47,124	56,28,97,682	59,32,18,781
Eastern Bengal and Assam	41,07,318	53,39,634	51,22,891	4,32,74,190	4,32,74,190	3,93,22,675
Bombay	3,40,43,327	5,60,55,267	8,59,55,226	38,52,51,215	30,33,98,292	38,21,38,854
Sind	71,39,774	1,29,75,806	2,19,88,596	15,80,19,476	5,88,72,959	16,91,83,875
Madras	1,56,17,577	1,60,29,372	1,97,14,092	15,48,33,990	14,66,70,729	15,49,26,614
Burma	1,56,12,113	86,61,848	1,01,87,362	11,23,26,819	8,26,43,189	9,79,97,567
TOTAL	12,70,15,547	15,04,11,732	20,05,39,985	145,29,92,878	119,77,57,041	143,67,87,866
Total Foreign and Indian Merchandise exported—						
Bengal	5,06,22,442	5,15,33,564	5,76,75,861	60,77,68,704	56,47,17,385	59,45,81,818
Eastern Bengal and Assam	41,07,318	53,39,634	51,24,606	3,65,15,004	4,32,82,929	3,93,25,115
Bombay	3,65,90,747	5,81,63,214	8,87,19,785	40,97,77,765	32,21,19,836	40,33,93,614
Sind	1,35,56,582	1,35,56,582	2,22,48,976	16,22,43,454	6,28,16,858	17,23,18,092
Madras	76,74,878	1,60,99,520	2,00,46,255	15,57,96,931	14,75,65,278	15,62,10,868
Burma	1,56,73,898	2,00,46,255	2,00,46,255	11,28,85,072	8,30,66,214	9,84,03,650
TOTAL	13,03,30,500	15,34,22,253	20,40,62,629	148,49,86,980	122,35,68,500	146,42,32,657
DITTO, GOVERNMENT STORES	53,278	1,29,909	78,277	11,07,522	9,43,496	7,10,036
TOTAL MERCHANDISE	13,03,83,778	15,35,52,162	20,41,35,906	148,60,94,452	122,45,11,996	146,49,42,693
TREASURE, PRIVATE—						
Bengal	66,784	54,536	27,421	27,86,920	48,38,635	15,57,520
Eastern Bengal and Assam	—	—	—	—	—	—
Bombay	27,91,528	54,96,179	44,81,294	3,79,28,939	4,27,91,989	4,29,92,661
Sind	1,45,230	53,600	2,80,050	12,85,318	6,91,393	27,57,901
Madras	5,03,746	13,314	5,11,116	45,29,414	41,00,789	70,32,581
Burma	5,000	22,000	—	98,275	4,18,000	78,275
TOTAL	35,12,288	56,39,629	52,99,881	4,66,28,916	5,28,40,806	5,44,14,811
DITTO, GOVERNMENT	—	—	30,000	18,520	36,06,729	45,111
TOTAL TREASURE	35,12,288	56,39,629	53,29,881	4,66,47,436	5,64,47,535	5,44,59,922
GRAND TOTAL OF EXPORTS	13,38,96,061	15,91,91,791	20,94,65,787	153,27,41,888	128,09,59,531	151,94,02,613
GROSS AMOUNT OF IMPORT DUTY COLLECTED, including Salt	68,63,637	62,23,888	64,77,735	6,07,09,654	6,23,90,082	6,07,05,196
DITTO, EXPORT DUTY COLLECTED	8,41,590	5,69,931	9,07,589	64,60,919	47,96,716	61,15,461

WEEKLY TRADE MOVEMENTS.

For the week ending 26th February, 1910.

COTTON GOODS.

Twist and Yarn.

Foreign—	Calcutta lbs.	67,550
Imports by sea into	Bombay "	149,310
	Madras "	110,300
Indian—	Calcutta "	384,400
Exports by sea from	Bombay "	4,034,550
	Madras "	15,200

Grey Piece Goods.

Imports by sea from	Calcutta yds.	16,286,633
Foreign ports into	Bombay "	2,778,579
	Karachi "	586,375
	Madras "	130,485
	Rangoon "	195,643

White Piece Goods.

Imports by sea from	Calcutta yds.	6,308,543
Foreign ports into	Bombay "	2,615,361
	Karachi "	1,686,337
	Madras "	109,216
	Rangoon "	351,285

Other Piece Goods.

Imports by sea from	Calcutta yds.	1,894,403
Foreign ports into	Bombay "	3,163,702
	Karachi "	2,238,585
	Madras "	429,411
	Rangoon "	470,207

Piece Goods.

(Indian and Foreign).

Despatches by rail from	Calcutta cwt.	* 28,719
	Bombay "	6,309
	Karachi "	15,686
	Madras "	3,836

Raw Cotton.

Imports into Bombay	By sea cwt.	15
	Coastwise "	36,708
	By rail "	363,583
Imports into Karachi by rail	"	57,835
" " Calcutta by rail and river	"	* 15,161

JUTE.

Arrivals by all routes in	Calcutta	cwt.	* 279,193	
Exports by sea from	{ Calcutta	{ Gunny bags No.	17,160,090	
		{ " cloth yds.	28,171,800	
		{ Jute	cwt.	197,879
		{ Chittagong—Jute	"	37,686

COTTON SEEDS.

Exports by sea from Bombay	cwt.	498,608
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OIL SEEDS.

Linseed.

Imports into	{	Calcutta by rail and river cwt.	• 12,494
		Bombay { By sea	7
		Coastwise	1,746
		Karachi by rail	70,199
Exports by sea from	{	Calcutta	181
		Bombay	29,115
		Karachi	59,558

Rape and Mustard Seed.

	Calcutta by rail and river cwt.	* 59,083
Imports into	Bombay { By sea	18
	Coastwise	31,275
	By rail	241,825
	Karachi by rail	8,057
Exports by sea from	Calcutta	24,187
	Bombay	222,788
	Karachi	

RICE.

Arrivals by all routes in	Calcutta	cwt.	* 421,219
	Calcutta	"	194,636
	Chittagong	"	...
Exports by sea from	Bombay	"	6,115
	Karachi	"	13,460
	Madras	"	...
	Rangoon	"	723,575

TEA.

Arrivals by all routes in	Calcutta	lbs.	* 441,051
Exports by sea from	{ Calcutta	"	1,105,763
	{ Chittagong	"	1,425,748

WHEAT.

Imports into	{	Calcutta by rail and river	cwt.	* 31,660
		Karachi by rail	"	260,481
	{	Bombay { By sea	"	91
		Coastwise	"	8,150
By rail		"	24,412	
Exports by sea from	{	Calcutta	"	150
		Bombay	"	1,139
		Karachi	"	208,688

* B.-N. Ry. figures not included.

EXPORTS—RUNNING TOTALS INCLUDING FIGURES RECORDED ABOVE.

	FROM APRIL		FROM JANUARY					
	1908.	1909.	1909.	1910.	1909.	1910.	1909.	1910.
Wheat.			Linseed.		Rape and Mustard Seed.		Cotton Seed.	
Calcutta . . . Cwt.	50,916	3,377,557	66,484	45,607	13,616	123,010	Not reported.	
Bombay . . . "	81,464	2,652,225	111,632	186,122	33,285	144,197	1,945,756	3,368,137
Karachi . . . "	3,851,111	17,010,681	...	...	910,659	1,815,908	Not reported.	

KEROSENE OIL, WEEK ENDING 26th FEBRUARY, 1910.

Imports by sea into—	FROM			
	Russia.	America.	All other foreign countries.	TOTAL.
	galls.	galls.	galls.	galls.
Calcutta	...	...	1,208,070	1,208,070
Bombay	...	...	508,768	508,768
Karachi	...	...	...	...
Madras	...	...	...	...
Exports by sea from Burma to				
Bengal				1,143,224
E. B. & Assam				...
Bombay				743,962
Sind				...
Madras				...
Indian Ports, Non-Br.				228,338
Foreign Ports				...

IMPORTS OF SUGAR, WEEK ENDING 26th FEBRUARY, 1910.

Country of Shipment.	REFINED SUGAR IMPORTED INTO						TOTAL.
	Calcutta.	Chittagong.	Bombay.	Karachi.	Madras.	Rangoon.	
	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.
United Kingdom	4,025	...	8	7	54	7	4,101
Germany	...	...	...	...	...	...	...
Austria-Hungary	...	...	10,292	...	500	...	10,792
Other European Countries	...	...	...	...	...	...	...
Java	24,439	...	11,036	16	...	20,727	56,218
Mauritius	...	...	122,841	9,105	...	...	131,946
Other Non-European Countries	...	...	...	...	...	49	49
Total refined							203,106
Total unrefined							...
Grand Total							203,106

RESULTS OF AUCTION TEA SALES IN CALCUTTA.

DISTRICTS.	SEASON 1909-10.				SEASON 1908-09.			
	Sold in sale of 23rd February.		Sold to 23rd February		Sold in sale of 16th February.		Sold to 16th February.	
	Packages.	Average price per lb. A. P.	Packages.	Average price per lb. A. P.	Packages.	Average price per lb. A. P.	Packages.	Average price per lb. A. P.
Assam	41	5 6.7	176,073	7 4.2	1,084	5 11.4	183,948	6 7.5
Cachar	9	3 7	160,723	5 10.2	3,892	4 9.6	139,947	4 11.5
Sylhet	1,700	5 10	113,782	5 9.7	3,085	4 8.1	111,479	4 11.4
Darjeeling	...	...	61,747	10 0.5	...	...	62,919	8 7.8
Dooars	...	...	192,805	6 10.8	273	5 11.3	185,699	6 0.3
Terai	...	...	17,980	6 3.8	...	...	25,006	5 1.6
Chittagong	...	...	7,964	5 10.4	41	4 2.4	7,878	4 11
Chota-Nagpore	...	...	1,901	6 4.4	...	...	1,838	5 1.5
Kumaon and Kangra	...	...	3,318	5 8.1	100	5 0	2,221	5 7.8
Madras	...	...	110	5 11.7	...	...	169	5 2.9
Dehra Dun	...	...	356	5 11.2	...	...	...	...
Nepal	...	...	608	6 2	247	4 2.2	1,003	4 8.1
All other places	...	...	76	5 5	...	...	...	...
TOTAL	1,750	5 9.8	736,942	6 10.1	8,722	4 11	722,107	5 11.8

(The above do not include second-hand Tea, damaged Tea and Dust from those concerns which sell only that grade on this market.)

Season 1909-10 Average price of 46,550 packages Dust* sold to 23rd February 5 4.7

" 1908-09 " 42,213 " " " 16th " 4 11.5

* On account of gardens which sell only that grade on this market.

NOTICE.

The undermentioned publications can be purchased from the Statistical Department of the Custom House.

COMMERCIAL GUIDE (MONTHLY).

	RATE.	
	Rs.	A.
Per annum	100	0
Per half-year	54	0
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To Subscribers per copy	8	0
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Abroad per copy	5	0
In India " "	2	8

WEEKLY MANIFEST

First copy per annum	100	0
" " " half-year	54	0
" " " quarter	28	0
Additional copy per annum	20	0
" " " half-year	12	0
" " " quarter	8	0
FOR LESS THAN 3 MONTHS:—		
To Subscribers per copy	1	0
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POSTAGE FOR ONE YEAR:—		
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DAILY LISTS—IMPORTS OR EXPORTS
(separately).

One copy of either per annum	65	0
" " " " half-year	35	0
" " " " quarter	20	0
For less than 3 months whether to Subscribers or Non-Subscribers, annas 5 per copy.		

POSTAGE FOR ONE YEAR:—

Abroad—One copy despatched in batches once a week	5	0
In India—One copy despatched daily	20	0
In India—One copy despatched in batches once a week	5	0
The above charges apply also to back numbers.		

MISCELLANEOUS.

Review on the Maritime Trade of Bengal (per copy)	1	0
Annual Statement of the Sea-borne Trade and Navigation of the Bengal Presidency (per copy)	6	0
Rules under the Sea Customs Act (VIII of 1878) published by the Board of Revenue, L. P., with appendices (per copy)	4	12
Schedule IV of the Indian Tariff Act, 1894 (VIII of 1894 with subsequent amendments) (per copy)	0	6

N.B.—All communications regarding the above Publications should be addressed to the Collector of Customs, Calcutta, by designation only and not by name.

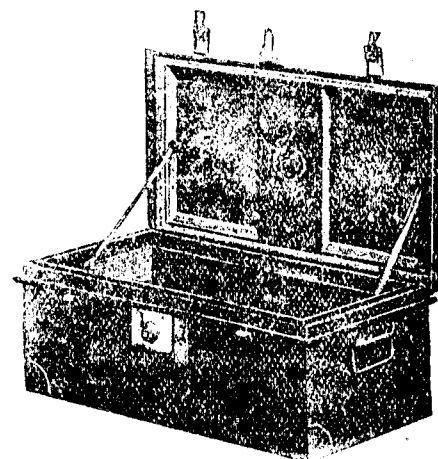
H. F. HOWARD,
Collector of Customs, Calcutta.

23rd September, 1909.

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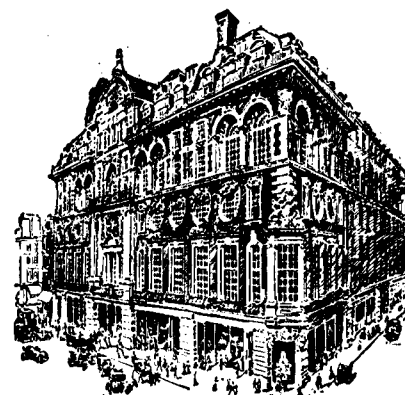
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PUBLISHED WEEKLY.



REGISTERED.

The Indian Trade Journal.

*Issued by the Commercial Intelligence Department,
India.*

VOL. XVI. No. 206.]

CALCUTTA, THURSDAY, MARCH 10, 1910.

[ANNAS 4.]

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NOTES.

MONEY MARKET.

Wednesday Evening.

PRESIDENCY BANK RATES	Calcutta	7 per cent. (Mar. 3).
	Bombay	7 per cent. (Mar. 3).
	Madras	8 per cent. (Mar. 7).
EXCHANGE	On demand	1-4 $\frac{1}{8}$
	Telegraphic	1-4 $\frac{1}{8}$
	Transfers	
	3 months	1-4 $\frac{5}{16}$
	6 months	1-4 $\frac{7}{16}$

GOVERNMENT PAPER (3 $\frac{1}{2}$ per cent.) Rs. 93 $\frac{11}{16}$.

The spot price of wheat at Karachi on the 5th March was Rs. 33-0-0 per candy of 656 lbs. This is for white wheat on a basis of 30 per cent red wheat, 5 per cent barley and 3 per cent dirt; the price of bags included. The price of Indian grey yarn (20's) at Bombay on the 8th March was Re. 0-7-6 to Re. 0-8-0 per lb. and of Muttia Bhawnagar cotton, March delivery, Rs. 264 per candy of 784 lbs.

The wholesale spot prices of the undermentioned articles in Calcutta on the 9th instant were as under:—

Jute—C. D. M. and Co. (Red) Group	
per 400 lbs.	Rs. 36 0 0
" M. per 400 lbs.	" 33 8 0
Rice—Ballam No. 1 per B. md.	" 3 14 0
" Moonghy	Nil.
Linseed—Bold 4% per B. md.	Nil.
Rapeseed—Yellow, mixed, bold,	
Cawnpore, 4% per B. md.	Nil.

The total approximate gross earnings of State and Guaranteed Railways from 1st April 1909 to 19th February 1910 show a gain of Rs. 2,31,93,758 and Rs. 21,25,305 as compared with the corresponding figures for 1908-1909 and 1907-1908, respectively.

The Annual Report of the Indian Tea Association for 1909 affords very clear evidence that the Committee were fully employed in the interests of the tea industry during the past year. The subjects dealt with are numerous but the Report is a thorough record of the work done. The proceedings of the annual general meeting held in Calcutta on the 18th February last are published in a separate volume.

The Annual Report of the Bombay Agricultural Department for the year 1908-09 is one of unusual interest and leaves the impression of vitality and purpose. Some of the results quoted are very promising and they are recorded with exactness. But it should be borne in mind in drafting such Reports that prices are purely relative, that a rate which in one state of a market may seem large may in other circumstances appear small. For this reason there should always be quoted, side by side with such a record, the price that was current on the same date for a standard grade of the produce dealt with.

Some time ago the Government of the United Provinces instructed Dr. Gilbert Fowler, an English sewage expert, to draw up a Report on the Treatment of Sullage in the United Provinces. Several specific points were referred to the Expert, such as the best way of disposal and treatment of sullage and sewage; how to rid sewage of the microbes of cholera, dysentery and other diseases before it is discharged into rivers, and land treatment for sullage with irrigation of crops. These points, and others, are suitably dealt with in the Report now published by the Government Press at Allahabad.

The United States Census Bureau reported the quantity of Sea Island cotton ginned up to the 16th January as 92,000 bales, distributed as follows:—Florida 27,888 bales, Georgia 50,872 bales, and South Carolina 13,240 bales. As the gins are closed for the season these figures would indicate a crop of not over 95,000 bales. Last season the total crop was 101,420 bales and in 1907-8, 81,663 bales. The quantity brought into sight between September 1st and January 25th was 80,361 bales, against 76,893 bales to the corresponding date last season. The total exports during the same period were 67,412 bales, or 3,212 bales more than last season.

Of these Great Britain took 13,839 (2,371 bales more), the Continent 3,834 (50 bales less), and American mills 49,739 (891 bales more). The stock in Charlestown and Savannah on January 28th was 15,289 bales.

The following return shows the number of bales of cotton imported and exported at the various ports of the United Kingdom during the week and 6 weeks ended 10th February, 1910:—

	IMPORTS.		EXPORTS.	
	Week ended 10th Feb., 1910.	6 weeks ended 10th Feb., 1910.	Week ended 10th Feb., 1910.	6 weeks ended 10th Feb., 1910.
American	Bales. 21,731	Bales. 297,537	Bales. 11,413	Bales. 28,365
Brazilian	1,591	8,164	—	1,089
East Indian	2,746	25,875	57	3,594
Egyptian	4,692	50,131	547	16,499
Miscellaneous	1,438*	10,366†	144	1,513
Total	32,198	392,073	12,161	51,060

* Including 107 bales British West African, and 161 bales British East African.

† Including 712 bales British West Indian, 232 bales British West African, and 2,092 bales British East African.

NOTE.—Cotton "in transit" or "for transshipment under bond," if described as such in the ships' reports, is not included in this return.

The section of the Federation of Master Cotton Spinners who handle American cotton, constituting two-thirds of the trade, met in Manchester on February 15th, under the presidency of Mr. C. W. Macara, to consider a proposal to continue running 40 hours a week, instead of 55½, for a further period. It was reported that short-time running had been in operation since July, and had been adopted not only by the members of the federation, but by the owners of between four and five million spindles outside the federation, as well as by the spinners of the United States and the Continent. The causes of this diminution of output were the high price of cotton goods due to the exceptional price charged for the raw material, the lessening of the demand, and the absurdity of manufacturing goods for stock at present rates. It was further pointed out that in 1904, when the shortness of supplies of cotton was admitted, the short-time movement broke the cotton ring and brought prices down to a reasonable level; and that there were hopes in 1910, when it was not absolutely certain that the supplies of cotton were short and when there was a prospect of next year's crop being abundant, of being able to break the ring again. In fact, American telegrams recently received led to the conclusion that the spinner would win. By a unanimous vote the meeting decided to continue short-time running until April 26th.

The prices of British corn per quarter of 8 bushels, as received from the inspectors and officers of Excise in the week ended 12th February, 1910, were as follows:—Wheat 33s. 4d.; barley 24s. 9d.; oats 17s. 11d.

Adelaide reports show that the South Australian harvest is turning out splendidly in all the districts and that the most sanguine hopes are entertained of the total results. It is predicted that a large quantity of wheat will be available for export, and that South Australia will soon become the chief wheat-producing State of the Commonwealth.

The extracts below from a letter of a business correspondent in Durban on the importance of clean wheat shipments are self-explanatory:—"It does not pay us to import dirty wheat, because of the high freight and duty which we have to pay on dirt as well as wheat. To Europe where the freight is anywhere between Rs. 10 and Rs. 15 the dirt does not cut a large figure, but here we would have to pay Rs. 25 per ton duty on the dirt as well as the wheat, consequently it pays us better to import Australian, Argentine, and Canadian wheats. We would like to pay the extra price for the clean wheat, and the most suitable wheats for this market are the White Bombay and Karachi." The name of the writer will be given to any firm that is prepared to consider proposals for the shipment of clean wheat.

The Corn Trade News gives the following summary of the world's crops as on the 15th ultimo:—United States of America—Continued complaints about Kansas crop, but good authorities deny serious damage. "Modern Miller" says top growth winter crop bad some sections, but roots sound. Receipt smaller, but larger last year's this time. Canada—Receipts fair and prominent exporter claims Manitoba's surplus still 20-30 million bushels, which liberal. Weather good. Argentina—Wheat indications unchanged. Maize crop bad in west owing locust damage, north satisfactory. Australia—Exports of good size, and general indications confirm good harvest. New Zealand—Damage wheat confirmed, but weather improved and crop mostly stacked. Oats less damage. India—Wheat crop prospects good. Sales new crop Bombay and Kurrachee being made, quantities light. New crop Kurra hee offered at fair discount. Chili—Chartering indicates moderate crop. Russia—Some crop damage mentioned in consular report from Kharkov, but advices generally say condition normal. Interior receipts reported larger but arrivals at ports still small. Large interior reserves generally claimed and some say very large. Roumania—Weather and crops favourable, snow falling to-day. Officials say crops excellent. Hungary—Weather springlike, heavy rains. Crops promise well, but finer weather wanted. Bulgaria and Turkey in Europe—Crops favourable. France—Crop damage by flood still mentioned,

specially in north, in west plants lost colour and look weak, much ploughing predicted. Fine warm weather urgently wanted for spring field work. Germany—No complaints about crops, but weather unseasonably mild with heavy rains. Good native wheat still scarce, demand poor, markets dull or easy. Italy—Weather has been too wet some parts but latest official crop bulletin favourable. Spain—Weather droughty, crops suffering except in north. United Kingdom—Weather rather better, some ploughing done.

The final estimates of the Crop Reporting Board of the Bureau of Statistics, United States Department of Agriculture, based on the reports of the correspondents and agents of the Bureau, indicate the harvested acreage, production, and value of important farm crops of the United States in 1909 and 1908 to have been as follows:—

Crop.	Acreage.	Production.	Farm Value, December 1st.	
			Per bushel.	Total.
	Acre.	Bushels. (a)	Cents.	Dollars.
Corn, 1909 . . .	108,771,000	2,772,376,000	59.6	1,652,822,000
" 1908 . . .	101,788,000	2,609,661,000	60.6	1,616,145,000
Winter wheat, 1909 . . .	25,339,000	446,366,000	102.9	459,154,000
" 1908 . . .	30,349,000	437,908,000	93.7	410,330,000
Spring wheat, 1909 . . .	18,393,000	290,823,000	93.1	270,892,000
" 1908 . . .	17,208,000	226,694,000	91.1	206,426,000
All wheat, 1909 . . .	43,732,000	737,189,000	99.0	730,046,000
" 1908 . . .	47,557,000	664,602,000	92.8	616,826,000
Oats, 1909 . . .	33,204,000	1,007,353,000	40.5	408,174,000
" 1908 . . .	32,344,000	807,156,000	47.2	381,711,000
Barley, 1909 . . .	7,011,000	170,284,000	55.2	93,971,000
" 1908 . . .	6,646,000	166,736,000	55.4	92,442,000
Rye, 1909 . . .	2,006,000	32,239,000	73.9	23,809,000
" 1908 . . .	1,948,000	31,851,000	73.6	23,455,000
Buck wheat, 1909 . . .	834,000	17,438,000	69.9	12,188,000
" 1908 . . .	803,000	15,874,000	75.6	12,044,000
Flax seed, 1909 . . .	2,742,000	25,856,000	152.6	30,466,000
" 1908 . . .	2,670,000	25,805,000	118.4	30,577,000
Rice, 1909 . . .	720,225	24,368,000	70.4	19,341,000
" 1908 . . .	655,000	21,800,000	81.2	17,771,000
Potatoes, 1909 . . .	3,525,000	376,537,000	54.9	208,545,000
" 1908 . . .	3,257,000	278,945,000	70.6	197,039,000
Hay, 1909 . . .	45,714,000	64,039,000	80.6	689,345,000
" 1908 . . .	46,486,000	70,790,000	88.98	635,423,000
Tobacco, 1909 . . .	1,180,000	949,377,000	10.1	95,719,000
" 1908 . . .	875,000	718,061,000	10.3	74,130,000

(a) Bushels of weight. (b) Tons. (c) Per ton. (d) Pounds. (e) Cents per pound.

The average weight per measured bushel is shown by reports received by the Bureau to be 57.1 pounds for spring wheat, 58.4 pounds for winter wheat, and 32.7 pounds for oats, against 57.3, 58.8, and 29.8 pounds, respectively, last year. The quality of corn is 84.2 per cent, against 86.9 last year.

Much interest is being taken, says the *Manchester Guardian*, in the fight which is being waged between the **Thorium Syndicate** on the Continent and certain other producers who are also consumers of the commodity. The great increase in the demand for incandescent mantles led a number of astute producers of thorium on the Continent to endeavour to corner the supplies, and they succeeded so well that ultimately every independent producer was induced to fall into line with the Syndicate or to dispose of his business to it. The Thorium Syndicate then advanced prices by fully 100 per cent to between 32 marks and 40 marks per kilogramme. The Syndicate used its powers so dictatorially that the mantle manufacturers felt themselves compelled to endeavour at all hazards to secure independent supplies. The first serious step was the acquisition of 7,000 tons of monasite sand at Wisensee by the German Incandescent Gas Company. Then Vienna and Hamburg firms succeeded in acquiring considerable quantities of the sand, and last year the Welsbach Incandescent Light Company purchased the Atzgersdorf Thorium Works, and reduced the price of thorium nitrate to 22 marks, and subsequently to 16 marks per kilogramme although the cost price was estimated at about 18 marks. In the course of a few days the Welsbach Company had sold a quantity equal to a quarter of the world's annual consumption; they then raised their prices, the Syndicate being forced to reduce its quotations to the same level as its competitors. It is reported that the Syndicate is now endeavouring to come to some arrangement with its competitors.

Writing on February 15th the *Manchester Guardian* says:—Last week the **standard copper** market again threatened to go back to £58 per ton. As has already been pointed out, the fluctuations in copper warrants seem now to be confined within rather narrow limits, say, from £58 on the low side to £62 on the high side. This limit of £4 has been in force since early in November, or for rather more than three months. What takes place apparently is that sellers act freely when the price is above £60, and buyers act freely when it falls below that price. There is an expectation, very confidently expressed in some quarters, that the statistics at the end of the current month will show a very great improvement in the situation, and this may encourage speculators to buy even should the price advance beyond £60. One must, however, wait for the figures before deciding whether they are so good as to justify a much higher level than the present. However

much trade may have improved in America, the state of the copper consuming industries of this country does not justify a high price for the metal, and the stocks of copper are still very great.

The total quantity and value of **gold** extracted from the **Indian mines** during the month of January, 1910, were 46,703 ozs. and Rs. 26,65,145, and those in the ten months, April to January 1910, were 472,214 ozs. and Rs. 2,69,44,677. The output as compared with the corresponding periods of the last two years was as follows:—

Month of January.			
	1910.	1909.	1908.
Mysore	ozs. 45,502 Rs. 25,95,395	ozs. 45,482 Rs. 25,96,138	ozs. 44,047 Rs. 25,25,964
Nizam's Territory	ozs. 1,201 Rs. 69,750	ozs. 1,203 Rs. 69,000	ozs. 1,293 Rs. 74,682

Ten months, April to January.			
	1909-10.	1908-09.	1907-08.
Mysore	ozs. 459,504 Rs. 2,62,04,427	ozs. 450,570 Rs. 2,59,34,201	ozs. 447,765 Rs. 2,57,18,212
Nizam's Territory	ozs. 12,710 Rs. 7,40,250	ozs. 14,027 Rs. 8,01,749	ozs. 11,488 Rs. 6,50,350

The daily **prices of opium** per chest for the periods mentioned below were as follows:—

For the week ending 5th March, 1910—

In the Calcutta market—

Behar opium—Rs. 2,495; 2,360; 2,357; 2,380; 2,370; 2,385; 2,380.

Benares opium—Rs. 2,535; 2,400; 2,315; 2,340; 2,330; 2,345; 2,340.

The prices in the time bargains for the Behar opium of the 3rd sale of 1910 ending on the 1st instant were Rs. 2,495; 2,360; 2,357; and of the fourth sale of 1910 begun on the 2nd instant were Rs. 2,384; 2,374; 2,394; 2,390.

In the China market—

At Hongkong—(Exchange Rs. 128 to 129 per \$100.)

Behar opium—\$1,930; 1,930 and 1,950; 1,900; 1,900; 1,900; 1,900.

Benares opium—\$1,930; 1,950; 1,900 on the 27th and 28th February and 1st March 1910.

At Shanghai—(Exchange, Rs. 172½ per 100 taels.)

Behar opium—No quotations received.

Benares opium—No quotations received.

For the week ending 26th February, 1910—

In the Bombay market—

On the 20th and 21st ultimo (new, 1909-10) Rs. 1,351 to 2,301; (new, 1908-09) Rs. 1,400 to 2,425; (old, 1907-08) Rs. 2,500 to 2,560. From the 22nd to 26th ultimo (new, 1909-10) Rs. 1,350 to 2,300; (new, 1908-09) Rs. 1,400 to 2,435; (old, 1907-08) Rs. 2,500 to 2,560. The latest prices at Hongkong and Shanghai were (new) Rs. 2,299 and 2,397; (old) Rs. 2,371 and 2,467, respectively.

According to the *Manchester Guardian* the report just issued by the **Fabrique de Sole Artificielle**, of Tubize, the great Belgian artificial silk company, discloses a net profit of 3,315,000 francs, against 2,220,000 francs last year, and it is proposed to pay a dividend of 55 per cent against 50 per cent last year. Reports from Elberfeld state that the export trade in artificial silk is improving, though some important branches of consumption in the Wupper Valley itself are not particularly brisk. The prevailing fashions are rather against its employment for trimmings, whilst the demand for artificial silk buttons, which was quite a feature of the trade during the early part of the season, has fallen away considerably. Manufacturers of the product itself, however, keep busy, and there are several schemes on foot relating to the formation of new companies. As is perhaps well known, **filaments of artificial silk** are produced by injecting a suitable solution through very minute orifices into a bath or into a gaseous atmosphere, when the jets are thereby solidified by coagulation or chemical decomposition to form minute threads. By twisting a number of these threads together a filament of artificial silk is produced. It is the twisting stage of the process that has hitherto caused much difficulty in the production of artificial silk. For instance, in the manufacture of silk from solutions of cellulose in ammoniacal copper solutions or from solutions of nitro-cellulose the single threads are not always solid enough to stand the rapid rotation of the spinning machine immediately after fixation. One method that has been adopted to overcome this difficulty in the ammoniacal copper process is to wind up parallel on glass cylinders the single threads required for the production of one silk filament. After washing and chemical treatment upon these cylinders the threads are wound up again on small bobbins and twisted by twisting machines on other small bobbins. Finally the twisted silk is wound up in hands of equal length. A new patent has just been taken out, however, which claims to simplify the process. The patent consists in first winding up the bundle of single threads spun parallel, after they have left the coagulating bath, upon light bobbins of small diameter, and then putting these bobbins on the spindles of a combined twisting reeling machine, where they are rapidly rotated, while the twisted thread is led directly to a reel provided with a counter and an automatic stopping device. By this means the silk filament can be twisted and wound up in hanks of equal length directly from the spinning bobbin, and by a single operation. The washing or bleaching subsequently required is then done in hanks.

A **Shanghai** correspondent of the *Cologne Gazette* reports that the proposal to hold an **international exhibition** there does not make much headway, there still being considerable doubt as to the ability of the Chinese authorities to cope successfully with such an undertaking. A great deal

depends on the success of the Nankin Exhibition, which opens next May. It is not a very ambitious venture, but is intended rather as an experiment in this direction. The buildings are now practically complete and the total cost of these will be about £25,000. The principal exhibitors will be England, America, Germany, and Japan, an equal space having been allotted to each. Among the German firms represented will be the Siemens-Schuckert Electrical Company, who are showing a small power plant consisting of a petrol engine with dynamo; the electricity generated will be utilised for lighting the German building, and the firm's metallic filament lamps will be employed. The Badische Anilin und Sodafabrik are fitting up a model native dyehouse to show the merits of their artificial indigo, whilst the Farbenfabriken (formerly Friedr. Bayer and Co.), Elberfeld, along with a Berlin machinery firm are fitting up a dyehouse with hand machines to bring forward their specialities.

Applications in respect of the following **new inventions** were filed in the Patent Office, Calcutta, during the week ending 28th February, 1910:—W. G. Firman, tea garden manager, Borelli Tea Co., Tezpor, Assam—Improvements in feeding devices for tea, grain or other produce or materials. G. B. Bowles, engineer, 14, Avenue Road, London—Improvements in or relating to brake apparatus, particularly applicable to railway carriage and wagon brakes. F. Humphris, engineer, Barton Peveril, Eastleigh, Hampshire, England—Improvements in and relating to toothed driving gear. H. S. Wildeblood, superintending engineer, Public Works Department, Mount Abu, Rajputana—An improved method of securing the lateral stability of aeroplanes. Rev. J. George, S.J., R. C. Chaplain to the Forces, Ahmednagar—Utilising the currents of air as a motive power and water currents, as streams and tides. A. Soutar, mechanic, Victoria Jute Works, Telinipara, Hooghly—Improvements in bobbin driver crown wheel studs for roving frames. J. Neill, manufacturer, Composite Steel Works, Napier Street, Sheffield, England—An improved method of cutting abrasive files. W. P. Notcutt, merchant, 8, White Street, Moorfields, London—An improved device for grinding and sharpening the teeth of abrasive files. L. Brennan, civil and mechanical engineer, Woodlands, Gillingham, Kent, England—Improvements in means for imparting stability to bodies. A. Whiteway, sub-manager, and C. Macintosh and Co., Ltd., India-rubber manufacturers, all of Cambridge Street, Manchester—Improvements in or in connection with pneumatic tyres for motor and other vehicles. The American Box Ball Co., a manufacturing corporation of Indianapolis, United States—Amusement apparatus. The Calcutta Co., Ltd., merchants, 7, Clive Row, Calcutta—Improvements in automatic means for producing gas for lighting or heating purposes from petrol or other volatile oil.

With effect from the 1st proximo money orders expressed in Indian currency may be exchanged between India and Siam under the rules and at the rates of commission applicable to foreign rupee money orders. The amount of a single money order drawn on Siam may not exceed Rs. 600.

Messrs. Ashton, Edridge & Co. report (January 24th):—Soya beans firm, £7 17s. 6d., asked February-March Sakuras; £7 16s. 3d. March-April; Harbin cargoes £7 17s. 6d., January-February; £7 16s. 3d., February-March. Soya Oil steady at 27s. 6d., naked, spot; 27s. February-April. At Hull, 27s. spot; 26s. 6d. to August. Soya cakes quiet at £6 17s. 6d. to £7 spot, London; £6 17s. 6d. January-April.

The demand for labour in the United Provinces is a full normal demand. No unusual movement of labour is reported, and the prospect of an excellent harvest makes any immediate movement improbable. The labour market is affected by the construction of large irrigation works in Jhansi and Hamirpur and of large bridges at Cawnpore and Ballia whilst new railways are in progress in north Allahabad, Unao, Sitapur, Hardoi, Partabgarh and Bara Banki. Partabgarh reports that labourers are available for work elsewhere in considerable numbers. Jaunpur and Basti report that a few hundreds are available. Superfluous labour is reported from no other district.

The clearances of silk at the Lyons Conditioning-house during the week ended February 9th amounted to 143,579 kilos. as compared with 146,742 kilos. in the preceding week and 141,420 kilos. in the corresponding week of last year. We append the usual detailed comparison:—

Week ended Feb. 9.	Thrown.		Raw Kilos.	Total Kilos.
	Organzines Kilos.	Trames Kilos.		
1910	19,956	24,111	39,530	143,597
1909	19,433	26,031	35,956	141,420
1908	18,155	25,309	79,755	123,259
1907	19,155	22,774	86,438	128,367
1906	18,460	20,126	85,876	124,562
1905	14,428	23,132	76,102	113,662

The slackness of demand has had a weakening effect on holders and producers. Stocks in the hands of manufacturers at the end of December must have been much larger than had been supposed. The depression of the silk industry in America has left a larger supply of raw silk than Europe is able to absorb, and the outlook of the market at Lyons is considered far from cheerful.

In its issue of February 1st the *British Trade Journal* says:—There appears to be no hope of a

recovery in the price of shellac for some time to come, although the market has experienced further weakness of late. At this reduced level of values it is obvious that the use of substitutes has been altogether discontinued, which tends to help the consumption of the genuine article, but the market is now faced by an overwhelming excess of supplies. The covering in of short sales has, however, for the present a steadying influence upon values, while the quantities which were offered on the spot or at auction were lately steadily absorbed. With prospects of further heavy shipments in the near future and arrivals continuing everywhere in excess of deliveries, stocks are likely to accumulate.

It is reported that a new company is being formed in Hamburg to take up the manufacture of artificial indigo. The new undertaking will work the patents of Dr. Arnold Rabtjens, the well-known authority on indigo and its halogen derivatives. Trials of the new process have been carried out on a commercial scale at the works of the Altona Wax Bleaching Company, and its superiority over those employed by other colour manufacturers is asserted to have been clearly demonstrated so far as cost of production is concerned. The capital of the company will be three million marks. It is not intended to manufacture the raw acids required, but arrangements have been made with the Saccharinfabrik vorm. Fahlberg, List and Co., of Salbke-Westerhusen, to supply these. Should it later be decided to erect plant for the preparation of these acids the capital of the undertaking would be correspondingly increased. The progress of the concern, which is well backed financially, will be watched with interest.

The Board of Trade are informed by His Majesty's Commercial Attaché at Yokohama (Mr. E. F. Crowe) that he has received a communication from the Director of the Patent Bureau to the following effect:—In consequence of the coming into operation of the new Japanese Trade Mark Law on the 1st November, a mark known to the public to belong to a certain person now receives an indirect protection under Article 11 (5) which prohibits the registration of marks identical with, or similar to marks belonging to another person, which are well known to the public, and are used on the kinds of goods. While the advisability of obtaining the registration of trade marks remains undiminished under the new law, the owner of an unregistered trade mark, should he desire to enjoy the benefit of the provision referred to, must make it clear that his mark is well known to the public, and in order to establish this fact it is not sufficient to say that a specimen is filed at the Japanese Patent Office. Accordingly, in sending specimens of unregistered British trade marks to that office, it is now highly desirable to state where, and how long, the marks have been used, and to give any other particulars

which establish the fact that they were well known to the public. Mr. Crowe adds that in future, therefore, when owners of British trade marks send copies of their marks to him, with a view to their transmission to the Japanese Patent Bureau, it is advisable that they should comply with this recommendation of the Director; but he again observes that it is far safer to register marks than to trust to this indirect form of protection.

NOTICES.

CALLS FOR TENDERS.

Coal and Coke.

The Commissioners for the Port of Calcutta are calling for tenders up to the 16th instant for the supply of about 600 tons of smithy coal and 300 tons of best country hard coke for foundry purposes.

Port Stores.

The Commissioners for the Port of Chittagong invite tenders for stores required for the year 1910-11. Applications for lists and conditions should be addressed to the Port Engineer, Chittagong, not later than the 12th instant.

Linseed and Castor Oil.

The Chairman of the Tender Board, Control and Audit Office, Capetown, is calling for tenders up to the 15th instant for the supply of 8,500 gallons of raw linseed oil, 24,000 gallons of boiled linseed oil, and 15,000 gallons of castor oil.

Grain Sacks.

The Financial Secretary, War Office, Cairo, is calling for tenders up to the 18th proximo for 20,000 Indian grain sacks, 2½ lbs. each net, 44" x 26½" size, 8 porters by 9 shots, to be delivered Customs paid at Suez Docks.

ENQUIRIES.

(For particulars address the Director-General of Commercial Intelligence, 5, Olive Street, Calcutta. An asterisk (*) preceding an enquiry indicates that bank references are offered.)

Electric Materials.

(611)—A London firm desires to be placed in communication with importers of electric materials,

particularly telephone and telegraph apparatus, electric light, power and telephone cables and wires.

Clay Pipes and Bath Bricks.

(612)—A Glasgow firm desires to appoint agents in India for the sale of clay tobacco pipes and bath bricks of their manufacture.

String Rope.

(613)—A firm in Natal desires to be placed in communication with firms who supply raw or prepared material for the manufacture of string rope, etc.

Raw Hides.

* (614)—A firm in Italy desires to be placed in communication with exporters of raw hides, etc., from India, who are not already represented in that country.

BOOKS OF REFERENCE.

The following publications have been received and may be consulted by any desirous of studying them at the Office of the Director-General of Commercial Intelligence, 5, Clive Street, where they will be displayed in the ante-room till Wednesday, the 16th March, 1910:—

Foreign and Colonial Publications.

Canada—Weekly Report, February 7th, 1910; Laboratory of the Inland Revenue Department—Bulletin No. 94—Fruit Jams. Commonwealth of Australia—Trade, Shipping, Oversea Migration, and Finance of—for the month of October, 1909, Bulletin No. 34. New South Wales—Monthly Statistical Bulletin, December, 1909. Newfoundland—Customs Returns for the year 1908-1909. Straits Settlements—Return of Imports and Exports for the quarter ended 31st December, 1909. Sudan—Central Economic Board—Government Monthly Report No. 37, January, 1910. Belgium—Bulletin Mensuel du Commerce Spécial de la Belgique avec les pays Etrangers, en ce qui concerne les Principales Marchandises, Janvier 1910.

Indian Publications.

Report on the Provincial Rates Operations of the Province of Eastern Bengal and Assam for the Revenue Year 1908-1909. Administration Report of the Public Works Department, Burma (Buildings and Roads Branch), excluding Irrigation for the year 1908-1909. Forest Pamphlet No. 12—Petwun or Trincomali Wood; No. 9—Tables Showing the Progress in Working Plans. Forest Zoology Leaflet No. 4—The Larger Deodar Bark Borer. No. 5—The Blue Pine "Polygraphus" Bark Borer.

BUSINESS NOTICE.

All correspondence and remittances relating to the supply of the "INDIAN TRADE JOURNAL" should be forwarded to the Superintendent, Government Printing, India, Calcutta, to whom all bills are payable.

Correspondence regarding advertisements in the "INDIAN TRADE JOURNAL" should be addressed to Reuter's Telegram Co., Ltd.; but all advertisements, blocks, etc., must be approved by the Director-General of Commercial Intelligence before insertion.

Retail trade advertisements cannot be accepted.

A full index is published as a quarterly supplement and should be filed for reference.

The annual rates of subscription to the "INDIAN TRADE JOURNAL" including quarterly index, are Indian, without postage, Rs. 12; with postage, Rs. 13; Foreign, Rs. 18. Single copies, 4 annas.

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Back numbers, when available, may be had at a cost of Re 1, for any number more than a week old.

The Indian agents of the "INDIAN TRADE JOURNAL" are:—Messrs. Thacker, Spink & Co., and Newman & Co., Calcutta; D. B. Taraporevala, Sons & Co., Bombay; Higginbotham & Co., G. A. Natesan & Co., and Kalyanarama Iyer & Co., Madras; Thacker, Spink & Co., Simla; Rai Sahib M. Gulab Singh & Sons, Lahore; and A. M. & J. Ferguson, Ceylon.

The Indian Trade Journal.

THURSDAY, MARCH 10, 1910.

AGAVE FIBRE INDUSTRY.

As the cultivation of agave for its fibre is now engaging active attention in certain parts of India, and as the potentialities of this industry are often said to be great, though it does not at the present moment seem to have emerged from the experimental stage in India, the Commercial Intelligence Department recently undertook an enquiry to ascertain how this industry progresses in other parts of the world; the method in vogue in bringing the leaves to the machine; the method of bleaching the fibre, and what machines are best suited for decorticating purposes. So far as India is concerned the plant grows in most parts of the country and on all classes of soil—good land is, however, required for rapid growth—and several species have acclimatised themselves under various conditions of climate. It yields the largest, quickest and most profitable returns under careful cultivation on good land in a moist climate. There are several varieties

of agave grown in India, but it has been found, as the result of trials at Lahore on four varieties, that sisal excels the rest as a superior fibre yielder. The percentage of fibre given by each variety appears to be: *Agave Americana* 1.55; *A. Americana* (narrow leaved) 1.80; *A. vivipara* 1.87; and *A. rigida* var. *Sisilana* 3.27. The cultivation of the plant has, however, not been popular, except among European planters in Assam, owing to the difficulty, in the absence of cheap and efficient machines, of extracting the fibre by hand, which is unpleasant on account of skin irritation caused by the sap. In fact, it has been alleged more than once that the future of the agave industry largely depends on the advent of machinery capable of treating the leaves expeditiously, efficiently and cheaply. From the enquiries we have made it would appear that such machinery is now in use in the Bahamas, Yucatan, Mexico and elsewhere in the Far West.

In those places several types of decorticating machines have been devised and are in daily use, seemingly with the best results. We have also been able to obtain particulars of agave machinery manufactured in England and the addresses of the firms concerned in all the countries named are at the disposal of those interested in this particular industry on application to the Director-General of Commercial Intelligence, 5, Clive Street, Calcutta. The power machines, some of which are said to be entirely automatic and self-contained, vary in price from about Rs. 2,500 upwards. In Mexico the leaf is ordinarily brought to the machine in light trucks on portable rails; and, in the case of one popular machine, are then fed in a continuous stream over a front or feed drum under the edge of a revolving face plate, the leaf being held by one end by a chain in a groove in the edge of the face plate, which, revolving slowly, transfers the stream of leaves down to a point just below the centre of the face plate, where a second face, moving in an opposite direction and at high speed, and having six dull knives or scrapers butted to the face, clean one side of one end of the leaf downward against a stationary face plate. After the leaves pass the centre of the face plate the scrapers or knives catch them upward thus reversing and cleaning the opposite side of the leaves by scraping upwards and against the side of the revolving face plate, over or around which the transfer chain runs and holds them. The fibre or cleaned ends are then combed out straight over a middle or transfer drum, around which the

transfer chain returns. The leaf is transferred across the middle drum by a small endless steel cable and delivered to another face plate, around the edge of which are grooves in which run steel endless cables, which hold the half-cleaned leaf by the cleaned or fibre end and transfer it down to a point where another face plate with scrapers attached clean one side of the running end downward against a stationary face plate underneath. After passing the centre of this face plate, the remaining one-fourth of the pulp on the uncleaned edge is scraped by the knives turning up or reversing the ends of the leaf upward and scraping it against the side of the face plate, around which the cables work, and the cleaned fibres come out on a continuous sheet over a third or discharge drum, over which the endless cable returns back to the middle drum. All of the scrapers and face plates, being adjustable on a threaded distance between the knives and face plates, can be changed to any fraction of an inch. Consequently, it is claimed, the machine defibrates any and all species of fibrous leaves, from the finest to the coarsest. The knives or scrapers come in direct contact with each and every part of the pulp on the leaf hundreds of times while it is travelling through the defibrator. The pulp is discharged directly underneath on the ground, the underside of the machine being entirely open. The machine in question is a portable one. It requires one man to feed, one to prepare the leaves, one to serve the feeders, two boys to take the fibre away from the machines and one fireman.

The bleaching is a simple process. The fibre is simply taken from the machine and is spread on iron wire specially erected to receive it. When thoroughly dry it is packed in bales for shipment.

—At the suggestion of the Russian Government through its financial agent in London there recently took place a conference of delegates representing various English Corn Trade Associations and Russian Course Committees for the purpose of discussing measures for promoting the grain trade between England and Russia and amendments of the grain contracts. The conference, over which Mr. S. F. Mendl, President of the London Corn Trade Association, presided, was held in private, but it is understood that after the British delegates have communicated with their associations a report will be sent to the Central Congress of Bourse Committees, which meets in St. Petersburg. The approach of one of the revisions of contracts which take place periodically in England rendered the present an opportune moment for the conference.

CROP FORECASTS.**WHEAT.****Second General Memorandum on the WHEAT crop of the season 1909-10.**

The provinces dealt with in this memorandum contain on an average 99.8 per cent of the total reported area under wheat in India.

No estimates of outturn are yet available although some provinces report in percentages of the normal what the yield per acre is expected to be.

The total area sown is now reported to be **27,710,600 acres** which is to be compared with the 25,863,300 acres of last year and with the 27,901,500 acres forming the average of the five years ending 1907-08. As compared with last year there is an increase of 1,847,300 acres or 7.1 per cent, whereas the acreage still falls short of the older average by 190,900 acres. The estimates for the States of Mewar, Banswara and Dhoolpur have not come to hand; but these tracts usually contain some 73,000 acres, so that the total shortage is probably more like 117,900 acres.

The condition of the crop is reported to be good on the whole.

The following is a summary of the provincial reports. The figures in brackets, following the name of each province, indicate what percentage of the total area under wheat in India is ordinarily cultivated in that province; the ratio of irrigated to total wheat acreage in the province is also stated.

Panjab (32.7%). Ratio of irrigated to total wheat acreage = 52.9%.—The revised estimate of the area sown in British districts up to the end of January is 8,719,800 acres (irrigated 4,314,400 acres) compared with 7,914,700 acres last year—an increase of 10.2 per cent. Native States report a total area of 1,080,200 acres as compared with 1,027,800 acres last year—an increase of 5.1 per cent. The winter rains began in the second week of December when good and well distributed rain was received throughout the province. It was followed by another useful fall on the 25th and 26th December in all districts except those of the central and west Panjab. There was also general rainfall in the second and third weeks of January, which was very beneficial. The rainfall, coming as it did after short intervals, enabled the soil to retain its moisture, and full advantage was taken of the condition to get in late sowings which have been considerable in most districts. The condition and prospects of standing crops are good.

United Provinces (23.9%). Ratio of irrigated to total wheat acreage = 52.3%.—Figures of acreage actually sown are not yet available.

In the December forecast the total area sown was roughly estimated at about 6,250,000 acres, which is 10 per cent more than last year's area, and this figure remains unchanged. The first and third weeks of December were practically rainless. In the second week rain fell in western districts and in the fourth week throughout the province. In the third week of January also rain fell in appreciable quantity in some parts of the province. The rainfall was very timely and beneficial, and artificial irrigation was consequently rather less this year. Except that slight damage from rats has been caused in places, no injury from rust or strong winds has so far been reported, and prospects are very favourable everywhere. If nothing unforeseen happens a full normal outturn is at present anticipated for the province as a whole (normal = 1,050 lbs. per acre on the average).

Central Provinces and Berar (12%). Ratio of irrigated to total wheat acreage = 1%.—The total area sown is now estimated at 2,911,000 acres (2,595,000 in the Central Provinces and 316,000 in Berar) which is nearly 5 per cent more than last year's area. The monsoon was late, but the heavy showers in June, July and August left adequate moisture in the soil to render sowing operations successful. Germination was on the whole good. The remarkably wet weather in December did much good to the crop all over the province. Some damage was caused by rust in Wardha, by cloudy weather in Saugor, by hailstorms in Nagpur, and by the ravages of rats and insect pests in Saugor, Damoh and Hoshangabad. For the Central Provinces and Berar as a whole a full crop is anticipated. The areas under wheat in the Native States of Nandgaon and Khairagarh are estimated to be 35 and 25 per cent more respectively than the preceding year.

Bombay and Sind (8.5%). Ratio of irrigated to total wheat acreage = 11.6 in Bombay and 84.2 in Sind.—According to the latest reports the total area comes to 1,996,600 acres (1,501,600 in British districts and 495,000 in Native States) which is 13 per cent below last year's area. Gujarat and Khandesh received some rain in December, and the crop has thriven well there. Both dry and irrigated crops are fairly good in Kathiawar, Ahmedabad, Surat, Baroda and Kaira. In the rest of the Deccan there has been little rain since sowing, and the dry crop has suffered from want of moisture, particularly in light soils in the east. The irrigated crop also suffered from deficient water-supply. In the Karnatak November rain improved the crop in places; but it is now withering in eastern tracts from want of moisture, although the irrigated crop is fairly good. Damage through rust is reported from

several places. Some damage was also caused by rats. Harvesting of the dry crop has commenced in places in the Presidency proper. In Sind the crop is still young and is reported to be fair to good.

Bengal (44%).—The total area sown is reported to be 1,412,700 acres as against 1,255,200 acres last year. The increase is due mainly to favourable conditions at the time of sowing. The rain received in December and January has been beneficial to the crop. The outturn for the province as a whole is at present estimated at 92 per cent of the normal (normal = 953 lbs. per acre).

North-West Frontier Province (3.6%). Ratio of irrigated to total wheat acreage = 24.5%.—The total area sown is estimated at 1,013,200 acres (irrigated 251,200 acres) as compared with 1,003,000 acres last year—an increase of 1 per cent. The winter rains set in in the second week of December, and, as was anticipated in the December forecast, considerable further sowings were made. The prospects of the crop so far are generally good; but more rain is required for maturing the crop especially on unirrigated lands.

Eastern Bengal and Assam (0.6%).—The area is estimated to be 72,100 acres as against 76,600 acres last year—a decrease of 5.9 per cent. Since the middle of December there has been practically no rainfall in the districts in which the crop is principally grown; and the outturn is expected to be 79 per cent of the normal (normal = 784 lbs. per acre).

Central India (7.3%).—The total area sown is reported to be 2,280,500 acres as compared with 1,947,800 acres last year—an increase of 17 per cent. The crop is reported to be in fair to good condition.

Hyderabad (3.7%). reports the area sown to be 1,066,600 acres as against 1,098,300 acres last year—a decrease of 2.9 per cent. The estimated outturn works out to 65 per cent of the normal as against 61 per cent last year (normal = 320 lbs per acre).

Rajputana (3%).—The total area sown (excluding that in Mewar, Banswara and Dholpur States, from which returns have not been received) is reported to be 905,400 acres as compared with 782,500 acres last year—an increase of 15.7 per cent. The crop is reported to be generally in fair to good condition.

Mysore (0.01%). reports 2,500 acres against 1,300 acres last year—an increase of 92.3 per cent. The condition of the crop is reported to be generally fair.

FREDERICK NOEL-PATON,
Director General of Commercial Intelligence.

SPRING OILSEEDS.

Second General Memorandum on the crop of SPRING OILSEEDS (Rape and Mustard Linseed) in the season 1909-10.

The United Provinces do not at this season furnish any estimate of the acreage sown with the mixed crop (that is, oilseeds sown interspersed with other crops) which ordinarily represents about 38.4% of the total crop of British India in the case of rape and mustard and 17.9 in the case of linseed. The Native State of Hyderabad furnishes estimates for both crops. The oilseeds areas of the Native States in Bombay and Sind are included in the figures for those provinces. Native States in other provinces do not report.

For each crop, summaries of the provincial reports are given below. The figures in brackets, following the name of each province, indicate what percentage of the total reported area under the respective crop in British India is ordinarily cultivated in that province.

Rape and Mustard.

On the average of the five years ending 1907-08 the areas under **Rape and Mustard** in those provinces to which this memorandum relates represented 99.5 per cent of the total reported area under that crop in British India. In the same period the average acreage (excluding Hyderabad and the "mixed" crop of the United Provinces) was 3,507,500 acres. Last year the figure for the same tracts and crops was 3,768,000. This year it is 4,006,700 acres. There is thus an estimated net expansion of 238,700 acres or 6.3 per cent on the figures of last year and an expansion of 499,200 acres or 14.1 per cent as compared with the average of the five years ending 1907-08. If the figures for Hyderabad be included we can establish no comparison with the five years' average; but we find the **total acreage** reported up to the present time to be 4,014,800 acres as compared with 3,780,500 acres last year, the net increase being 234,300 acres or 6.2 per cent. The condition of the crop is reported to be good on the whole.

United Provinces (40.9%).—The area sown with the *unmixed* crop was roughly estimated in the December forecast to be about 150,000 acres, which is some 10 per cent more than last year's area. This figure holds good in the present report. No estimate of the area under rapeseed grown in combination with other crops (chiefly for home consumption) is available at present. In the second week of December good rain fell in western districts and in the fourth week throughout the province. In January also rain fell in appreciable

quantity in some parts of the province and it benefited the crop, which however has been damaged by insects, except in the central sub-montane districts of Kheri, Gonda and Bahraich. In these districts the outturn is estimated at about 90 per cent of the normal; elsewhere it varies from 50 to 75 per cent of the normal (normal = 600 lbs. per acre).

Eastern Bengal and Assam (25.1%).—The total area sown is reported to be 1,540,000 acres (805,500 in Assam) as compared with 1,479,600 acres (281,300 in Assam) for last year—an increase of 4.1 per cent. Weather conditions in Eastern Bengal have been favourable and a probable outturn of 88 per cent of the normal is estimated as compared with 66 per cent last year (normal = 448 lbs. per acre). In Assam weather conditions were favourable at sowing time, but since then the season has not been quite satisfactory owing to defect of winter rain, and in many districts only a moderate crop has been harvested. Some damage has also been done by insect pests in Kamrup and Sibsagar. The outturn is estimated at 56,900 tons, which is about 23 per cent more than last year.

Panjab (17.3%).—The area sown is reported to be 1,141,900 acres compared with 1,134,800 acres in the December forecast and 1,158,900 acres finally returned last year. The increase compared with the December forecast is due to late sowings which the good rainfall in December and January made possible. The crop was generally in good condition at the end of January.

Bengal (13%).—The area sown is reported to be 829,900 acres as compared with 659,600 acres last year—an increase of 25.8 per cent. The rainfall in September and October was sufficient for sowings. In parts of the Presidency Division sowings were retarded owing to the heavy rainfall which accompanied the cyclone of the 17th October last. The rainfall in December and January was beneficial to the late crops, but the early crops, which were ripe for harvest in January, were damaged to some extent by the rain in that month in parts of the Presidency and Orissa Divisions. Insects did some injury in places. The outturn is at present estimated at 85 per cent of the normal as compared with 51 per cent last year (normal = 494 lbs. per acre).

North-West Frontier Province (1.9%). reports that there has been no change in the estimate of the area reported in the December forecast, namely, 163,100 acres as compared with 132,800 acres at this date last year. The prospects of the crop are generally good so far.

Bombay and Sind (1.3%).—The total area reported is 161,800 acres (86,000 in Native

States) which is 19 per cent below last year's area. The crop is thriving in Gujarat. In Sind deficiency of water-supply restricted area everywhere. The crop is only fair.

Hyderabad reports 8,100 acres under mustard as compared with 12,500 acres last year—a decrease of 35.2 per cent. The outturn is estimated at about 100 tons against 200 tons last year.

Linseed.

On the average of the five years ending 1907-08 the areas under **Linseed** in those provinces to which this memorandum relates represented some 96 per cent of the total reported area under that crop in British India. In the same period the average acreage (excluding Hyderabad and the "mixed" crop in the United Provinces) was 2,368,600 acres. Last year the figure for the same tracts and crops was 1,943,100 acres. This year it is 1,962,700 acres. There is thus an estimated expansion of 19,600 acres or 1 per cent on the figures of last year, while there remains a shortage of 405,900 acres or 17 per cent as compared with the five years' average. If the figures for Hyderabad be included we can make no comparison with the five years' average; but we find the **total acreage** reported up to the present time to be **2,511,600 acres** as compared with 2,498,500 acres last year, the increase being one of 13,100 acres or 0.5 per cent. The state of the crop is reported to be satisfactory on the whole.

United Provinces (31.4 %).—The area sown with the *unmixed* crop was roughly estimated in the December forecast to be 250,000 acres, which is some 30 per cent more than last year's area. No change has been made in the present report. No estimate of the area under linseed grown in combination with other crops (chiefly for home consumption) is available at present. In the second week of December good rain fell in western districts and in the fourth week throughout the province. In January also rain fell in appreciable quantity in some parts of the province and benefited the crop. No injury to the crop has been reported and a full normal outturn is at present estimated almost everywhere (normal = 500 lbs. per acre).

Central Provinces and Berar (30.1 %).—The total area sown is reported to be 927,400 acres (877,800 in the Central Provinces and 49,600 in Berar) as compared with 955,500 acres last year—a decrease of 2.9 per cent. Though the monsoon was late in becoming established there was sufficient moisture in the ground to render sowing operations successful. Germination was good and no re-sowing was necessary. The showers received in December greatly benefited the crop; but in certain districts the crop, while in flower, was

slightly damaged by cloudy weather, excessive rain and blight. For the province as a whole the outturn is estimated at 94 per cent of the normal (normal = 226 lbs per acre).

Bengal (22.7 %).—The total area sown is reported to be 583,400 acres compared with 548,600 acres last year—an increase of 6.3 per cent. The rainfall in September and October was sufficient for sowings. In parts of the Presidency Division sowings were retarded owing to the heavy rainfall which accompanied the cyclone of the 17th October last. The rainfall in December and January was beneficial to the late crop, but the early crop, which was ripe for harvest in January, was damaged to some extent by the rain that fell in that month in parts of the Presidency and Orissa Divisions. Insects did some injury in places. The outturn is at present estimated at 82 per cent of the normal as compared with 51 per cent last year (normal = 494 lbs. per acre).

Bombay (8.7 %).—The total area is reported to be 116,800 acres (9,700 being in Native States), which is 26 per cent below last year's area. Uncertainty of late rains in recent years coupled with favourable early rains induced larger cultivation of cotton and other early crops and restricted the area under linseed, particularly in North Deccan, which formerly claimed three-fifths of the total crop. The crop is fairly good in Khandesh and parts of Nasik and Satara; elsewhere it has suffered from deficiency of moisture. Harvesting has commenced in places.

Eastern Bengal (3.1 %).—The area sown is reported to be 85,100 acres against 86,000 acres last year. The growth of the crop has been encouraged by seasonable rainfall and the outturn is expected to be 77 per cent of the normal against 63 per cent last year (normal = 448 lbs. per acre).

Hyderabad now reports 548,900 acres under linseed as compared with 555,400 acres last year—a decrease of 1.2 per cent. The gross outturn is estimated at 18,100 tons as against 17,200 tons last year—an increase of 7 per cent.

FREDERICK NOEL-PATON,

Director General of Commercial Intelligence.

—The Budget Committee of the Russian Duma has recently discussed the question of **compulsory working of patents**. The same matter has now been the subject of deliberations of the Council for Commerce and Manufacture under the presidency of the Assistant Minister of Trade. The Council expressed the view that compulsory working should be enforced only in cases where the interests of the State are involved.

TARIFF CHANGES AND CUSTOMS NOTIFICATIONS.

THE *Board of Trade Journal*, published on the 17th ultimo, in the section relating to Tariff Changes and Customs Regulations, gives particulars about:—

DOMINION OF CANADA.—Franco-Canadian Conventions: Regulations. Samples. Customs Decisions. MALTA.—Customs Regulations. Amended Plant, etc., Regulations.

PROTECTORATE OF NORTHERN NIGERIA.—Prohibition of Importation of White Phosphorous Matches. Prohibition of Importations, etc., of Spirituous Liquors and Wines by Natives of Tropical Africa.

MAURITIUS.—Amendment of Customs Tariff respecting Matches and Printed Matter.

BRITISH EAST AFRICA PROTECTORATE.—New Customs Tariff.

TERRITORY OF PAPUA.—Customs Amendments.

SWEDEN.—Marking of Imported Goods.

GERMANY.—Applications of the "Conventional" Tariff to United States Products.

ITALY.—Temporary Importation of Steel Plates for making Welded Pipes.

GREECE.—Consumption Duty on Calcium Carbide.

SERBIA.—Revised "Trosharina" Taxes.

UNITED STATES OF AMERICA.—Application of the Minimum Tariff to Imports from the United Kingdom.

SAN SALVADOR.—Import Duty on certain Building Material.

VENEZUELA.—Manifest of Cargo shipped for different Venezuelan Ports.

ARGENTINE REPUBLIC.—Regulations respecting the Excise Duty on Toilet Preparations.

We give the following particulars of changes interesting to Indian trade:—

PROTECTORATE OF NORTHERN NIGERIA.

Importation of White Phosphorous Matches—Prohibition of.

A copy of Proclamation (No. 19 of 1909) has been received which amends the Customs Tariff Proclamation of 1904 by providing, with effect from 31st December, 1909, for the prohibition of the importation of matches which contain white (yellow) phosphorous into Northern Nigeria.

—The *Agricultural Gazette* of New South Wales states that Senator the Hon'ble J. H. McColl has drawn the attention of the Department of Agriculture to *Scaevola collaria*, F. v. M. (Natural Order *Goodeniacae*), a comparatively rare fodder plant, only found in South Australia, on sand ridges near the coast and in the interior. Senator McColl states that it has afforded fodder for sheep for some months, and that they did well on it. The South Australian Department of Agriculture have been asked for a small packet of seed for trial.

THE WORLD'S WHEAT MARKET.

ONE-HALF of the cereal year, says a writer in the *Economist* of February 12th, as reckoned in England, has now elapsed, therefore the present may be considered as a suitable occasion upon which to review the general situation of the world's wheat market. When the season opened in August last, there was a very general expectation that the era of high prices which had then lasted for over two years, would come to an end, for the reports from the harvest fields of both hemispheres were satisfactory, and in many instances were even excellent—the one exception being the report received from Budapest regarding the crop of Hungary. The early post-harvest estimates of the world's production were all put at high figures, for the best authorities agreed in reckoning the total quantity raised at some 40,000,000 qrs. more than was produced in 1908, or 50,000,000 qrs. more than in 1907, the actual estimates being as follows:—

Season.	Quarters.	Season.	Quarters.
1900-1	320,000,000	1915-6	389,000,000
1901-2	335,000,000	1906-7	403,000,000
1902-3	381,000,000	1907-8	305,000,000
1903-4	392,000,000	1908-9	383,000,000
1904-5	353,000,000	1909-10	418,000,000

Although nothing occurred to dash the hopes of those who predicted a season of plenty—with few trifling exceptions the crops when threshed and marketed came up to expectations, and, indeed, in one notable instance largely exceeded even the most sanguine forecast—yet the generally anticipated drop in the price of wheat has not yet occurred. It is true that for a short while at the commencement of the season a sharp reaction set in; but it proved to be merely transitory. Just before the opening of the current season the better qualities of imported wheat were selling at from 45s. to 50s. per qr.—indeed, even our somewhat despised native variety fetched as much as 46s. to 47s. per 480 lbs. By the middle of September, however, the better qualities of imported wheat were selling down as low as 35s. per qr. and a little later English was down to 31s. 6d. per 480 lbs. The reaction, however, did not last long, for in the autumn there was a sharp recovery in price, owing, firstly, to the bad condition in which the bulk of the new European wheat was harvested, and, secondly, to an unusual demand springing up in Hungary for imported wheat. By the end of the calendar year the price of good foreign wheat had advanced 5s. per qr. English, owing to its damp condition, rising only about 2s.

At one time it was thought the rise would be checked, as the Russian crop turned out big beyond all precedent or belief. Week after week Russian shippers poured out a perfect stream of wheat from the Black Sea, Azoff, and Baltic ports, until observers were lost in astonishment. In one week of November the quantity shipped by Russia amounted to 1,100,000 qrs.—as much as India or Australia in a good season could be expected to ship in three months. Before November was over the quantity Russia had exported (in seventeen weeks) exceeded

the twelve months' total of either of the past three seasons, and was equal to a twelve-months' shipment of Canada and India combined.

There was, however, another side to the question, for if the surplus of Russia and some of the other exporting countries proved to be large, so also did the requirements of Western Europe exceed every anticipation, and easily break all records. It is to this unexampled demand that we must look for an explanation of the peculiar character of the season. With a crop which, from the very outset, was estimated at something like 40,000,000 qrs. over the average production of the preceding two seasons, and which a recent revised return from Russia now leads the trade to reckon at fully 50,000,000 qrs. above the last two years' average, a considerable setback in the price of this staple article was expected, but a wet harvest and the absence of reserves of old wheat suitable for mixing in with the damp native wheat upset most calculations. Traders in wheat throughout the world are now convinced, after more or less scepticism, that the production of the season 1907 and 1908 actually fell below the bare requirements of consumers. By the end of the season 1908-09—i.e., in July 1909—the world's supply of wheat was not far off the vanishing-point, and had Providence not been so kind as to favour Russia with an abnormally early harvest last summer, there is no saying to what height prices might have been carried.

Regarding the future, there are several factors to be taken into consideration, the majority of which seem to the writer to point to the probability that the worst of the pinch is over from a consumer's point of view. Prices during the remainder of the season may be expected to ease off considerably, or, at the worst, to remain barely sustained at the present level. Canada and Russia have a large portion of their last summer's crop still to market, and if the new Argentine crop just harvested should actually turn out to be as deficient as the alarmists claim, a good set-off to that loss can be found in Australia and India, two growers whose combined exportable surplus is expected easily to exceed last season's by fully as much as Argentina's is expected to fall short. Then again overshadowing everything is the probability that England and Western Europe will have an abnormally large supply of native wheat to sell during the coming spring and summer; the drying wind of March may be expected to put these useful cheap wheats into millable condition, and thus redress the season's supplies, so that the latter half of the year will perhaps be characterised by as small a demand for imported wheat as the former half was by a contrary condition. It is a little early in the year to be talking of the prospects of the next crop, but one may venture so far as to say that a largely increased area has been planted in nearly every country, and that very little mention has so far been heard of "winter kill." It is true that in our own country and in France, the acreage planted so far is believed to be slightly less than last year's—probably 5 per cent less—but given normal conditions during

the next six weeks this deficiency should easily be made up. One of the uncertainties of the future concerns the effects of the great floods upon the French crops; but fortunately for consumers, the area of wheat culture in France is not confined to any particular region. Speaking generally, in the whole of the northern half of France there are extensive areas devoted to wheat raising, and the flooded lowlands adjacent to the rivers comprise only a small percentage of the total area. These considerations account, perhaps, for the quietness of the Paris future market; in any case, wheat for next August delivery may be still bought at the price which was current just before the floods in Paris occurred.

The following were the prices current on the several markets yesterday, February 9th, and on the same day in 1909 in the market named:—

	Feb. 9, 1909.		Feb. 9, 1910.	
	Per Qr., 480 lbs.	s. d.	Per Qr., 480 lbs.	s. d.
Wheat.				
London, English wheat, mean price	35 0		33 6	
Liverpool, No. 1, Manitoba	41 0		39 9	
Paris, French native wheat	40 0		42 6	
Berlin, German native wheat	48 0		47 6	
Budapest, Hungarian native wheat	47 0		53 6	
Antwerp, average Russian	33 6		38 0	
New York, on spot	30 0		41 0	
Chicago, on spot	37 6		38 0	
Baltimore, on spot	38 4		41 0	
St. Louis, on spot	36 4		41 8	
Minneapolis, on spot	37 0		37 0	
Winnipeg, on spot	34 6		34 0	
	Per Sack, 280 lbs.	s. d.	Per sack, 280 lbs.	s. d.
Flour				
London, "Town households"	28 6		30 0	
Liverpool, "Bakers"	28 0		23 6	
Paris, "12 Marks"	31 0		33 3	
Berlin, medium quality	36 6		36 6	
Budapest, good quality	38 6		45 0	

One word more upon comparative quotations may be interesting, and it shall refer to the annual average prices of England and Prussia, which have just been published. They are both official quotations, and concern similar qualities of wheat, in both cases native varieties. Prussia raises about three-quarters of the entire German crop; hence it is in this State that wheat is obtainable at the lowest price—as a rule 2s. to 3s. per quarter cheaper than in Bavaria or the Rhine provinces. For purposes of comparison the data for previous years are added:—

	1905.	1906.	1907.	1908.	1909.	1910.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Average annual price of English wheat in the staple markets per 480 lbs.	28 0	30 0	28 0	31 0	32 0	37 0
Average annual price of Prussian wheat according to the Zeitschrift des Kon. Preuss. Statistischen Bureau per 480 lbs.	36 0	37 0	37 0	43 0	44 0	48 8

On March 1st, 1906, the German import duty was raised from marks 3.50 per kilog. to marks 5.50 per kilog. say, from 7s. 6d. to 11s. 10d. per quarter, 480 lbs.

EGYPT'S TRADE DURING 1909.

THE total value of the imports into Egypt from all sources during 1909 amounted to L. E. 22,230,000 or a shrinkage of L. E. 2,870,000 when compared with the previous year. The heaviest drop occurred in the Metal classification where the decrease was one of L. E. 993,000. The division comprising timber and coal was down by L. E. 669,000, whilst the Textile category lost L. E. 590,000 on the year. The Live Stock and Animal Products class shrunk to the extent of L. E. 217,000, Cereals were down L. E. 95,000, Colonial Produce, including sugar, lost L. E. 50,000, and the Liquor division dropped L. E. 45,000.

The following table compares the position of most of the principal competing countries during the last three years. The returns for the English and French Possessions in the Mediterranean are not included:—

Imports from	1909.	Percentage of Total Imports.	1908.	Percentage of Total Imports.	1907.	Percentage of Total Imports.
England . . .	6,743,000	30.3	8,265,000	32.9	8,493,000	32.5
France . . .	2,889,000	13	2,916,000	11.6	3,167,000	12.1
Turkey . . .	2,642,000	11.8	3,183,000	12.7	2,973,000	11.3
Austria . . .	1,433,000	6.4	1,632,000	6.5	2,059,000	7.8
Germany . . .	1,129,000	5.7	1,119,000	4.4	1,362,000	5.3
Italy . . .	987,000	4.4	1,188,000	4.7	1,361,000	5.2
British Poss. in Far East . . .	975,000	4.3	993,000	3.9	1,057,000	4.2
Belgium . . .	678,000	3	726,000	2.8	1,027,000	3.9

Compared with the year 1908, the exports during 1909 at L. E. 26,076,239 were the respectable sum of L. E. 4,760,000 to the good, though they were nearly L. E. 2,000,000 below the returns for 1907.

To find the cause of the above-mentioned increase it is not necessary to look beyond the figures for the one great crop of the country, viz., cotton. The returns for the past three years are as follows:—

1909 . . .	6,952,480 cantars	= L. E. 21,477,745
1908 . . .	6,348,469 "	= L. E. 17,091,603
1907 . . .	6,859,220 "	= L. E. 23,597,844

The cotton seed exports at 3,300,000 ardebs were 433,000 ardebs to the bad. The only other shrinkages of any moment were 18,000 ardebs of wheat and 546,000 kilos. of gum. On the other hand, eggs were up L. E. 67,000, skins and leather L. E. 86,000, rice L. E. 26,000, cotton seed cakes L. E. 26,000, onions L. E. 61,000, and wool L. E. 12,000.

RUBBER AND RUBBER COMPANIES.

Of the making of rubber companies, says the *Statist* of February 12th, there appears to be no end, and the recent spell of easy money has had the effect of bringing before the public a considerable number of new appeals for capital for the rubber plantation industry. The capital value of rubber companies registered at Somerset House in 1909 was over £13,700,000, and the amount offered for public subscription was £5,840,000. And since the beginning of the present year a further total of nearly £1,000,000 of rubber capital has been issued. The amount of speculative interest taken in the shares of plantation rubber companies shows no signs of falling away; on the contrary, indeed, the speculative interest appears to increase. During this week, owing to fears that facilities at the settlement would be curtailed, a halt was called in the upward movement that has been progressing for some little time, and a weakening in prices occurred. It was seen, however, that the fears entertained were unnecessary, and a hardening has again occurred.

In view of the large number of companies that have been brought out and the considerable amount of capital invested in the industry—in respect of Eastern companies alone somewhere in the neighbourhood of £30,000,000 (this being the nominal amount, and the market valuation being, of course, very considerably greater)—it seems desirable to ask whether for the present, at any rate, a halt should not be called. To a considerable extent plantation rubber has had to make its reputation, and the future has been very largely discounted indeed. Share prices have been hoisted to figures based on possible results that may occur five or six years ahead, and apparently little or no caution is being exercised by the investor. Put any proposition before him labelled rubber and the shares are eagerly grasped at and the issue considerably over-subscribed. A word of caution, therefore, seems desirable. At the present moment everything appears plain sailing. The demand for rubber continues to grow, the price on the whole is steadily rising, and investors appear to be unable to grasp the fact that possibly there are *per contras* to be taken into account.

At the moment we say the factors are extremely favourable. We may recall that while at the beginning of 1907 the price of fine Para rubber was 5s. 3d. per pound, before the end of the year it had touched 3s. 4d. per pound, while in February 1908 a price of 2s. 9d. was reported. We may recall that in 1905 a local boom in rubber companies took place in Ceylon, and as a result prices in 1906 and 1907 were considerably higher than they had been. The cause for the slump in price to 2s. 9d. was the American financial crisis that took place at the end of 1907. The demand for rubber fell off in consequence of the crisis, and a damper on planting was evidenced; but the amount of recuperative energy shown was little short of astonishing, and, with

slight variations, throughout 1908 and 1909 the price of rubber was steadily increased, until in November a quotation of 9s. 2½d. per pound was recorded. Since then a reaction has once more occurred, and last week the quotation receded to about 7s. 9d. per pound. The price has once more hardened, and is now 8s. 3d. per pound. It would thus appear that we must look to the other side of the water to arrive at a probable estimate of the future course of rubber prices, as it is upon the magnitude of the American demand that prices are at present largely based. This is due to the fact that the United States take about two-thirds of the total output of fine rubber, leaving only one-third for European consumption, this being insufficient to meet the demand. Some three or four years ago the demand of the United States for rubber was, to a very large extent indeed, for the purposes of the manufacture of snow-shoes. Now, of course, the demand for rubber proceeds from a distinctly different industry, and it is to the demands of the motor-car industry that attention must be directed if any approximate estimate of the future is to be made. In these matters all estimates are, of course, of a more or less rough character, and it has been estimated that on an average, taking all classes of motor-cars together, those of high power and low power, the light run-about on the one hand and heavy motor-bus and motor and motor lorry on the other, that each car will consume somewhere in the neighbourhood of one hundredweight of good rubber per annum; and in the United States alone for the twelve months ending July next it is thought that an output of about 150,000 additional cars will take place, or an effective increase of something like 100,000 cars, allowing for, say, 50,000 cars going out of action. In other words, it is estimated by careful observers that an additional output of 10,000 tons of good rubber per annum will be called for, and assuming that the prosperity of the United States and of other countries continues at the rate that it promises at the present time, the probability is that this estimate is under rather than over the mark. The question of course, is to what extent can this demand be met. The present output is about 70,000 tons, of which some 40,000 tons come from Brazil, leaving 30,000 tons from the rest of the world, in addition to the second quality and lower grades which are obtained from the Congo, West Africa, Mexico, etc. With the price of rubber at its present level it, of course, pays to work the lower grades. The opinion of cautious observers, however, is that in the end it will only be the *Hevea Brasiliensis* that counts, and as it does not appear that Brazil is in a position to largely, if at all, increase her output of *Hevea*, it will be seen that it is to the output of plantation companies that attention is being directed. As to synthetic rubber, that does not count at present. It is, of course, possible that if the price of rubber should increase very considerably above its present level science should be able to manufacture some substance which it might be more economical to use in place of rubber. That point, however,

has not yet been reached. In so far as the output of the plantation companies is concerned, it may be recalled that it is only since 1906 that any marked attention on a large scale has been given to the industry and it is not until 1912 onwards that the production of the plantation companies will seriously affect the position. It is estimated that up to the end of 1909 some 70,000,000 rubber trees have been planted, of which from 30,000,000 to 35,000,000 are in Ceylon, the remainder being planted chiefly in Malay, Java, Sumatra, Borneo, etc.

In view of the remarkable expansion that has taken place during the past twelve months, the number of companies that have been floated, and the large amount of capital subscribed, it seems reasonable to ask as to whether there remains much that is likely to be of any practical value from an investment point of view. It is, of course, but natural to assume that the best situations and properties have been picked up. Planters and men who have interested themselves in the industry are keen business men, and it does not seem likely that any important properties have not been acquired. It is scarcely necessary to point out that there is a more or less fairly well-defined area or zone in which rubber may be grown. It is equally unnecessary to add that all parts of this zone are not of equal value. The seeds of rubber that were first brought from Brazil were taken from the banks of the Amazon, and it was assumed, therefore, that low-lying land was the most suitable for rubber-growing, and in some of the early prospectuses a considerable point was made of the fact that the properties taken over were all situated on or near the banks of rivers and were of a swampy character. Fuller information, however, has somewhat combated this view, and the more general opinion now is that the most-favoured land is that situated on an elevation of somewhere in the neighbourhood of 100 feet. There is reason to believe that properties situated in low-lying, swampy districts are far from desirable, and fungus growth has already occurred in some such properties. In the properties belonging to at least one Malayan company, which are situated at a height of from 60 to 130 feet, the absence of disease is distinctly remarkable, and while the directors are unable to afford a scientific reason for this, it is at least significant that the properties in question are strongly lateritic, and it would seem that the presence of iron is favourable to the absence of disease. There is one other point which must be noticed, and one which gives Malay a considerable advantage over Ceylon. The point is that of monsoon influence. The influence of the monsoon is, of course, felt in Ceylon; Southern India comes even more under the influence. In Malay the influence is absent entirely. During monsoon times it is impossible to work at rubber-getting. Moreover, a high percentage of humidity in the atmosphere is necessary, and throughout the year Malay has an average humidity of 94 per cent.

It would thus appear that the area of the most suitable ground is circumscribed, and as in the long-run highest quality plus lowest cost of production

will naturally survive less favourable conditions, it is companies possessing these qualities that will be able to regard fluctuations in the price of rubber with equanimity. In any case, it would appear that the best properties have already been acquired. Older companies with trees coming into bearing at the present time have little to fear from the immediate future, and should investors desire to take an interest in rubber companies, they would do well to give their preference to the older concerns, even though the shares are quoted at high premiums, rather than speculate, with considerable chances of losing their money, in concerns that cannot expect to produce for some years to come. Even so, however, an investor will do well to discover the probability or otherwise of fungus or other disease attacking the trees of any particular company he has fancies for. Otherwise he may find that the results will not be as favourable as are estimated.

Assuming that present indications of rapidly increasing prosperity in the United States continue, as appears to be certain, we may yet witness the price of rubber during the current year at a higher figure than it has yet touched. So that the outlook for the rubber industry is one of considerable promise. There are, however, *per contras*.

EASTERN BENGAL AND ASSAM.

Crop Reports.

(By Telegram.)

Shillong, March 8th.

THE following is a summary of the weather and crop reports of Eastern Bengal and Assam for the week ending the 7th instant:—

The weather is seasonable. Light showers have fallen throughout the province and have benefited the standing crops, but more rain is wanted.

Ploughing for winter rice and *bhadai* crops is in progress.

The sowing of *aus* rice in Rajshahi and the Assam Valley divisions and jute in the Rajshahi districts has commenced.

Potatoes are being sown in the Khasi Hills. The gathering of mustard continues.

The harvesting of tobacco has commenced and that of sugarcane is going on.

The prospects of spring rice, sugarcane, tea, linseed and *til* are good: those of wheat and tobacco are fair.

The average price of common rice is almost stationary.

Cattle disease is reported in Bakargunge, Malda Goalpara, Darrang and Nowgong.

The WOOL TRADE.

The Question of Draft.

CONDITIONS of sale regulating the wool auctions in London and Australasia, says a correspondent in the *Times* Financial and Commercial Supplement, are comprehensive. They prescribe the mutual relations of auctioneer and bidder, provide against the contingency of labour troubles and interruption of business due to public holidays; they are explicit concerning many details, and include a sentence referring to allowance, which states "Draft 1 lb. per cwt.," and the question whether these 14 letters are still to be printed or are to disappear from the catalogues may lead to the greatest struggle that has ever taken place in the wool trade. All conversant with the importance of the issue raised will recognize that the apprehension thus expressed is free from exaggeration; for others who are not able to realize its full significance a brief explanation is necessary.

The Draft Allowance.

Assuming the average weight of an Australian wool bale to be about 3½ cwt, long-established custom has allowed the buyer to receive from 3 lbs. to 4 lbs. weight of wool per bale more than he is actually charged for in his invoice. It is impossible in an article of moderate length to explain the reasons which buyers put forward for proving this allowance to be fair and reasonable justified by many parallel instances, and in no respects differing from a usual business discount. If the time comes buyers will be able to state their own case and, at this comparatively early stage, it is advisable to discuss the proposed change rather from the broad standpoint of expediency than to consider arguments based on somewhat complex trade customs, which might, even unconsciously, suggest a bias in favour of this or that section on the wool industry. One essential point of difference must, however, be mentioned. The buyer asserts that the draft is reckoned in the price of pays; those who desire the abolition of this allowance declare it to be a free gift.

Let it at once be conceded that those in favour of the change can, theoretically, state a strong case in favour of the discontinuance of draft, and one of the great dangers of the situation is that if this theoretical facility is unduly taken advantage of one side may fail to appreciate until too late the reasons which have influenced the other. It is impossible to say how much harm may already have been done by certain writers in Australian journals who profess to regard the matter as one of simple addition and subtraction. To take the total Australian wool export and deduct some 3½ lbs. per bale from the grower's share of profits and to add the amount gratis to the buyer's share is to excel in the art of prejudice, while to assert that the large amount arrived at by this elementary arithmetic represents the booty of the buyer and the pillage of the owner must be characterized as a deliberate attempt to make peaceful settlement impossible.

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Attitude of "London."

From time to time during past years the draft question has been a subject of desultory discussion, but recently allusions in the Australian Press have been more frequent, and the anti-draft section has shown increased activity. With a curious persistence—which reference will be made later—the London selling authorities, importers and brokers have been asked twice in the last six months by some of the Australian selling brokers to express their official opinion on the matter. It is of the utmost importance that the attitude of the London market should be clearly understood throughout Australia, and it is to be hoped that those in touch with growers will make every effort to put this attitude clearly before them, as the statements which have already appeared in certain local papers are characteristically inaccurate. Briefly the opinion held in London is that in the interest of the growers any change in existing conditions is unadvisable, as the disturbances and loss inevitable arising from numerous claims due to various causes would more than counterbalance any advantages to owners which might be derived from the proposed abolition. To declare that the home authorities desire to resist any change is false. Their opinion was asked for and given; it stands for what it is worth, no more, no less. As regards any actual decision of the draft question, the London market stands aside, regarding the matter as one pre-eminently between growers and buyers to be settled by them alone. If the two parties agree to the abolition of draft, and if the change is successfully and universally enforced on all Australian markets, London's acceptance of the alteration follows as a matter of course. But it must clearly be understood that the abolition must first be carried in Australia for reasons which are unassailable, both on logical and commercial grounds. The suggestion was first made in Australia; the Sydney market is the largest in the world for Australian wool, for the total sold in the whole Commonwealth for the season 1908-09 amounted to some 1,500,000 bales, the London sales for the same period of Australian wool not exceeding 600,000 bales. In Australia only first-hand wool received direct from growers is offered. London catalogues, especially in the later series, comprise a considerable proportion of wool purchased by speculators expressly for re-offering, while frequently surplus quantities from the continent, Yorkshire, and occasionally from the United States are sent over by firms whose interests may be limited to two or three bales or amount to some thousands. To request the smaller market, where conditions of ownership are far more complicated to initiate the most sweeping change ever proposed in the wool trade is a proposal which does not merit the serious consideration of business men, and growers and buyers will do well to pay no attention to any rumours already current, and which may be repeated in certain quarters during the season since, while London will accept

a final settlement of the question, the home auctions in the meantime will be conducted as before during the serious dislocation of business, which, it is to be feared, must inevitably attend any conflict should matters in Australia become critical.

Position of Growers.

How far the proposed change is urgently demanded by growers is a matter of doubt. Obviously the theoretical presentation of the suggested change must appeal to them all, and especially, as the originators hope, to owners of large clips. But even these may well hesitate before considering the gain, accepting the most optimistic estimates of the anti-draft party, to be worth the prospect of confusion and actual loss which, even if ultimately victorious, they must be prepared for a time to face. Against the opposition which would be brought to bear, which in Australia is admirably organised and on more than one occasion has shown its strength, nothing but unanimous agreement could win their cause, and the prospect of such unanimity is, at least, doubtful. To the small clip owners who yearly become more numerous, the allowance of draft makes practically no difference, and to expect them to hold their wool for possibly a long period for the sake of what to most of them is at best an abstract principle is perhaps to expect too much, even if it were certain that they regard the principle in itself as beyond question. But this is doubtful. Australian wool-growers as business men are aware that no antagonism should find a place in their relations with their clients. The grower's best friend is the buyer and the buyer's the grower; the prosperity or adversity of one implies the wealth or the poverty of the other, and only most cogent reasons should be allowed to interfere with existing relations, but those who attempt to belittle the determination expressed by all sections of buyers to resist the proposed change are no friends to the pastoralists. With these must rest the question of peace or war.

Position of Buyers.

It is noticeable now a days that with the increase in wool selling in Australia friction between buyers and brokers occurs more often; it is said that the former are too autocratic, while the visitors accuse the latter of attempting to encroach upon their privileges. These are matters of opinion which can be left to the parties concerned, but, always recognizing the remarkable energy and enterprise of Australian brokers which has enabled them to secure so large a share of the selling business, it must be admitted that the buyers' claim that they held the ladder up which the broker climbed to prosperity is certainly founded on fact; indeed the August number of *Dalgety's Review* declares that "the fight for supremacy has been won by Australia owing to the generous support of the Continental buyers," a handsome testimonial, which need not be taken as reflecting upon the business acuteness of the section

referred to. But, leaving out any question of "generosity," every one in the trade knows that much expense has been and is incurred by British and foreign houses in sending out expert buyers to Australia and opening offices in the various markets of that continent, and that it is owing to their support that local selling has attained its present volume. The majority of buyers profess the belief that the anti-draft movement has been actively fostered by only a few of the selling agents, and decline to believe that the agitation originated with the growers. They point out that, while the present high level of values has made wool-growing extremely profitable, current prices, even when trade is satisfactory as is actually the case, must increase the anxiety of the buyer and of itself tend to reduce the margin of profit, and therefore they regard the moment for discussing the abandonment of a long-established trade discount as singularly ill-chosen.

Possible Influences.

There is, however, an impression current in wool circles which, since it closely affects the question, must, however, reluctantly be mentioned. If groundless, excuse for those who hold it can be found in much that has been published in certain Australian newspapers, which by no means should be regarded as expressing the views held by Australian brokers generally, but those of a small but very progressive section, who in one journal have demanded a law to enact that all wool grown in Australia should be sold in that continent. The belief has been freely expressed that the agitation has been promoted with a view to creating trouble between the London market and the Australian supporters of that market. As has been pointed out, the London market has twice been requested within a short space of time to express its formal opinion on the draft question. As far as is known no meetings similar to those that have taken place here have been held between corresponding branches of the trade in Australia, though as the sales there have been in progress since October opportunities for such have been numerous, while it has been further suggested that the alteration should first be made in London. It is indisputable that the abolition of draft would appeal chiefly to owners of big clips, and it is well known that, in spite of unwearied efforts to induce them to sell locally, many of these are firm adherents of the home market, and that the excellent selection of some of the most famous of Australian clips which are offered to buyers in London is naturally coveted by Australian brokers. Tactics by which an attempt is made to foist the responsibility of decision upon the home authorities and to represent the London importers as indifferent to the interests of their clients undoubtedly would be welcomed by some, and the desirability of placing the true facts before growers must once again be urged, but one may decline to believe that this policy can secure the approval of the many firms of deservedly high

reputation who carry on the wool-selling business of Australia. It is indeed not unlikely that the majority of these are of opinion that, after some recent experiences, to discover fresh ground for dispute between buyers and themselves would not be wise, and may share the hope unanimously expressed by the former that, after all, it will be found best to leave well alone.

A NEW METHOD OF ELECTRO-PLATING.

At the meeting of the Royal Society of Arts on February 2nd, an interesting paper was read by Mr. Augustus Rosenberg on a new method of electroplating. The author first reviewed the older processes of plating, laying particular stress upon the various contact processes. He showed that these old contact processes could not be very satisfactory owing to contamination of the electrolyte by the dissolving of the contact metal. For example, if a sheet of copper which is immersed in a solution of silver cyanide, be touched with an electro-positive metal, for example, a bar of zinc, which is also dipped in the electrolyte, an electric current is generated, and simultaneously silver is deposited upon the copper sheet. The electrolyte, however, rapidly becomes contaminated with dissolved zinc and soon is of little value. This process is therefore of very limited application and cannot be used for heavy deposits.

As contact metals, zinc and aluminium are mainly employed—in acid solution zinc is more active than aluminium. But in alkaline solution aluminium is the more electro-positive, and it also possesses the advantage of not bringing into the electrolyte a metal which is reducible by the electric current.

Before a metal can be electro-plated it is most important that it should undergo a most thorough cleansing. The least trace of grease or other impurity prevents an adherent deposit, consequently chemical and mechanical processes of cleansing have to be employed.

The new process does the cleansing itself, it does not require the aid of external electric currents. In fact it is a powder which is moistened with water and simply rubbed on the article to be plated with a piece of cloth or with a brush. It is, in fact, really a contact process. Mr. Rosenberg calls his powders "Galvanit" and his idea has been to devise a process which can be used by anyone without having technical training at all. Further, he has endeavoured to devise a material which shall have no poisonous elements in it.

A corresponding powder is required for the deposition of each individual metal. And he has succeeded in making up "Galvanit" powders capable of depositing zinc, cadmium, nickel, cobalt, tin, silver, antimony, bismuth, gold and platinum; in fact, all metals which can be deposited by the "battery" process. He also claims to be able to deposit alloys, such as brass, gun metal, etc.

The powders consist of (1) the metal to be deposited in the form of a powder; (2) a salt, preferably a salt of ammonia; (3) the electropositive metal. For example, the metal to be deposited is zinc, the mixture employed is made of—

Zinc powder	15 parts by weight
Ammonium sulphate	5 " "
Magnesium powder	1 " "
Chalk	10 " "
Sonstone	25 " "

This powder is moistened with water and rubbed on to the metal which it is desired to plate. It is not necessary to cleanse the metal beforehand, because simply rubbing with the powder effects the cleansing. One might say,—This is not an electro-deposition process, where is the electricity? The magnesium is electropositive to the zinc and as both are powdered we have thousands of little cells; the zinc goes into solution, and is deposited out and finally magnesium sulphate is left in solution. If nickel were to be deposited the powder would contain nickel or nickel-ammonium sulphate, because either the metal or its salt can be employed.

The great advantages of the process are (1) it is not necessary to have an electric installation; (2) it is not necessary to previously carefully cleanse the articles to be plated; (3) a metal can be plated upon a similar metal without first stripping; e.g., a silver-plated spoon which is worn in parts can be replated simply by rubbing the worn parts with the moist mixture; (4) skilled labour not required. In short, it is really a family process of plating. Instead of polishing spoons and other articles, they may have an extra coat of plate put upon them.

The process was experimentally demonstrated at the meeting. Brass bicycle handles and other articles were plated with a bright adherent coating within a few seconds.

—Plans are now under way to hold an exposition of American products in Berlin, during the months of June, July and August, 1910. The projectors, it is said, are receiving the encouragement of the highest officials and prominent citizens of both Germany and the United States. The American Committee, which has been organized with headquarters at 50, Church Street, New York, has already issued a prospectus outlining the scope and practical advantages of the exposition. It is pointed out that the cost of exhibiting will be reduced to a minimum, as the German Government will waive the customs duty on all goods not sold eventually, and the Hamburg-American and North German Lloyd steamship lines will grant a freight reduction of 30 per cent on exhibits both ways. Furthermore, each exhibitor will have to pay only one fee, which will cover space, lighting, decorations, packing, policing, insurance, advertising in the official catalogue, etc. This absence of extras will save the exhibitors considerable expense and annoyance, besides enabling them to calculate their costs accurately in advance.

SOY BEAN TRADE OF MANCHURIA.

With reference to the article on page 207 of the *Indian Trade Journal* of November 25th and to previous notices relative to the bean industry of Manchuria, the following particulars have been furnished by the Acting British Consul-General at Mukden (Mr. R. Willis):—

Up to the year 1907, so far as can be ascertained from the only Customs figures available, viz., those for the port of Newchwang, the export of soy beans from Manchuria did not exceed 120,000 tons annually. During the year 1908 the export rose to approximately 330,000 tons, one half of this was exported from Dairen, and of the remainder 100,000 tons were shipped from Newchwang and 65,000 went out by rail *via* Suifengho en route to Vladivostok. This increase was almost entirely due to the demand from Europe which continued throughout 1909 and seems likely to increase rather than diminish. Taking the Customs figures from October, 1908, to June, 1909, no less than 660,000 tons of beans left Manchuria, 341,000 tons from Dairen, 177,000 from Suifengho, and 142,000 from Newchwang. Beans were still being shipped throughout July and August, so that the total of last year's crop exported may be estimated at between 700,000 and 800,000 tons.

Last season practically the whole of the crop in the Chang Ch'un district, some 250,000 tons, was carried to Dairen and Newchwang—only 5 per cent of the total of the latter port—by the South Manchuria Railway. A certain proportion of this supply is grown to the north of Chang Ch'un, and could be more expeditiously and economically conveyed by the Chinese Eastern Railway. The British and German firms have now, it is understood, come to an arrangement for the storage of beans at points on the Chinese Eastern Railway line, and for their shipment to Vladivostok at rates economically equivalent to those charged by the South Manchurian Railway.

The distance from Vladivostok to Chang Ch'un is 585 miles, whilst that from Chang Ch'un to Dairen is only 438 miles; but this is compensated for by the dealers in the districts north of Chang Ch'un being able to bring their beans to points on the Chinese Eastern Railway, and thus to save the cart hire and expense of carrying the goods to the Chang Ch'un market as they have hitherto done. That this saving may be considerable is evident from the following instance:—Owing to the badness of the roads in Kirin province, it took four men 14 days to bring in beans to Chang Ch'un valued at not more than £2.

The fact that it is economically possible for the Chinese Eastern Railway to compete at Chang Ch'un with the South Manchurian Railway must be of advantage to the exporter, and will lead to the development of the trade should the demand from Europe continue, as there seems every prospect of its doing.

At present prices—say £6 10s. per ton laid down in London—experts estimate that Europe can take

annually no less than 1,000,000 tons of beans, and there is little doubt that at this price the supply would be available.

The bean cake exports in 1908 amounted to 500,000 tons, and from October, 1908, to June, 1909, *i.e.*, the 1908 bean crop—the export rose to 570,000 tons. The native mills, it is stated, only extract from 6 to 7 per cent. of oil from the raw product, and if the demand continues the Chinese will find it more profitable to divert a portion of the beans used in these mills to Europe. There is farther abundant space for development; it is estimated that not more than two-fifths of Kirin province is under cultivation, and considerably less than that proportion in Hei Lung Chiang.

AMERICAN CROPS.

We take the following paragraphs from the Report of the Secretary of Agriculture, United States, for 1909:—

Cotton.

Cotton is now by far the second crop in value, and this year's crop is easily the most valuable one to the farmer that has been produced. With cotton lint selling at 13-7 cents at the farm November 1st, and cotton seedling selling for about \$25 per ton, the lint and seed of this crop are worth about \$50,000,000 to the farmer. No other cotton crop since 1873 has been sold by farmers for as high a price per pound as this one.

There have been three cotton crops of more than 1,350,000 bales of 500 pounds gross weight, the first one being in 1904, and commercial expectations are that the crop of this year will be below the average of the five years preceding.

Sugar.

It is too early to foresee the amount of the beet sugar of this year's campaign, but the indications are about 500,000 short tons, or a greater crop than any before produced. The value of the sugar and of the beet pulp for feeding purposes is about \$17,000,000, an amount that has not been reached in any earlier year.

If the commercial estimate of 364,000 short tons for raw cane sugar is accepted, it is a little below the record of half a dozen years. The value of the cane sugar, molasses, and sirup is placed at \$40,000,000.

With fulfilment of expectations, the entire sugar crop will be about 864,000 tons (refined beet sugar and raw cane sugar), and the value of all sugar, molasses, and sirup, from farm and factory, will reach about \$95,000,000, so that for quantity of total sugar and value of total sugar, molasses, and sirup, this year is a leading one.

Grain Standardization.

The work in grain standardization during the past year has continued to bring forth much valuable information and many data relating to the value

of the factors of quality and condition in fixing commercial grades of grain and the importance to the American public of those grades, as well as of the methods and practices of fixing them. Efforts have been exerted toward bringing about a better understanding of the various phases of the problem of grading commercial grain, and much good has been accomplished. As the possibilities of the work come to be better understood, it is fast gaining the support and co-operation of progressive grain merchants, grain-elevator owners, and grain-carrying railroads, and there is a growing appreciation of the Government's interest in commercial grain problems.

The work of investigating the condition of American cargoes of grain on arrival at European ports during the past three seasons, as mentioned in the last report, has been brought to a conclusion, and the data bearing upon the important phases of that work, together with other information collected which is of value to the grain interests, are now being prepared for publication.

The results of the grain-standardization work are being manifested in many ways, principally in an increased activity among influential grain interests toward bringing about more satisfactory conditions with relation to grain-inspection practices, with the noticeably desirable result that the grain trade generally is beginning to realize the seriousness of the question. The introduction into the grain business by the Department of Agriculture of a quick method for testing moisture in grain has proved an important factor in causing greater care to be taken of corn on the farm, as it has been instrumental in educating the grain buyer and handler with regard to the moisture content and its effect upon grain values. This has no doubt been an active influence in the disappearance of the open-rail corn-crib or pen from the corn belt. Railroad and elevator companies are becoming interested in the work, because of the close relation of some of its phases to a subject of much interest to them, known as "natural shrinkage" in commercial grain.

—There is reason to believe that an understanding has practically been reached on questions recently at issue between the British Conference Lines and the German East Africa Company in reference to the South African freight war. It is understood that one of the salient points of the agreement will provide for the cessation of German participation in trade between British and South African ports; and that, on the other hand, though some of the British lines will continue in the trade between the Continent and South Africa, certain limitations with respect to this service will be made to meet German wishes. Hitherto cargo has been shipped from various ports in England to the Continent and there transhipped to the steamers of the German East African Line, while comparatively lately the vessels of the latter company have also been loading cargo direct at Southampton.

INDIGO SEASON, 1909-1910.

Outturn.

A supplement to their weekly Indigo Report has been issued by Messrs. J. Thomas & Co. and Moran & Co. jointly, and from it we take the particulars below:—

Although Java-Natal is by no means as precarious as a crop as Sumatran, so short was the rainfall of 1908 that from the offset the outlook was poor, the plant suffering heavily from want of moisture; while knowing that there was a deficiency in this respect many planters purposely curtailed their spring sowings of Sumatran. The break of the monsoon found the cultivation stunted and sickly and all hope of a good return from the second cuttings was eliminated by the continued heavy rains. The outturn constitutes a record, being the smallest ever experienced. But so far as Behar is concerned it would be incorrect to draw the inference that this will be further reduced since, although in the face of increased competition planters have gradually been led to reject their less remunerative lands, with the new variety of plant now fairly established, given favourable circumstances the produce return per acre should show a material improvement.

Quality.

The first impression from the boiling samples was that quantity would prove rather better than last year when it will be remembered to have been extremely poor. Certainly there have not been the same number of black and undecided lots. On the other hand, the proportion of coppers has been particularly heavy, and even allowing for the smallness of the outturn fine qualities were extremely scarce and the crop generally has proved far below standard. The grading of the crop compares with last year as follows (excluding Native Indigo):—

	1908.	1909.
	per cent.	per cent.
Standard 150 and over	9	10
Standard 140 and over	16	14
Standard 120 and over	31	36
Standard 105 and over	21	20
Standard 105 and under	18	10
Pieces, etc.	5	10

Distribution.

It will be seen that this coincides very closely with our anticipations of last November. The Eastern buyers would undoubtedly have taken a few hundred chests more on the same basis of value, and the probability of a larger supply next year makes it an interesting problem to what extent a lower range of prices would induce a larger trade in this quarter. Business with Russia fell short of anticipations being to some extent impeded by the scarcity of suitable qualities it being difficult to make attractive offers in the face of the Eastern demand and poor quality. The local requirements amount to about 600 chests which quan-

tity bears a considerable proportion to the whole supply. This outlet has gradually come into greater prominence owing to the decrease in the Madras cultivation. It is most valuable in affording an alternative outlet for the low grade indigo. London receives 664 chests of which some 460 are an arbitrary distribution on the part of producers, and only about 200 chests represent the purchases of the trade. If this total is added to the present stocks, the available supply for the next 12 months is, say, 2,800 chests, without reckoning any possible receipts from other quarters; an examination of last year's returns will show the amount of business that was transacted upon a lower currency than has been ruling here. In estimating that London would have to receive about 700 chests we had not anticipated quite so good a demand, and under the circumstances it would have seemed better to have completed the distribution from here instead of swelling stocks in a part of the world where the demand is less strong.

Prices.

The range of prices ruling was similar to that of 1902, the only marked improvement on last year being on the lower qualities, which, from the closing rates, have experienced an advance of 35 per cent. to 40 per cent. and seeing the scarcity of suitable qualities the Eastern buyers may be considered to have filled their requirements upon a very moderate range.

	Std.	1908.		1909.		Test No.	Basis.
		Open- ing rates.	Closing rates.	Open- ing rates.	Closing rates.		
Fine to Superfine	200	...	...	...	...	70 to 72	
Fine	180	...	...	185	185	70 to 72	
Fine Middling	165	170	170	180	180	67 to 70	
Coloury defective or clean red.	150	160	160	165	170-175	65 to 69	
Limey specky or clean dark red.	140	155	150	155	160-65	62 to 64	
Strong red	140-110	140	120-25	145	150-55	61 to 62	
Fair Coppers	120	135	105	135	140-45	57 to 60	
Common	105	115	90	110	120-25	53 to 55	

—Messrs. Foy, Morgan & Co., in their Report on **East India teak**, state:—It may be safely said that for long logs and planks prices have risen fully 25 per cent. during the last two months, in fact, so far as shippers are concerned, quotations are refused at the moment for long specifications. The outlook is serious. The London Dock stocks have reached a lower point than they have done for 25 years, and inasmuch as supplies in the near future must necessarily be very limited, stocks will in all probability be still further reduced and prices may go even higher.

THE MANUFACTURE OF CACAO BUTTER.

The three cacao products known to commerce, says the *Journal of the Royal Society of Arts*, are cacao butter, cacao powder, and cake chocolate, the manufacture of chocolate requiring skill and knowledge in special degree. The butter is merely the oil or grease of the kernel, usually extracted by pressure, and leaving a residue still containing a certain amount of vegetable fat, which, being ground, as will be explained later, is used in making the beverage commonly known as cocoa. When chocolate is intended to be produced, the carefully-cleaned kernels are crushed into a mass, flavoured, and manipulated according to many methods, and then after an addition of pure cacao butter has been made to the natural contents of the mass, it is pressed into small cakes and sold. The cacao bean is composed in weight of 85 per cent. of kernel and husk and 12 per cent. of shell. The shells and husks are treated chemically in Holland for the production of a low grade butter, the reduction being effected by ether or benzine. According to the American Consul at Hamburg, the kernel, which contains 50 to 55 per cent. of oil, was formerly treated, when the extraction of butter was contemplated, by boiling, roasting, and crushing in ten times its weight in water; the oil then rising to the surface was decanted, and the residue pressed mechanically for the elimination of such butter as it still contained. This method has been abandoned, and the kernels, freed from their envelopes, are now ground to a mass, brought to a temperature of from 140 to 158 degrees Fahrenheit, placed in coarse linen sacks, and finally pressed in steam-heated machines. After this first application of pressure the cacao cake contains from 20 to 35 per cent. of fat; it is then ground and re-pressed until not more than 15 per cent. of the fatty matter remains. The oil or grease which has been extracted is called "cacao butter," which is used chiefly by chocolate manufacturers, and in smaller quantities, in the soap, perfumery, and pharmaceutical industries, in which, owing to its neutral qualities, it is especially valuable. Fresh cacao butter is yellowish-white, but if exposed to light, becomes entirely white, and possesses a mild odour of the cacao and a sweet and agreeable taste. Both taste and odour are eliminated by boiling the fat with absolute alcohol, and in this condition it keeps a long time without getting rancid. It is firm in consistency and melts at from 89 to 95 degrees Fahrenheit, according to quality. Its density varies from 0.890 to 0.900 at 59 degrees Fahrenheit. It is very soluble in ether, ascetic ether, chloroform, and essence of turpentine. It is sometimes adulterated with a mixture of stearine, paraffin, and beef fat. If it is mixed with fatty oils, it melts at a temperature of less than 77 degrees, and if it is mixed with paraffin and beef fat it melts at a temperature in excess of 95 degrees Fahrenheit, and if pure, the point of fusion should not be less than 77 degrees nor more than 86 degrees. The butter having now been withdrawn from the

mass, there remains an oil cake, which is ground into fine powder, and commands a very wide sale. The powder is usually prepared, according to the Dutch method, by the addition of a solution of chemically pure potash. Less frequently soda is used instead, or perhaps a solution of carbonate of ammonium. In ordinary practice the raw beans with their shell might be expected to yield from 40 to 45 per cent. of their weight in butter and 30 per cent. of cacao butter.

NEW REFERENCE BOOKS.

SELL'S DIRECTORY OF REGISTERED TELEGRAPHIC ADDRESSES, 1910.

10½ x 6½, 2,239 pp. Sell. 21s.

THE WORLD ALMANAC AND ENCYCLOPEDIA, 1910.

8 x 5½, 766 pp. New York: The New York World Office.

AN ELEMENTARY LECTURE ON THE THEORY OF LIFE ASSURANCE.

Delivered at a meeting of the Birmingham Insurance Institute, January 11, 1889. By W. J. H. WHITTALL, F.I.A., Second edition, revised. 8½ x 5½, 43 pp. Layton. 2s. net.

AN ELEMENTARY MANUAL OF STATISTICS.

By A. L. BOWLEY, F.S.S., Reader in Statistics in the University of London. 8½ x 5½, 215 pp. (Modern Commercial Text-books for use in Schools and Colleges and for Men of Business. Edited by L. R. DICKSEE, formerly Professor of Accounting at the University of Birmingham; now at the London School of Economics, University of London.) Macdonald and Evans. 5s. net.

FIRE LOSS SETTLEMENTS AND THE CONDITIONS OF FIRE INSURANCE POLICIES.

A handbook for general use. By T. J. MILNES. 7 x 5, 88 pp. Layton. 3s. 6d. net.

RUBBER SHARE HANDBOOK.

Details of Companies owning Rubber and other Produce Properties. Fifth Edition. 7 x 4½, 413 pp. The Financier and Bullionist (Ld.). 2s. net.

GUIDE TO COMMERCIAL CORRESPONDENCE AND OFFICE ROUTINE.

By W. G. PATTON, Commercial Master at Chatham House College, Ramsgate. 7 x 4½, 168 pp. (Primarily for candidates for examinations in these subjects.) Blackie. 1s.

FUEL AND REFRACTORY MATERIALS.

By A. HUMBERT SEXTON, F.I.C., F.C.S., Emeritus Professor of Metallurgy in the Glasgow and West of Scotland Technical College, etc. (Second Edition enlarged.) 7½ x 5, 364 pp. Blackie. 5s. net.

SIMPLE JEWELLERY.

By R. RATHBONE. LL. B. 8½ x 5½, 280 pp. Constable. 6s. net.

THE JOURNAL OF THE INSTITUTE OF METALS.

Volume II, 1909. Edited by G. SHAW SCOTT, M.Sc., Secretary. 8½ x 5½, 342 pp. The Institute of Metals, Carlton House, Westminster, S. W.

RHODES'S DIRECTORY OF PASSENGER STEAMERS, 1910.

PHILIPS'S MODEL ATLAS Philip and Son. 6d. net.

TRADE OF PRINCIPAL COUNTRIES.

THE following summary table has been prepared at the Board of Trade showing the total imports and exports of merchandise of the principal countries for which the particulars can be given up to November, 1909, inclusive, and referring in all cases to the same period, viz., the eleven months ended November. The corresponding figures for 1908 and 1907 are added for comparison:—

	Imports (see NOTE). Eleven months ended November			Exports (Domestic) (see NOTE). Eleven months ended November		
	1907.	1908.	1909.	1907.	1908.	1909.
	£	£	£	£	£	£
Belgium*	130,012,000	115,973,000	123,237,000	97,188,000	87,477,000	92,319,000
France	224,017,000	201,681,000	215,160,000	203,975,000	182,974,000	193,499,000
Spain	34,304,000	34,550,000	34,454,000	33,241,000	32,025,000	32,741,000
Italy	105,403,000	105,104,000	110,794,000	71,074,000	63,547,000	66,546,000
Austria-Hungary	92,574,000	90,199,000	102,471,000	92,030,000	85,703,000	87,999,000
Egypt	24,285,000	23,451,000	20,596,000	24,774,000	17,941,000	22,276,000
United States	277,277,000	209,261,000	278,488,000	352,149,000	321,221,000	318,926,000
Japan	46,330,000	41,166,000	36,829,000	40,552,000	34,584,000	37,475,000
British India	79,098,000	84,806,000	73,742,000	115,793,000	89,632,000	102,634,000
Canada	70,238,000	53,473,000	64,903,000	44,510,000	45,454,000	47,498,000
British South Africa†	25,475,000	26,024,000	26,540,000	43,404,000	40,733,000	45,438,000
United Kingdom	504,658,000	464,885,000	482,264,000	393,463,000	347,818,000	344,590,000

* Value of principal articles only.

† Including Bullion.

A comparison of the total figures for the twelve months ended 31st December is possible for five countries, as follows, viz.:—

	Imports (see NOTE). Twelve months ended December			Exports (Domestic) (see NOTE). Twelve months ended December		
	1907.	1908.	1909.	1907.	1908.	1909.
	£	£	£	£	£	£
Germany	430,044,000	376,514,000	403,936,000	336,557,000	314,606,000	328,473,000
Belgium*	141,564,000	127,257,000	136,397,000	108,176,000	97,374,000	103,876,000
France	248,918,000	225,621,000	238,905,000	223,844,000	202,029,000	220,466,000
United States	296,494,000	232,578,000	307,400,000	394,866,000	360,140,000	354,154,000
United Kingdom	553,866,000	513,330,000	533,375,000	426,035,000	377,104,000	378,379,000

* Value of principal articles only.

The latest figures available as regards other countries from which returns are received by the Board of Trade are as follows:—

	Imports (see NOTE). 1907.			Exports (Domestic) (see NOTE). 1907.		
	1907.	1908.	1909.	1907.	1908.	1909.
	£	£	£	£	£	£
Russia* (10 months)	59,037,000	64,398,000	68,895,000	91,317,000	83,127,000	118,056,000
Switzerland† (9 months)	48,975,000	43,410,000	45,391,000	33,846,000	30,227,000	31,763,000
Mexico‡ (10 months)	21,165,000	14,950,000	14,053,000	22,101,000	18,874,000	20,836,000
Australian Commonwealth‡ (10 months)	42,397,000	41,202,000	41,346,000	52,548,000	45,431,000	45,326,000

* European, Russo-Finnish and Black Sea Frontiers.

† Including bullion.

‡ Including bullion and specie.

NOTE.—The values stated for the latest year shown in the foregoing statements are provisional and subject to rectification. In some cases all the values are those declared by importers or exporters, as in the United Kingdom; in others they are based on an official schedule of values which is subjected to revision after the close of each year, the values used in the current returns being those fixed in the latest completed revision. In general, the values so fixed represent the level of prices in the preceding year. The countries adopting the system of official values annually revised are:—Austria-Hungary, Belgium, France, Italy, Spain, and (for imports) Germany and Switzerland. Exports from Switzerland are returned at declared values, and, since April, 1909, only about one-third of the exports from Germany have been returned at official values, the values of the remainder being declared. The figures in italics are based, wholly or mainly, on the prices of some earlier year than that under which they are shown.

In the case of Russia, Germany, Belgium, France, Switzerland, Italy, Austria-Hungary, Egypt, Japan, Canada, and United Kingdom, the import figures given in the above summaries represent imports for home consumption. In all cases the export figures are intended to represent exports of domestic produce. In most cases, however, they include a certain amount of "nationalised" goods, i.e., goods originally imported for consumption, and which, if dutiable, have been charged with duty, but which are subsequently re-exported.

FOOD-GRAINS AND SALT.

Retail Prices of certain Food-grains and Salt at selected stations for the first half of February, 1910. (Prices are stated in annas and pies per seer of 2.06 lbs.)

	Rice, common	Wheat	Barley	Jawar	Bajra	Ragi	Gram	Salt
	a. p.	a. p.	a. p.	a. p.	a. p.	a. p.	a. p.	a. p.
BURMA—	(a)	...	...	...	...	...	...	(a)
Rangoon	(a)	...	...	...	...	...	...	(a)
Toungoo	(a)	...	...	...	...	...	...	(a)
EASTERN BENGAL AND ASSAM—								
Rangpur	1 4	2 1	...	...	...	...	...	0 11
Backerganj	1 3	...	...	...	...	...	...	0 11
BENGAL—								
Calcutta	1 10	1 11	...	...	...	...	...	0 10
Patna	1 3	1 6	0 11	...	...	...	...	0 10
UNITED PROVINCES—								
Cawnpore	...	1 9	0 11	0 11	1 0	...	0 10	0 9
Fyzabad	...	1 8	0 11	0 11	1 0	...	1 2	0 10
Meerut	...	1 7	0 10	0 11	1 0	...	0 11	0 9
PANJAB—								
Delhi	...	1 7	0 10	0 10	1 0	...	0 11	0 9
Amritsar	...	1 5	0 9	0 11	0 10	...	0 10	0 7
Rawalpindi	...	1 5	0 10	1 0	1 0	...	0 11	0 7
SIND—								
Karachi	...	1 10	...	1 2	1 3	...	1 3	0 7
BOMBAY—								
Belgaum	...	1 7	...	1 1	1 1	...	...	0 9
Ahmadnagar	...	1 10	...	1 0	1 0	...	...	0 11
Bombay	...	2 6	...	1 5	1 5	...	...	0 11
Ahmadabad	...	1 8	...	1 0	1 3	...	...	0 7
CENTRAL PROVINCES—								
Jubbulpore	...	1 8	...	0 11	...	...	1 2	1 0
Nagpur	...	1 4	...	1 1	...	...	1 2	1 0
Raipur	...	1 3	...	...	...	...	1 0	1 0
MADRAS—								
Bellary	1 10	...	...	1 1	...	1 0	...	0 11
Madras	2 3	...	...	...	...	1 3	...	0 7
Salem	2 1	...	...	1 3	1 6	1 2	...	1 0

(a) Not reported yet.

—The year 1907 was characterised by an extraordinary increase in the exports of German embroidery machines—which, however, in the following year was succeeded by a sharper drop than has ever been noted with any other class of textile machinery. During the course of 1909 there was again a marked advance in the exports of German embroidery machines, although not enough to compensate for the abrupt decline in trade noted in 1908. The figures for the past three years have been as follows:—In 1907, 4,300,000 mks., in 1908, 2,600,000 mks., and in 1909, 3,400,000 mks. The chief factor favouring the development of German export trade in these machines is the receptivity of the Swiss market. As is well known, Switzerland enjoys a very extensive "home" industry, and the houses and homes in which embroidery is carried on may be enumerated by thousands. At the close of last year (December 1909) much attention was

called to this house industry and its extent, by the reported introduction of an "automatic embroider," which is not unlikely to do much harm to German trade. The St. Gall embroidery trade is also seriously threatened by this new machine, as it is a labour-saving device which will enormously decrease the chances of employment for hand-embroiders, and owners (or hirers) of machines of the ordinary type. In 1909 Germany sent to Switzerland 1,760 tons of embroidery machines (not including hand machines), whereas the same exports in 1907 were 3,872 tons; in 1907 only 633 tons were packed. In addition to Switzerland, large quantities of German embroidery machines are sent to Austria-Hungary, the United States, etc. Trade in Germany, however, has also varied greatly during the last few years. The exports to Austria were 281 tons in 1909, as against 782 in 1908, while those to the United States were 178 and 768 tons respectively.

INDIAN CUSTOMS REVENUE.

The following statement shows the Total Gross Indian Sea and Land Customs Revenue (excluding Salt Revenue) in thousands of rupees :—

SEA CUSTOMS.	IN THE ELEVEN MONTHS, APRIL TO FEBRUARY, OF									
	1900-01	1901-02	1902-03	1903-04	1904-05	1905-06	1906-07	1907-08	1908-09	1909-10
IMPORTS.										
<i>Special Import Duties.</i>										
Arms, ammunition, and military stores	2,58	3,26	3,28	3,17	3,81	3,77	4,09	5,12	4,81	4,53
Liquors—										
Ale, beer, porter, cider and other fermented liquors	1,85	2,09	2,19	2,30	2,60	2,77	2,80	3,39	4,76	4,88
Spirits and liqueurs	58,72	59,16	63,20	68,21	69,24	84,35	70,66	84,16	86,78	85,75
Wines	3,28	3,19	3,60	3,46	3,37	3,61	3,49	3,61	3,61	3,58
Opium	2	3	3	3	3	3	3	4	3	3
Petroleum	42,82	49,30	49,13	39,41	42,00	33,94	33,89	41,55	47,49	41,45
Sugar (countervailing duties, 1899)	18,87	34,85	16,85	2,11	12	1	1	...	...	1
Sugar (countervailing duties, 1902)	—	—	3,26	19	9	1	...	...	...	...
<i>General Import Duties.</i>										
Articles of food and drink (excluding sugar)	11,98	13,96	13,26	14,21	16,53	17,62	18,09	22,66	24,21	22,30
Sugar (ordinary duties)	27,11	28,75	22,95	26,83	20,88	33,95	41,56	41,00	48,15	51,60
Chemicals, drugs, medicines and narcotics, and dyeing and tanning materials	9,88	10,97	10,84	12,55	12,49	13,11	13,81	16,86	15,29	17,32
Cotton manufactures—										
Piece-goods, grey	44,16	46,67	47,36	41,92	51,14	58,60	58,91	61,54	47,30	55,68
" white	18,22	25,37	15,17	18,38	25,17	26,53	22,66	36,12	25,05	23,70
" coloured	18,28	22,02	20,34	25,10	28,74	30,15	30,31	34,56	31,22	27,70
Other goods	2,34	2,50	2,13	3,38	4,65	5,18	5,55	5,77	5,42	5,78
Metals and manufactures of—										
Silver, bullion and coin	11,25	28,11	34,76	35,01	38,42	25,96	37,76	46,26	60,75	50,78
Other metals and manufactures of metals	19,92	21,25	27,29	30,37	32,21	28,15	31,47	40,38	43,19	41,52
Oils (excluding petroleum)	1,10	1,74	1,29	84	89	1,16	1,74	2,49	1,24	1,13
Manufactured articles	53,29	56,56	55,22	64,25	74,89	75,19	76,91	89,87	87,50	85,23
Raw materials and unmanufactured articles	9,22	8,64	8,11	8,47	9,21	10,90	10,41	13,10	14,87	13,53
TOTAL IMPORTS	3,57,79	4,18,51	4,00,26	3,99,29	4,45,48	4,54,79	4,64,15	5,48,78	5,51,07	5,36,50
EXCISE DUTY ON COTTON GOODS	10,65	15,63	16,34	18,40	20,44	23,89	24,69	28,42	30,12	31,27
EXPORT DUTIES—										
Rice and Rice-flour	70,71	74,25	1,03,47	99,84	1,07,91	97,11	83,94	81,65	62,17	78,37
LAND CUSTOMS AND MISCELLANEOUS	7,03	7,81	7,77	8,44	8,81	8,70	9,38	8,01	9,22	9,22
GRAND TOTAL	4,46,18	5,16,40	5,27,84	5,25,97	5,82,64	5,83,87	5,81,48	6,68,23	6,51,37	6,55,36

—Demonstrations of the working of a porhydrometer, which were recently made in Liverpool, aroused considerable interest and are said to have proved highly satisfactory. The porhydrometer is an instrument for indicating the weight of cargo loaded into or unloaded from a ship. It consists merely of a float or "aerometer," connected to a steelyard weighing machine and immersed in a chamber filled with water, the chamber being in communication with the outside of the ship. The ship rises or falls as the cargo is removed or placed on board, and the level of the water in the chamber falls or rises correspondingly, so that the float is immersed to a greater or less depth, with a consequent alteration in its apparent weight. This alter-

ation in apparent weight is read on the weighing machine, and from it the weight of the cargo is determined. In order that the reading of the apparatus may not be affected by the trim of the ship, it is necessary that it be fixed directly over the keel and in the plane of rotation of the hull, which generally will correspond approximately with the centre of the ship. Also, it is necessary that the over-all length of the float and its chamber be greater than the total vertical movement of the ship between the "light" and the fully loaded conditions. The appliance is of a very simple nature, and there should be no difficulty in fitting it to existing ships. The inventor claims that it has been officially approved by the Italian Government customs.

WEEKLY TRADE MOVEMENTS.

For the week ending 5th March, 1910.

COTTON GOODS.	
Twist and Yarn.	
Foreign—	Calcutta lbs. 155,754
Imports by sea into	Bombay " 155,080
	Madras " 94,150
Indian—	Calcutta " 180,450
Exports by sea from	Bombay " 2,955,280
	Madras " 1,200
Grey Piece Goods.	
Imports by sea from	Calcutta yds. 17,498,761
Foreign ports into	Bombay " 2,117,535
	Karachi " 299,494
	Madras " 675,490
	Rangoon " 109,919
White Piece Goods.	
Imports by sea from	Calcutta yds. 7,310,626
Foreign ports into	Bombay " 3,427,212
	Karachi " 2,936,383
	Madras " 588,709
	Rangoon " 460,391
Other Piece Goods.	
Imports by sea from	Calcutta yds. 3,205,805
Foreign ports into	Bombay " 3,171,006
	Karachi " 1,479,689
	Madras " 609,666
	Rangoon " 1,489,792
Piece Goods.	
(Indian and Foreign.)	
Despatches by rail from	Calcutta cwt. * 24,415
	Bombay " 4,336
	Karachi " 15,840
	Madras " 4,721
Raw Cotton.	
Imports into Bombay	By sea cwt. 1,070
	Coastwise " 34,180
	By rail " 367,000
Imports into Karachi by rail	" 52,686
" " Calcutta by rail and river	" * 10,435

* B-N. Ry. figures not included.

EXPORTS—RUNNING TOTALS INCLUDING FIGURES RECORDED ABOVE.

	FROM APRIL		FROM JANUARY					
	1908.	1909.	1909.	1910.	1909.	1910.	1909.	1910.
	Wheat.		Linseed.		Rape and Mustard Seed.		Cotton Seed.	
Calcutta . . . Cwt.	50,916	3,377,557	68,831	69,190	13,927	137,380	Not reported.	
Bombay . . . "	82,963	2,653,017	138,935	231,556	52,901	159,430	2,977,308	3,904,585
Karachi . . . "	3,864,713	17,225,825	...	...	967,985	2,012,639	Not reported.	

JUTE.	
Arrivals by all routes in Calcutta cwt.	* 227,006
Exports by sea from	Gunny bags No. 12,246,800
	Calcutta " cloth yds. 27,903,400
	Chittagong—Jute cwt. 226,188
COTTON SEEDS.	
Exports by sea from Bombay cwt.	536,448
OIL SEEDS.	
Linseed.	
Imports into	Calcutta by rail and river cwt. * 28,664
	Bombay " By sea " 8
	Coastwise " 2,591
	By rail " 83,353
	Karachi by rail " 23,583
Exports by sea from	Calcutta " 45,434
	Bombay " 45,434
	Karachi " 196,731
Rape and Mustard Seed.	
Imports into	Calcutta by rail and river cwt. * 62,555
	Bombay " By sea " 48,930
	Coastwise " 78,117
	By rail " 14,370
	Karachi by rail " 15,233
Exports by sea from	Bombay " 196,731
	Karachi " 196,731
RICE.	
Arrivals by all routes in Calcutta cwt.	* 418,648
	Calcutta " 188,691
	Chittagong " 7,083
Exports by sea from	Bombay " 30,545
	Karachi " 4
	Madras " 1,024,570
	Rangoon " 1,024,570
TEA.	
Arrivals by all routes in Calcutta lbs.	* 565,010
Exports by sea from	Calcutta " 871,356
	Chittagong " 24,377
WHEAT.	
Imports into	Calcutta by rail and river cwt. * 38,408
	Karachi by rail " 142,390
	Bombay " By sea " 93
	Coastwise " 15,959
	By rail " 24,377
Exports by sea from	Calcutta " 792
	Bombay " 215,144
	Karachi " 215,144

KEROSENE OIL, WEEK ENDING 5th MARCH, 1910.

Imports by sea into—	FROM			TOTAL.
	Russia, galls.	America, galls.	All other foreign countries, galls.	
Calcutta	...	...	...	...
Bombay	...	...	...	...
Karachi	...	...	...	...
Madras	...	...	...	...
Exports by sea from Burma to				
Bengal				770,496
E. B. & Assam				...
Bombay				...
Sind				...
Madras				574,200
Indian Ports, Non-Br.				...
Foreign Ports				243,936

IMPORTS OF SUGAR, WEEK ENDING 5th MARCH, 1910.

Country of Shipment.	REFINED SUGAR IMPORTED, 1870						TOTAL.
	Calcutta.	Chittagong.	Bombay.	Karachi.	Madras.	Rangoon.	
United Kingdom	11	...	56	...	8	3	78
Germany	...	...	...	...	...	...	...
Austria-Hungary	200	...	4,000	40,575	...	...	44,775
Other European Countries	...	...	...	...	...	38	38
Java	29,006	...	5,273	...	...	16	34,295
Mauritius	135	...	82,141	43,853	...	...	126,129
Other Non-European Countries	...	...	37	...	...	...	37
Total refined							205,352
Total unrefined							...
Grand Total							205,352

RESULTS OF AUCTION TEA SALES IN CALCUTTA.

DISTRICTS.	SEASON 1909-10.				SEASON 1908-09.			
	Sold in sale of 2nd March		Sold to 2nd March		Sold in sale of 2nd March.		Sold to 2nd March.	
	Packages.	Average price per lb.	Packages.	Average price per lb.	Packages.	Average price per lb.	Packages.	Average price per lb.
Assam	147	A. P. 7 0	176,220	7 4-2	130	5 11	184,078	6 7-5
Cachar	156	5 2-3	160,878	5 10-2	1,027	4 10-2	140,974	4 11-5
Sylhet	601	5 9-2	114,383	5 9-7	591	4 4-9	112,070	4 11-3
Darjeeling	...	...	61,747	10 0-5	...	...	62,919	8 7-8
Dooars	...	...	192,305	6 10-8	67	5 0-5	185,766	6 0-3
Tera	...	...	17,980	6 3-3	...	...	25,006	5 1-6
Chittagong	...	...	7,964	5 10-4	...	...	7,878	4 11
Chota-Nagpore	...	...	1,901	6 4-4	66	4 6	1,904	5 1-2
Kumaon and Kangra	...	...	3,318	5 8-1	45	5 3	2,266	5 7-7
Madras	...	...	110	5 11-7	16	4 8	185	5 2-3
Dehra Dun	...	...	356	5 11-2	...	...	...	...
Nepal	...	...	608	6 2	...	...	1,003	4 8-1
All other places	...	...	76	5 5	...	...	...	...
TOTAL	904	5 10-4	737,846	6 10-1	1,942	4 9-5	724,049	5 11-8

(The above do not include second-hand Tea, damaged Tea and Dust from those concerns which sell only that grade on this market.)

Season 1909-10 Average price of 46,758 packages Dust* sold to 2nd March 5 4-6

" 1908-09 " 42,859 " " 2nd " 4 11-2

* On account of " gardens which sell only that grade on this market.



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NOTES.

MONEY MARKET.

Wednesday Evening.

PRESIDENCY BANK RATES	Calcutta	7 per cent. (Mar. 3).
	Bombay	7 per cent. (Mar. 3).
	Madras	7 per cent. (Jan. 4).
EXCHANGE	On demand	1-4 $\frac{1}{2}$
	Telegraphic Transfers	1-4 $\frac{1}{2}$
	3 months	1-4 $\frac{1}{2}$
	6 months	1-4 $\frac{1}{2}$
	GOVERNMENT PAPER (3 $\frac{1}{2}$ per cent.)	Rs. 93 $\frac{1}{16}$.

The spot price of wheat at Karachi on the 12th March was Rs. 32-8-0 per candy of 656 lbs. This is for white wheat on a basis of 30 per cent red wheat, 5 per cent barley and 3 per cent dirt; the price of bags included. The price of Indian grey yarn (20's) at Bombay on the 15th March was Re. 0-7-6 to Re. 0-8-0 per lb. and of Muttia Bhawnagar cotton, March delivery, Rs. 266 per candy of 784 lbs.

The wholesale spot prices of the undermentioned articles in Calcutta on the 16th instant were as under :—

Jute—C. D. M. and Co. (Red) Group	Nominal.
per 400 lbs.	
" M. per 400 lbs.	Rs. 33 0 0
Rice—Ballam No. 1 per B. md.	" 4 1 0
" Moonghy "	Nil.
Linseed—Bold 4% per B. md.	Nil.
Rapeseed—Yellow, mixed, bold,	
Cawnpore, 4% per B. md.	" 5 0 0
to "	5 8 0

The Railway Board have accorded general approval to schemes for the proposed Electrification of the Kancharapara and Saidpur workshops of the Eastern Bengal State Railway, pending the preparation of detailed estimates.

The Railway Board have sanctioned a comprehensive estimate for the provision of new machinery and plant, etc., required for the new Carriage and Wagon Workshops of the North-Western Railway at Lahore.

The total approximate gross earnings of State and Guaranteed Railways from 1st April 1909 to 26th February 1910 show a gain of Rs. 2,53,40,872 and Rs. 38,40,341 as compared with the corresponding figures for 1908-1909 and 1907-1908 respectively.

In their weekly report on the Shanghai piece-goods market, dated the 17th ultimo, Messrs. Noel, Murray & Co., Ltd., say:—During the closing days of the past year there was a better feeling and demand for Indian yarn from Szechuen, but this was soon filled by sales from native sources. Dealers began to make their usual New Year calls on 14th instant and sales of a complimentary nature were made to the extent of 3,340 bales. The market closes quiet as dealers do not care to purchase at the present high rates and on the other hand holders will not entertain the low rates offered by the Szechuen and River Ports merchants. The Bombay market is very firm and we fancy sellers could be found here at about two taels per bale below the prices the spinners are asking.

In regard to the possibilities of cotton growing in Adana, His Majesty's Vice-Consul at that place (Major C. H. M. Doughty Wylie) has forwarded the following information respecting the methods adopted by a company in growing cotton there:—A German company is established in the town of Adana whose principal object is to introduce into Cilicia the cultivation of American cotton, or such other long stapled cotton as may be found suitable, for their mills at Chemnitz and Dresden. To this end they have been for some years importing American seed. The company estimate the final cost of the seed to them at about 10 piastres per rotl (about 17s. 9d. per cwt.). It is sold to peasants at 8 piastres per rotl, with six months' credit. If, however, they accept the condition of reselling the harvest to the company at whatever the market price may be on that day, the price is still further reduced to 6 piastres. The company also make large advances to cultivators. About one-sixth of the cotton harvest of Cilicia is at present American cotton. The production increases very slowly chiefly on account of the lack of hands to pick it in the

harvest the necessary number of times; the country cotton is picked on only once in the pod. A dennum (two-fifths of an acre) of American cotton seed will produce on an average 3 batman (51 lbs.) of cotton, as against 2 batman (34 lbs.) from the same area under country seed. The latter seed, however, costs only 2½ piastres per rotl (about 4s. 5d. per cwt.). Raw American cotton is sold at a rather higher price than country (indigenous) cotton. Against this, from the point of view of the farmer, is to be set the cost of labour for picking American cotton.

The following return shows the number of bales of cotton imported and exported at the various ports of the United Kingdom during the week and 7 weeks ended 17th February, 1910:—

	IMPORTS.		EXPORTS.	
	Week ended 17th Feb., 1910.	7 weeks ended 17th Feb., 1910.	Week ended 17th Feb., 1910.	7 weeks ended 17th Feb., 1910.
	Bales.	Bales.	Bales.	Bales.
American	34,454	331,991	4,795	33,160
Brazilian	—	8,164	178	1,267
East Indian	10,195	36,070	791	4,385
Egyptian	8,051	58,182	2,187	18,686
Miscellaneous	784	11,150†	368	1,831
Total	53,484	445,557	8,319	59,379

* Including 536 bales British West Indian, and 13 bales British East African.

† Including 1,243 bales British West Indian, 232 bales British West African, and 2,105 bales British East African.

NOTE.—Cotton "in transit" or "for transhipment under bond," if described as such in the ships' reports, is not included in this return.

In a recent report by the Economic Committee of the German Colonial Association, which co-operates with the authorities at Berlin, the following comments are made on the extension of cotton-growing in German East Africa:—"The conditions for cotton production have essentially improved. Railway construction has been undertaken on a larger scale, and through the extension of the Central Railway and the Usambara line large areas suitable for cotton cultivation have been brought into closer contact with the world's markets. Greater interest is being shown in irrigation. The staff of sanitary and veterinary experts is being steadily increased so as to eradicate cattle disease from the newly opened districts, which is essential to the primary conditions of a possible cultivation. Motor ploughs have lately begun to replace other implements. A Government expert is at work combating parasites and other things injurious to the cotton plant. There are now in German East Africa 17 medium and smaller European plantations having some 5,000 acres in cotton and 24 plantations with approximately 8,000 acres in cotton as a catch

crop. Twelve cotton-planting associations are developing 210,000 acres, planting at the rate of about 20,000 acres per annum. Seven motor ploughs are at work on these lands. There is a steady increase in the production of cotton by natives. The acreage under native cultivation cannot be estimated, since it comprises many small and widely scattered patches. The Committee has announced that it will pay until further notice the following prices per pound for native-grown cotton:—For first quality, unginned, at its inland agencies 1½d., and 1½d. for second quality, or for ginned cotton f. o. b. Hamburg steamer 5-95d. and 5-4d. respectively for first and second qualities." The conditions of purchase for cotton grown on European plantations differ from those referred to above. "The Committee's price quotations for 1909, at which it agreed to purchase cotton grown on German East African European plantations, have been renewed for 1910. The Committee agrees, at the option of the planter, either (1) to dispose of any consigned quantity at the best available price in German markets, free from commission, and remit the proceeds, less ocean freight, insurance, landing charges, railway rates, and petty expenses; or (2) to purchase free at a German East African port any quantity at the following prices:—For ginned cotton of a grade as good or better than Egyptian 'fully good fair,' 4½d. and 3½d. per pound for cotton not up to that grade."

In view of the statement made in the last Report of the British Consul at Smyrna that Indian yarns of low counts had ousted all foreign competitors from the markets in that region it is interesting to take stock of the progress effected in this trade. The following statement shows the value of Indian yarns shipped to the Levant in its wide sense, and to the United Kingdom and Europe in the last five years, the figures for the twelve months of 1909-10 being computed on the basis of those actually recorded in the nine months April to December last:—

	Turkey Asiatic Ports in the Le- vant and Black Sea.	United Kingdom and Europe.
	Rs.	Rs.
1905-06	3,42,763	65,527
1906-07	10,93,302	4,72,734
1907-08	37,35,008	1,11,68,974
1908-09	28,82,502	17,67,234
1909-10	*32,17,191	*5,36,024

*These are 12 months' figures computed on basis of 9 months' returns.

The total value of the trade in the five years is thus Rs. 2,52,81,259 (£1,685,417). If it had continued on the scale recorded in 1905-06 it would have been only Rs. 20,41,450 (£136,097). In other words, the campaign organised by the Commercial Intelligence Department and ably prosecuted by the Millowners of Bombay has increased India's export trade in that direction by an aggregate of Rs. 2,32,39,809 or £1,549,320.

Reports from Munchen-Gladbach state that the cotton spinning industry in that district is in a very unhealthy condition. The position is much worse than in the autumn, and prices are now being accepted which are far from sufficient to cover the cost of production. Manufacturers also are complaining bitterly, particular mention being made of the falling off in orders from calico-printers. Manufacturers with yarn contracts placed at rates below those now ruling are sacrificing the whole of their advantage and more in order to keep going. Weavers of coloured goods are the best employed.

The Corn Trade News gives the following summary of the world's crops as on the 22nd ultimo:—United States of America—Continued complaints damage winter wheat from alternate freezing and thawing, and Modern Miller says damage reports increasing. Weather very cold yesterday, snow cover partial. Primary receipts and stocks maintained. Canada—Cold weather reported. Primary receipts well maintained and larger year ago. India—Seasonable showers fallen in big wheat regions of Upper India, crop prospects continue good. Shipments of old crop wheat from Kurrachee forecasted at 40,000 qrs. per week, till new crop ready. New crop May-June still quoted at good discount. Argentina—Indications yield of last crop unaltered. Shipments quite moderate and steamers loading indicate light quantities near future. Australia—Shipments liberal and list of chartered tonnage indicates further good quantities. Victoria standard 62½ lbs. per bushel. Chili—Only small quantity tonnage chartered load this crop. Russia—Weather very mild south but centre good snow cover. Crop conditions generally considered normal but a report published by Novoje Vremja predicts poor winter crops throughout country. Large receipts reported in interior and some ports get relatively fair quantities although roads in southern region still very bad. Navigation in Azoff reopened and first steamer arrived. Roumania—Weather mild, crop conditions favourable. Business extremely quiet. Bulgaria—Mild rainy weather prevailed recently, crops officially described as satisfactory throughout country. Hungary—Official bulletin dated 15th February gives condition winter seedings satisfactory to good, notwithstanding some insect damage and excessive rains. Spring fieldwork commenced. France—Weather last week wet and much flood water still seen especially in centre. Continued complaints of bad colour and weak plant, especially from North and West, elsewhere conditions described generally satisfactory; much re-ploughing still expected. Market firm owing scanty supplies. Germany—Winter seedings considered satisfactory, native supplies in general scanty, but some increase mentioned in Eastern region. Italy—Crop conditions favourable except in Tuscany where excessive rains had bad effect. Spain—Weather turned rainy last week but centre and south still want good downfall. Servia and European Turkey—Abundant rains

causing some anxiety. *Turkey-in-Asia*—Good seedling time confirmed, area increased. *North Africa*—Even too much rain now fallen, fine weather wanted. *United Kingdom*—Weather too wet, wheat not looking so well and spring sowings delayed.

The prices of British corn per quarter of 8 bushels, as received from the inspectors and officers of Excise in the week ended 19th February, 1910, were as follows:—Wheat, 33s. 0d.; barley, 24s. 6d.; and oats, 18s. 0d.

According to an official statement, Japan has supported a Russian protest made at Peking against the interdict on the export of Manchurian wheat.

The Russian Minister of Commerce has brought forward a Bill in the Duma to extend for a further period of three years the law of January 30th, 1905, dealing with the control of Russian wheat exports, which expires on March 21st, 1910.

The farmers in the Canadian West are great speculators in wheat, and it is estimated that they are holding up nearly 30,000,000 bushels in anticipation of a rise in the price. The fact that they can afford to hold their wheat back from the market is, of course, an evidence of their prosperity, for the poor farmer is only too glad to realise the value of his produce as quickly as he can. Recent advices from Argentina indicate that in that country a similar position of independence has been acquired by the cultivator as a result of good crops and that in most cases he sells when prices suit him.

The International Agricultural Institute has published its second statistical bulletin of the world's crops. The figures of the principal wheat-producing countries are:—

	1909.	1908.
	Quintals.	Quintals.
Germany	37,557,470	37,677,670
Spain	39,218,885	32,650,384
France	98,032,700	86,188,050
Hungary	34,019,888	45,021,468
Russia	213,425,336	154,332,200
Canada	45,251,107	30,140,530
United States of America	193,564,975	175,715,150
Argentina	38,250,000	42,500,860
British India	68,817,470	55,377,302

N.B.—A quintal is 1·068 cwts.

The Annual Report of the Tuticorin Chamber of Commerce has been issued and shows among other things that a new pier of reinforced concrete, 480 feet long, is being constructed, that a further portion of the foreshore is being reclaimed, that the deepening of the inner harbour is proceeding, and that the Customs, railway and general storage accommodation on the foreshore are to be improved. In fact the Chamber hope that in the near future the shipping facilities of the port of Tuticorin will be up to date.

A good deal of attention has recently been drawn to the potentialities of Australia and those interested in this subject would do well to consult the *Victorian Year-Book, 1908-09*, just to hand by the Australian mail. It has been compiled by the Government Statist, who seems to have spared no pains to thoroughly exhaust his subject. At all events, there is hardly a question that one could ask about commercial, financial, official, social, legal, agricultural or other matters that is not answered in the text or illustrated by maps. The book is published by the Government Printer, Melbourne, but the price is not quoted.

The daily prices of opium per chest for the periods mentioned below were as follows:—

For the week ending 12th March, 1910—
In the Calcutta market—

Behar opium—Rs. 2,425; 2,500; 2,465; 2,472; 2,472; 2,544; 2,556.

Benares opium—Rs. 2,420; 2,490; 2,460; 2,465; 2,465; 2,540; 2,550.

The prices in the time bargains for the Behar opium of the 4th sale of 1910 were Rs. 2,430; 2,504; 2,469; 2,476; 2,476; 2,548; 2,560.

In the China market—

At Hongkong—(Exchange Rs. 128½ to 129½ per \$100.)

Behar opium—\$1,910; 1,925 and 1,940; 1,950 and 1,960; 1,950; 1,970 and 1,975; 2,000.

Benares opium—\$1,910; 1,925 and 1,940; 1,950; on the 6th, 7th and 8th instant. On the 11th instant \$1,970 and 1,975.

At Shanghai—(Exchange, Rs. 171 per 100 taels.)

Behar opium—On the 7th instant, 1,475 taels.
Benares opium—On the 7th instant, 1,480 taels.

For the week ending 5th March, 1910—
In the Bombay market—

On the 27th and 28th ultimo (new 1909-10) Rs. 1,350 to 2,300; (new 1908-09) Rs. 1,400 to 2,435; (old 1907-08) Rs. 2,500 to 2,560. From the 1st to 5th instant (new 1909-10) Rs. 1,350 to 2,350; (new 1908-09) Rs. 1,400 to 2,435; (old 1907-08) Rs. 2,500 to 2,560. The latest prices at Hongkong and Shanghai were (new) Rs. 2,369 and 2,397; (old) Rs. 2,420 and 2,467 respectively.

Writing on February 22nd the *Manchester Guardian* says:—The movements in the standard copper

market last week were very insignificant. The market opened on Monday at £59 5s. for cash warrants and closed on Friday at £59 7s. 6d. The total fluctuations up and down are comprised within 10s per ton. The curious point in the situation is that although the market was waiting with eagerness for the statement of the Copper Producers' Association, when it arrived the reception on this side was coldly critical and sceptical. The old distrust of American statistics seems to have revived; but if this be the case it is a little surprising that people here should have shown such anxiety about the receipt of the statistics. The mid-monthly statistics of stocks in Europe again show an increase, and the enormous total of 114,102 tons is such as to give great confidence to those consumers who are working upon a hand-to-mouth policy. There seems no good result to be gained by holding large stocks of copper when consumers can get the financial magnates to hold the stocks for them and pay interest and warehouse rent, and while this situation lasts no one can blame consumers for working their businesses upon the least possible allowance of stock. The set-back in the American trade revival has had also some share in keeping copper from rising.

The use of platinum is required in many industries, and particularly in the chemical and electrical trades, and as it is a rare metal, the question of cost is a serious factor. A substitute has been patented recently which is made by electrolytically coating base metals, such as iron, nickel, cobalt, or their alloys, first with an alloy of platinum and base metal and finally with pure platinum. To coat a piece of nickel wire, for example, the wire is first cleaned by heating to incandescence in hydrogen, and is then placed in an electrolyte which contains amongst its ingredients platinum, chloride, ammonium phosphate, and phosphate of soda, together with nickelous phosphate and sodium pyrophosphate in definite quantities. The wire, thus coated with a platinum-nickel deposit, is heated to about 1,000 degrees C. in hydrogen, when the deposit is welded to its metallic foundation. The wire is again coated with a thin layer of platinum in an electrolyte similar to that mentioned already, with the exception that the nickelous phosphate is omitted. The second platinum coating which results is again welded by heating the wire in hydrogen, and this alternate coating and heating is continued until no oxidation is apparent. It is claimed that the cost of platinised articles is much less than the metal articles themselves, and they can be put to practically the same uses.

The latest bullion circular of Messrs. Samuel Montagu & Co., says the *Manchester Guardian*, contains some interesting statistics relating to the world's production of gold and silver last

year. That of gold is estimated at a value of £94,100,000 as compared with £91,300,000 in 1908, £84,700,000 in 1907, and £82,200,000 in 1906. As regards silver, Mexico is still the biggest producer, the estimate of that country's output last year being 70,000,000 ounces, as compared with a little over 73,500,000 ounces in 1908. The United States is not a long way behind with 53,849,000 ounces, which is an increase of 1,403,200 ounces on the previous year, while the Australian output of 17,000,000 ounces is 175,000 ounces less than in 1908. All other producers, including Canada, gave an output of 68,000,000 ounces, against a little under 60,000,000. The total production is estimated at 213,849,000 ounces, against 203,186,370 ounces in 1908, representing at the average price of each year £21,106,451 and £20,636,116 respectively.

The committee of the Institution of Mining and Metallurgy for the Standardization of Bullion and Assay Values, which was formed for the purpose of recommending rules that should, as far as possible, be followed by assayers, metallurgists, and mining men in reporting the results of assays and of metallurgical, dressing, and other tests of which assays form an essential part, has submitted the following recommendations for adoption by the institution, but before finally adopting them the council will be glad to consider any suggested alterations or additions, which should be received by the secretary not later than June 30th:—(1) Assay reports shall state the exact condition of the sample as to dryness when assayed. (2) Assay values of gold and silver ores and products shall be represented in pennyweights and decimals or in ounces and decimals, and not in ounces, pennyweights, and grains. They shall be expressed in terms of fine gold and fine silver respectively, not as "bullion". (3) Assay values of alluvials shall be reported in grains and decimals of a grain of "fine" gold, or in pence (at 2d. per grain of "fine" gold) or cents per cubic yard. It is recommended that, in the absence of specific information, one cubic yard of ordinary alluvial, excluding boulders, be taken as equivalent to 3,000 lbs. (4) In reporting assay values of cyanide and other solutions the results shall be given in parts by weight in a stated volume of the solution. (In the case of cyanide solutions the use of the "fluid ton of 32 cubic feet" is recommended. It closely approximates to 2,000 lbs., and is in common use.) (5) When it is necessary to state or estimate the money value of an ore, etc. (other than of gold), it shall be accompanied by the assay value, and the basis on which the former has been calculated from the latter, shall be stated. (6) Laboratory sieving tests shall be made with the I. M. M. standard sieves, or, when other sieves are used, the widths of the apertures shall be stated.

In their Report on the Mauritius sugar market, dated February 4th, Messrs. Blyth Brothers & Co.

state;—"Our last advices bear date 10th ultimo and the market continued to be very quiet. Indian traders showing no disposition to buy and planters began to fear that prices would decline materially as there were apparently no buyers at the rates last sold at. The Bombay market also showed no sign of improvement although advices from London indicated a steady market for Beet at improved prices, but we have now to report that a demand for Whites for London suddenly set in and planters being willing to meet that market which meant a certain quantity of sugar being diverted from India about 20,000 have been sold at Rs. 10.15 to Rs. 10.25 to Europeans, but whether the whole quantity is really destined for London is unknown. Natives then offered Rs. 10.25 to Rs. 10.35 and although some sales have been made at the higher figure, planters, as a rule, decided to sell to Europeans at Rs. 10.15 rather than to Natives at Rs. 10.25 or Rs. 10.35, for the latter still hold large stocks which they have not yet paid for. There has also been a better demand for South Africa, chiefly for Finest Whites, and the market has on the whole been active during the past fortnight for all description of sugar except for White Syrups in which little interest is shown. Last season there was keen competition for these sorts for India, but this year it is exactly the opposite. The weather has not been unfavourable for the plantations. A cyclone which passed near the island about "three weeks ago brought with it rain, which did a deal of good."

The annual statement of Lloyd's Register of Shipping states the total addition of steam tonnage during the year 1909 at 791,625 tons gross, and of sailing tonnage at 34,357 tons gross; in all, 825,982 tons gross. Of the tonnage added to the register, about 94 per cent consisted of new vessels, practically all built in the United Kingdom. The largest item among the other additions to the register was that of vessels bought from foreign countries for the United Kingdom—viz., 26,438 tons. The net additions and removals during the last few years have been as follows:—

	Steam.		Sails.		Total.	
	No.	Tons.	No.	Tons.	No.	Tons.
1900	+179	+444,770	-389	-158,292	-210	+286,478
1901	+279	+684,961	-292	-113,916	+77	+571,045
1902	+324	+787,748	-123	-44,394	+201	+743,354
1903	+319	+500,108	-113	-83,179	+206	+416,929
1904	+249	+575,920	-121	-72,167	+128	+503,753
1905	+163	+526,357	-151	-140,860	+12	+385,497
1906	+383	+904,507	-202	-120,951	+181	+783,556
1907	+493	+717,703	-197	-99,833	+296	+617,870
1908	+238	+211,530	-108	-67,762	+130	+143,768
1909	+171	+255,818	-149	-101,608	+31	+151,210

During 1909, the report continues, 17 steamers of over 7,000 tons each were classed, as compared with 17 in 1908, 8 in 1907, 12 in 1906, 14 in 1905, and 15 in 1904. Six of the steamers classed during 1909 were over 10,000 tons each—namely, the *Orvieto*, 12,130 tons; *Osterley*, 12,129 tons; *Otranto*, 12,124 tons; *Otway*, 12,077 tons; *Orsova*, 12,036

tons; and *Mantua*, 10,885 tons. Of the tonnage classed during the year, 637,346 tons, or over 76½ per cent, were built in the United Kingdom. Among foreign countries, Germany contributed the largest amount of tonnage (14 steamers of 52,596 tons), then follow Japan (16,395 tons), Austria-Hungary (24,555 tons), and Holland (23,053 tons).

The *Nachrichten für Handel und Industrie* (Berlin) of 8th February contains particulars, taken from a report by the German Consul at Baku, of the **Baku naphtha industry in 1909**. The total production of naphtha in that year is estimated at 490,000,000 pounds, as compared with 467,310,000 pounds in 1908 and 476,470,000 pounds in 1907. This increase in production was due to more intensive work, in spite of a decreased productivity of the sub-artesian wells. It is estimated that 53,000 fathoms of boring were made in 1909, as compared with 56,871 fathoms in 1908 and 61,253 fathoms in 1907. By far the greater amount of this boring was in deepening wells already begun. The number of new borings decreased greatly; in the first nine months of 1909, 135 new borings were begun, as against 184 in the corresponding period of 1908. The production of naphtha in Binnagadi increased, and was expected to amount for the whole year to 8,000,000 pounds. In the nine months, January-September, over 1,000,000 pounds of naphtha were obtained in Surachany, where the production of natural gas increased while that of white naphtha fell off. The production of naphtha in the island of Swataja was expected to amount for the whole year to 1,500,000 pounds. Of 80 naphtha refineries, 27 were in operation in 1909. In the first nine months of the year, 242,200,000 pounds of crude naphtha were refined, an increase of 900,000 pounds as compared with the first nine months of 1908. The exports of naphtha products from Batoum and Novorossisk amounted in the first nine months of 1908 to 30,000,000 pounds, and in the corresponding period of 1909 to 31,000,000 pounds; the total exports for 1909 are estimated at 42,000,000 pounds. While the exports from Novorossisk have increased, those from Batoum have fallen. According to a statement by the Statistical Bureau of the Baku Naphtha Industry, the production of naphtha in 1910 is estimated at 470,000,000 pounds. A 1,000 pounds = about 16 tons.

The **Hull oil market** during the week ending February 17th quoted as under for the following oils:—**Rape oil** has ruled steady, with Jamba at 25s. 9d.; brown East Indian, 25s. 9d. **Soya oil** has been a fairly firm market, with spot at 26s. 4½d.; March-August, 26s. 9d.; and September-December at 26s. 3d. The exports of soya oil amounted to 566 tons. **Linseed oil** has been quiet and lower. Spot and month is now quoted 31s. 6d.; March-April 31s.; and May-August, 30s. 7½d. The shipments totalled only 30 tons, of which Buenos Ayres took

half. **Cotton oil** has been slow and 10s. down. Refined closes steady for spot and month 27s. 1½d.; March-April, 27s. 7½d.; May-August, 28s.; crude, 25s. 6d. to 25s. 7½d. spot; 26s. March-April. The exports for the week amounted to 139 tons, of which Rotterdam took 23, Bremen 35, Germany 30, New York 22, and Antwerp 20 tons each.

The use of oil fuel in the **United States Navy** has got beyond the experimental stage, says the *Manchester Guardian*, and a Bill has been introduced into the Senate which provides for the creation of a reserve oil-fuel supply for naval purposes. It also authorises the Secretary of the Navy to acquire suitable land adjacent to the oilfields of Oklahoma for the erection of tanks for the reserve oil supply, to establish buying agencies, and obtain all information necessary with regard to the cost per barrel of the oil required and the cost per mile of the pipes laid. This latter clause is rendered necessary to prevent unfair transportation charges, and it is provided in the Bill that if "by combination and conspiracy an unfair transportation charge is demanded for transporting oil from the reserve fuel oil tanks to the service tanks at the coast ports," the Secretary will be empowered to construct a suitable pipe line. Section 5 of the Bill reads as follows:—"The Secretary of the Navy is authorised to purchase, as fast as the market conditions will justify, 25,000,000 barrels of oil for the reserve supply of the United States Navy before the great flood of oil production from the mid-continent oilfield is over, in order that the said 25,000,000 barrels may be acquired as cheaply as possible. The price the Secretary is prepared to pay will be posted at certain fixed places, such price to be without discrimination in favour of or against any oil producer." Meanwhile rumour has been busy in London, and the suddenness with which an active and buoyant market has been created in the shares of well-known and little-known oil companies is remarkable. It is based on the reports, current for some days past, of the British Admiralty having given a big order for oil to be used in the navy. The order is said to be for the supply of 225,000 tons, of which 200,000 will be provided by the Shell Transport Company—a circumstance which probably explains the recent pronounced strength in these shares,—and the rest by the Scottish companies. The following shows the rise in February in the leading oil shares:—

	Feb. 1.	Feb. 21.	Rise.
Assam	13s. 0d.	18s. 9d.	5s. 9d.
Burma	93s. 6d.	102s. 6d.	9s. 0d.
California	5½	6½	1
Lobitos	29s. 0d.	33s. 0d.	4s. 0d.
Pacific	24s. 0d.	29s. 6d.	5s. 6d.
Russian Petroleum	2s. 6d.	3s. 0d.	0s. 6d.
Shell Transport ord.	67s. 3d.	77s. 6d.	10s. 3d.
Spies Petroleum	19s. 6d.	25s. 3d.	5s. 9d.

In a note in our issue of March 3rd (page 257) dealing with the Final General Memorandum on the **Indian rice crop**, it was made to appear, owing to a typographical error, that the value of the crop in 1908-09 was Rs. 2,75,45,44,063, instead of Rs. 2,57,45,44,063. Similarly it was stated that the exceptional yield had added something like Rs. 583 crores to the value of the crop, instead of 5.83 crores.

Applications in respect of the following **new inventions** were filed in the Patent Office, Calcutta, during the week ending 7th March 1910:—A. Bergtheil, electrical engineer, 12, Camomile Street, London, and L. B. Cousins, 7, South Park, Lincoln, England—An improved apparatus for generating a stream of moistened air. R. C. Sayer, engineer, 11, Clyde Road, Redland, Bristol, England—Improvements in and connected with railway, road, water, and like traffic systems. E. A. Wilderspin, manufacturer, London—Improvements in and relating to brazing cast iron and other metals. F. Lehmann, merchant, Claudiustrasse, No. 5 Berlin, N.-W.—Improvements in processes of manufacturing vegetable glue. J. Peart, mechanical engineer, 16, Noble Terrace, Gateshead, England—Improvements in and relating to draw gear for railway and the like vehicles. J. F. Lee, army tutor, Rawalpindi, India—A mono-wheel cart. A. J. Arbuckle, mechanical engineer, 1, Main Street, Belgravia, Transvaal—Improvements in apparatus for the treatment of crushed ore products for the recovery of the metal contents. Midas, Ltd., 73, Leadenhall Street, London—Improvements in or relating to a method of and materials for the production of a coating of polish upon articles of leather and other materials. F. H. Schule, rice-mill engineers, 5, Spark Street, Rangoon—An improved paddy steaming or cooking machine. C. T. Cox, inspector of signals and interlocking, Burma Railways, Rangoon—Checking the action of signals on railways, tramways and the like, against improper use and unauthorised conditions. E. G. Stark, manufacturer, of 41, Schulstrasse, Chamnitz, Germany—Process of treating vegetable fibres known as cotton silks. R. G. Pierpoint, picker maker, Marlfield, Chester, England—Improvements in pickers for looms for weaving. C. B. Walker, electrical engineer, "Amesbury", Alderbrook Road, Warwick, England—Improvements connected with the generation, storage, and use of electric power particularly for lighting purposes. H. W. Handcock and A. H. Dykes, consulting engineers, both of 1, Victoria Street, London, J. J. Rawlings, electrical engineer, 82, Gloucester Road, South Kensington, S. W., and W. Dieselhorst, civil engineer, 182, Victoria Road, Old Charlton, Kent—Improvements in or relating to the sheathing of electrical conductors. E. B. Killen, engineer, 52, Queen Victoria Street, London—Improvements in or relating to endless inwardly flanged steel rims. E. B. Killen, engineer, 52, Queen Victoria Street, London—Improvements in wheels with detachable rims or tyres. E. B. White,

engineer, 1707, Railway Exchange, Chicago—Improvements in systems of and apparatus for washing and refilling locomotive boilers. T. J. Hutchinson, consulting and analytical chemist, 54, Arcade, Chambers, Manchester, and the United Railway and Trading Co., Ltd., 251, Winchester House, London, inventors—Improvements in the treatment of "bagasse" (sugar-cane after the extraction of the sugar). P. G. Porteous, district loco. superintendent, and R. D. Thompson, assistant loco. superintendent, both of Madras and Southern Mahratta Railway Co., of Perambur, Madras—Improvements in or connected with the couplings of railway vehicles. G. A. Spence, mill manager, Titaghur, House, Titaghur, India—Improvements in apparatus for combing or carding jute and other fibres.

The comparative statement below shows the exports of coffee (in lbs.) by sea from Travancore and Cochin during the years 1908 and 1909 :—

To Ports,	From Travancore,		From Cochin,		Total.	
	1908.	1909.	1908.	1909.	1908.	1909.
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
Foreign—London	...	3	...	...	...	...
Indian—Tinnevely (by land)	713,784	399,449	...	...	713,784	399,448
Indian—Cochin (by backwater)	1,858	303	...	...	1,858	303

At the Annual General Meeting of the Jute Fabric Shippers' Association in Calcutta on the 8th instant the Chairman announced that the Jute Mills' Association had agreed to guarantee measurements of standard bales for at least six months, and he hoped that, at the expiry of that period, jute mills would find this arrangement satisfactory and make it permanent. The question of delivery orders, he said, had been a source of great worry to gunny shippers for years. The Calcutta High Court had now ruled, however, that delivery orders, as issued at present, are negotiable, and he hoped that this judgment would settle the matter once for all. As regards Australian shipments, this was a question for the new Committee to pursue; but he suggested that united action on the part of shippers would force the shipping companies to be more reasonable. They had protested most strongly against the recent notice of the Joint Lines to South Africa intimating an increase in rates from 1st April. When shippers first agreed to support the Line, one of the strong points was that there would be no rebates, but this system was to be established. He would like to see the Association taking strong measures to abolish rebates altogether. A good deal of trouble and loss to shippers had been caused by the

new regulations issued by the Chilean Consul intimating an increase in charge to come into force at once. A representation had been made to the proper authority and was receiving attention. The Report was adopted and the following Committee elected:—Messrs. J. F. Burton; S. C. Demetriadi, J. D. Guise, R. M. Guernsey and R. B. Wilson.

During the quarter ending June, 1909, the value of goods that passed through the Customs at Mohammerah was 579,855 tomans or an increase of 95,910 tomans over the figures of the previous quarter. A toman is equal to 10 kran, and 57½ kran equal £1. The increase is probably due to the insecurity of the Bushire route and the consequent deflection of trade. Exchange during the period in question ranged between 56 to 57½ kran to the £, and the tendency was upward. The price of wheat was 48 kran per sack of two maunds, but there was no surplus for export. This season's date crop is considered likely to be the best for a decade and 50 per cent better than the previous season's crop. The imports of sugar from India (chiefly Austrian) were valued at £10,302 against only £4,231 during the corresponding quarter of 1908. It is thought probable that a good portion of the increased imports was destined for Ispahan. The imports of cotton tissues from India amounted in value to £14,318 against nil in the previous quarter and £9,339 in the corresponding quarter of 1908. There was also a large increase in tea as well as in metals and metal manufactures. The former is said to be accounted for by an increased demand from Ispahan; while the Anglo-Persian Oil Company are believed to be largely responsible for the latter. Openings for trade in this part of the Persian Gulf are not many, but there would now appear to be a demand for cheap kerosene lamps, which would serve the double purpose of improving existing lighting arrangements and stimulating the consumption of oil.

A test was recently made by Captain H. R. Sankey, R.E., at the works of a British firm (whose name may be ascertained on application to this office) upon a new semi-stationary compound engine. The results showed a consumption of 1.21 lb. of Welsh coal per b. h. p.-hour when the engine was developing 58.2 i. h. p. and running at a speed of 201.5 revolutions a minute. During the test, which extended over 6½ hours, the boiler pressure averaged 178 lb., with a superheat of 158 deg. F., while the feed-water was heated to 112.5 deg. F., and a vacuum maintained equivalent to 2.87 lb. absolute. This engine represents a new type brought out by the firm in question to compete with gas engines working with producers. It is mounted on the top of a cylindrical boiler by means of a pressed steel saddle and brackets riveted to the shell. Steam jacketing is employed for both cylinders, and a superheater is arranged in the upper part of the

smoke-box. The furnace is of the cylindrical corrugated type, and may be withdrawn with the tubes for cleaning. Vertical air and feed pumps driven by an eccentric are mounted at one side of the boiler, together with a jet condenser.

The Consul General for France in Calcutta points out that the International Congress of the wine, cider, spirits and liqueur trades has resolved to hold its next sitting at Brussels so as to coincide with the Universal Exhibition to be held in that city next month.

Information has reached the Government of India, that a proclamation has been issued by the Government of the United States admitting the Indian Empire and Aden to the benefit of the minimum tariff under the new Customs Tariff of the States.

In our issue of the 10th instant (page 291), it was stated that the Financial Secretary, War Office, Cairo, is calling for tenders for 20,000 Indian Grain sacks. That officer now writes to say that tenders will be received up to the 10th May, instead of 18th April, as previously arranged.

With effect from the 1st proximo telegraphic money orders may be issued from any post office in India (including Burma) for the head post office at Aden or from the head post office at Aden for any post office in India (including Burma).

A report issued by the Sudan Government for January states:—"Good reports continue to be received about the cotton crop. Some cultivators have already collected a small amount of cotton, but on the whole, the crop is more backward than usual on account of the late floods in September." The figures below show the exports of sesame from January 1st to December 31st, 1909. It will be noticed that Port Sudan did 5,955,167 kilos and £E60,146 out of the total :—

Countries exported to	TOTAL.	
	Kilos.	Value.
Austria	830,416	8,204
Belgium	77,174	772
Egypt	4,545,027	45,944
France	605,167	6,454
Great Britain	90	2
Greece	14,445	145
Italy	810	9
India and Aden	153,041	1,483
Turkey North	755	8
Turkey South	4,506	41
TOTAL	6,231,431	63,062

NOTICES.

ENQUIRIES.

(For particulars address the Director-General of Commercial Intelligence, 5, Olive Street, Calcutta.

An asterisk (*) preceding an enquiry indicates that bank references are offered.)

Hair, Bristles, Bone Dust, etc.

(615)—An Antwerp firm desires to be placed in communication with shippers of bone dust, cattle sinews, cattle and goat hair, bristles, dried blood, horns, horn tips and glue stock.

BOOKS OF REFERENCE.

The following publications have been received and may be consulted by any desirous of studying them at the Office of the Director-General of Commercial Intelligence, 5, Clive Street, where they will be displayed in the ante-room till Wednesday, the 23rd March, 1910 :—

Parliamentary Publications.

The Annual Local Taxation Returns, 1906-07.—Part VIII—Summary and Index. Municipal Trading (United Kingdom)—Part IV—Particulars furnished by the London County Council, the Corporation of the City of London, and the Council of each Metropolitan Borough.

Foreign and Colonial Publications.

Australia—Statistical Register, Western Australia, 1908, and Previous years, Part IV—Interchange; of the State of Victoria for 1908—Part X—Production. Canada—Laboratory of the Inland Revenue Department—Bulletin No. 196—Ale and Lager Beer; Evidence of Dr. C. Gordon Hewitt, Dominion Entomologist before the Select Standing Committee on Agriculture and Colonization, 1909-10; of Dr. William Saunders, C.M.G., Director, Dominion Experimental Farms, etc., 1909-10. Ceylon—Customs Returns, January 1910. Egypt—Bulletin Mensuel du Commerce Extérieur de L'Egypte—No. 1, Janvier 1910. Germany—Monthly Accounts of Trade, January, 1910. Italy—Bulletin of Agricultural Statistics, February 1910.—Vol. 1. Netherlands—Statistiek van het Keninkrijk der Nederlanden, Januari 1910. Russia—Commerce Extérieur de la Russie,—Par la Frontière d'Europe, 1 Janvier—1 Decembre 1909. Switzerland—Schweizerische Handelsstatistik—Provisorische Zusammenstellung des Specialhandels der Schweiz im Jahre 1909.—Statistique du Commerce de la Suisse.

Indian Publications.

Punjab—Forest Administration in—Progress Report for 1908-1909. Calcutta—Tea Traders' Association—Proceedings of the Twenty-Third Annual General Meeting of Members held at the Bengal Chamber of Commerce on Monday, the 31st January, 1910; Report of the Committee for the year ended 31st December, 1909.

BUSINESS NOTICE.

All correspondence and remittances relating to the supply of the "INDIAN TRADE JOURNAL" should be forwarded to the Superintendent, Government Printing, India, Calcutta, to whom all bills are payable.

Correspondence regarding advertisements in the "INDIAN TRADE JOURNAL" should be addressed to Reuter's Telegram Co., Ltd.; but all advertisements, blocks, etc., must be approved by the Director-General of Commercial Intelligence before insertion.

Retail trade advertisements cannot be accepted.

A full index is published as a quarterly supplement and should be filed for reference.

The annual rates of subscription to the "INDIAN TRADE JOURNAL" including quarterly index, are Indian, without postage, Rs. 12; with postage, Rs. 13; Foreign, Rs. 18. Single copies, 4 annas.

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The Indian agents of the "INDIAN TRADE JOURNAL" are:—Messrs. Thacker, Spink & Co., and Newman & Co., Calcutta; D. B. Taraporevala, Sons & Co., Bombay; Higginbotham & Co., G. A. Natesan & Co., and Kalyanarama Iyer & Co., Madras; Thacker, Spink & Co., Simla; Rai Sahib M. Gulab Singh & Sons, Lahore; and A. M. & J. Ferguson, Ceylon.

The Indian Trade Journal.

THURSDAY, MARCH 17, 1910.

MANUFACTURE OF INDUSTRIAL ALCOHOL.

It has often been asserted that cheap alcohol will prove an important factor in the commercial development of India, and a similar view seems to be current in regard to the development of the United States wherein there is a law now in force, commonly known as the "Denatured Alcohol Law," the object of which is to reduce the price of industrial alcohol to the consumer. The United States Government have since followed this law up by publishing a book (Bureau of Chemistry—Bulletin No. 130) on the *Manufacture of Denatured Alcohol*, based on the operations of an experimental Government still at Washington and a course of lectures delivered in connection therewith. The subject is far too large and complex to be dealt with in the course of a newspaper article and those interested in the details of the manufacture of alcohol are referred to the book itself, which may be obtained direct for a few annas from the Government Print-

ing Office, Washington, U. S. A., or through any bookseller. But as some doubt appears to exist as to which raw materials may be used for the manufacture of alcohol, we propose to confine the present article to a survey of such materials as may possibly be used for that purpose, confining that survey to vegetable substances produced, or which could probably be produced, in India and basing it on the facts ascertained in the experiments at Washington as recorded in the book before us.

The raw materials for the manufacture of alcohol may be divided into two classes, according as their carbohydrate constituent is of a saccharine or a starchy nature. Saccharine materials may be dealt with first, and, in this class, several varieties of **agave** have long been used in Mexico and in the south-western part of the United States in the preparation of alcoholic beverages, both fermented and distilled. Attempts also have been made within the last few years to utilize this material in the manufacture of industrial alcohol, but so far they have not been attended with success. The problems involved are being studied at the present time in several laboratories. And what is said regarding **agave** applies also to **cactus**.

Sorghum is a material which seems to deserve considerable attention in connection with the manufacture of industrial alcohol on account of the readiness with which it is grown, the extent of the territory in which it flourishes, and the large amount of sugar which certain varieties contain. Much experimental work has been done in the United States since 1878 with the view of developing the manufacture of **sugar from sorghum**. Success in this direction has been retarded by the fact that the large proportion of gums and slimy bodies contained in sorghum juice interferes with the crystallization of the sugar to a very serious extent. These gums, however, do not appear to interfere with the utilization of the juice through fermentation. In order to obtain from the cane a material which can be fermented in the distillery it is necessary either to express the juice by heavy pressure in roller mills or to extract it by the diffusion process, which is familiar from its use in beet-sugar factories. The stalk of the plant is much softer than that of sugarcane, so that the juice may be expressed with a lighter mill than is usually used in a cane-sugar factory. A horse-driven mill will easily express 60 per cent of the juice, and with improved mills, such as are used in cane-sugar manufacture, the extraction will exceed that of cane. It is, in fact,

considered fair to count upon an average extraction of juice corresponding to 65 per cent of the weight of the topped and cleaned sorghum stalks. With a juice expression of 65 per cent and a sugar content in the juice corresponding to 13.86 per cent of dextrose, a yield of 13.4 gallons of alcohol per ton of cleaned stalks would be obtained. On this basis, cleaned sorghum stalks delivered at a distillery at, say, Rs. 9-8 per ton would furnish the raw material for a gallon of 180° alcohol at an approximate cost of Rs. 0-11-6.

Under ordinary conditions **sugarcane** is too valuable a material to be used in the manufacture of industrial alcohol, but at times, as, for example, when canes have been damaged, it may be as profitable to make them into alcohol as into sugar, providing that suitable facilities for distillation are available. When pressed between heavy rollers the cane yields from 60 to 65 per cent of its weight in juice on the first pressing, and from 7 to 12 per cent more on the second pressing. It may be presumed that 72 per cent of the total weight of the cane may be obtained in the form of juice by two pressings, leaving 28 per cent of the weight of the cane in the bagasse. The composition of this cane juice varies quite widely, according to the locality and the season. On the assumption that 72 per cent of the cane can be obtained in the form of juice, that the juice contains 15.4 per cent of sugar calculated as dextrose, and that 13.3 pounds of dextrose will yield a gallon of alcohol at 180° proof, we should obtain from a ton of cane 16.7 gallons of alcohol. If cane is worth at the factory, say, from Rs. 9-8 to Rs. 10-4 per ton, this would make the cost of the raw material for the alcohol about Rs. 0-9-6 per gallon.

Cane molasses is very largely used the world over as a raw material for alcohol manufacture, and, so far as ease of manipulation is concerned, it unquestionably surpasses any other known material. Also, in the past, it has been the cheapest material available. Ordinarily it contains both sucrose and reducing sugar in varying proportions. Such grades as have been used by distillers usually contain between 55 and 60 per cent of total sugars, calculated as glucose. A ton of such molasses, having a volume of approximately 170 gallons, should yield between 80 and 90 gallons of alcohol at 180° proof. The amount required to produce a gallon of alcohol at 180° proof costs on an average about Rs. 0-11-0.

Turning now to starchy materials, it is hardly

necessary to point out that these contain an essential part of their fermentable matter in the form of starch, though some of them, like artichokes and sweet potatoes, also contain material proportions of sugars. The members of this class differ from those of the preceding group in that they require a preliminary treatment, known as mashing, to convert their starch into a fermentable sugar. This process of starch conversion is chiefly effected by a ferment obtained from malt.

The root of the **sweet cassava** is a promising raw material. The mean of a large number of analyses made shows it to contain about 65 per cent of moisture and 23 per cent of starch and sugars. A ton of root having this composition should yield about 38 gallons of alcohol at 180°. The raw material would cost about Rs. 0-7-6 per gallon of alcohol.

Potatoes offer, in regions where large quantities are to be had, a very desirable material for alcohol production. With an average starch content of 18 per cent they should yield about 29 gallons of alcohol per ton. The cost of raw material for a gallon of alcohol would be about Rs. 0-7-0.

Sweet potatoes contain a considerably larger amount of fermentable matter than the common potato, much of it in the form of sugar; but, on account of their irregular form and the difficulty of removing the culls save by hand labour, they would probably be a more expensive material. With a content of 26.8 per cent of fermentable substances 1 ton should produce about 38 gallons of alcohol, costing for raw material about Rs. 0-10-6 per gallon.

Barley, under present conditions, is too expensive to be used as a source of alcohol, save in the preparation of malt. It contains about 65 per cent of fermentable matter; and 1 ton should produce about 98 gallons of alcohol, at a cost of Rs. 0-14-0 per gallon for the material.

Maize is, and for many years has been, the chief raw material for alcohol production in the United States. Dry maize of good quality should contain at least 65 per cent of sugars and starch, and should yield from 98 to 105 gallons of 180° alcohol per ton (shelled). It represents a cost of about Rs. 0-12-6 per gallon of alcohol.

Oats is not very well suited to distillery use, because of the glutinous nature of the mixture which is formed when it is treated with hot water. It contains about 50 per cent of fermentable substance and might be made to yield about 70 gallons of

alcohol per ton. The raw material for a gallon of spirit would cost about Rs. 0-15-6.

Rye is very largely used in distilleries which produce certain types of potable spirit, or compressed yeast; and it also is used in relatively small amounts in the yeast mashers of alcohol distilleries. It is not suited to use as the chief ingredient of the mash in an alcohol distillery, on account of the tenacious quality of the mash which it forms. Furthermore, it gives a low yield in proportion to the amount of starch which it contains. Though it usually contains over 60 per cent of fermentable matters, it rarely produces over 85 gallons of alcohol to the ton. This represents a cost of about Rs. 1-1-0 per gallon for raw material.

What is said regarding the yield of alcohol to be obtained from rye probably applies equally well to **wheat**. The latter grain has not been much used in distilleries, even in the past when it was relatively cheap. At present prices it is hardly available as an alcohol material.

—A commission has just been appointed by the **Russian** Minister for Commerce and Industry to inquire into the question of **trusts and cartels** in that country. The matter was first brought forward in 1908 as a result of the proposed formation of the South Russian Iron Trust, with a capital of 170 million roubles. A very active press agitation was commenced against the proposed combination, which, owing to dissensions amongst the firms concerned, was not carried through. The question of trust was brought to the notice of the Imperial Duma, who decided to refer it to a Commission, but for various reasons nothing was actually done. A rather different view is now taken, and there is a decided tendency to regard trusts and syndicates as a necessary development in industrial life. Cartels, as distinct from trusts, have made considerable progress in recent years. A considerable impetus was given to the movement by the formation of the iron cartels "Prodmeti" in 1902, and there are now no less than twenty-two cartels connected with the various branches of the Russian iron and steel trade. No direct complaints against any action of the cartels appear to have been made by private consumers, though the Government have not been altogether satisfied and have threatened the Prodmeti to place orders abroad unless prices were reduced, whilst they refuse to place contracts with firms in the South Russian Coal Syndicate. It is generally admitted, however, that the law of the country on the subject of trusts and cartels is inadequate for modern conditions, and it is hoped the new Commission will later suggest the necessary reforms.

TARIFF CHANGES AND CUSTOMS NOTIFICATIONS.

The *Board of Trade Journal*, published on the 24th ultimo, in the section relating to Tariff Changes and Customs Regulations, gives particulars about:—

DOMINION OF CANADA—GERMANY.—Reciprocal Agreement, Abolition of Surtax on German Goods imported into Canada.

COMMONWEALTH OF AUSTRALIA.—Commerce Act: Declarations required for "Grey" Material finished off on the Continent. Commerce Act: Amended Import Regulations. Customs Decision respecting Ships' Machinery, etc. Examination of Goods sent to Moama. Sight Entries. Free Importation of certain "Minor Articles."

NATAL.—Regulations respecting the introduction of Bees, etc.

ORANGE RIVER COLONY.—Prohibition of the Importation of Honey, Beeswax, etc. Amendment of Customs Union Regulations.

SARAWAK.—Reduction of Export Duty on Plantation Rubber.

BRITISH EAST AFRICA PROTECTORATE.—Export Tariff Valuations.

SIERRA LEONE.—Revised Import List; Description of Goods in Bills of Entry. Free Importation of Articles for Garrison, etc., Institutes.

GOLD COAST: NORTHERN TERRITORIES.—Regulations respecting Importation, etc., of Arms and Ammunition.

GAMBIA.—Free Importation of certain Consular Goods.

EGYPT.—Revised Valuation Tariff for Cotton Tissues.

TUNIS.—Duty on Oils for Soap Factories.

SPAIN.—Abolition of the Transport Tax on certain Articles.

ROUMANIA.—Tariff Classification of certain Cotton in Sheets.

UNITED STATES OF AMERICA.—Application of the "Minimum" Tariff to Imports from certain Countries.

MEXICO.—Temporary Reduction of Customs Duty on Wheat.

COLOMBIA.—Consular Certification of Invoices etc.

VENEZUELA.—Customs Classifications.

BRAZIL.—Surtax on Imports through Maceio.

URUGUAY.—Valuation Tariff for Electrical Goods.

PARAGUAY.—Revised Valuation Tariff.

CHINA (MANCHURIA).—Opening of further Customs Houses.

—There is a proposal on foot to start a joint factory to manufacture shellac and wood spirit in Mysore, the spirit to be used for refining purposes.

OIL AND SHELLAC MARKETS.

In the course of an article in its issue of February 26th, the *Ironmonger* says:—The general character of the oil markets throughout February has been strong, and where the prices were high they have been sustained with very moderate fluctuations during the month. Paints, varnishes and colours have had a dull time, and the volume of sales is only now beginning to show some improvement. Retailers of tinned paints and enamels ought now to be getting in their supplies, because there is always a great household demand at Easter, and this festival occurs very early in 1910. The buying of these materials is perhaps responsible for the more cheerful reports of the paint and oil travellers during the last few days.

Linseed Oil.

The market for linseed oil opened the month at £32 10s. in London and £31 7s. 6d. in Hull, and as we write the prices are respectively £32 15s. and £31 12s. 6d. At no time has the market dropped below £32 in London, so that the movements have been very trifling, especially when we take into consideration the fact that the level of prices is far above an average. There were people who at the beginning of February confidently predicted a rise of a further £6 to £8 in linseed oil on the theory that the supply of seed was short, that America would take some of our usual supplies of Argentine seed, and that the crushing mills were making more profit out of Soya beans than out of linseed, and would therefore produce less of the latter. These factors are, of course, of importance, and they have helped to raise linseed oil to its present place; but whether they have driving force enough to send it to £40 per ton is another question. The present price is quite high enough to cause much restriction in the use of pure linseed oil in the paint trade, and especially in paint manufacture. This is seen in the price lists of makers. One may note, for instance, that ready mixed paints in 4-lb. and 7-lb. tins can be supplied at 24s. per cwt., and that by reputable makers. How much linseed oil at 32s. and turpentine at 42s. will be found in the vehicle employed for making these paints? There is also a great diminution in the use of pure linseed oil wherever low-priced decorating contracts are taken, or cheap house property is being put up. Substitute makers are, of course, having a good time in consequence.

	1906.	1907.	1908.	1909.	1910.
Imports of seed	Qrs.	Qrs.	Qrs.	Qrs.	Qrs.
93,153	111,131	97,306	90,385	74,870	

Price of oil.
Feb. 1. £21 17s. 6d. £21 17s. 6d. £23 5s. £21 7s. 6d. £22 10s.
The arrivals for the opening month of the year are certainly rather small, but it would be unsafe to rely much upon these figures, which may easily be altered very much before the spring is over.

Cotton Oil.

So far as the ordinary soap-making qualities of cotton oil are concerned the market has been almost without feature during the month. Hull oil is

quoted now at the same price as at the end of January, and the movements have been confined within 7s. 6d. per ton. The market for the edible oils has been subject to more doubt. The trouble, of course, is to know exactly what is going on in America, and whether the speculators who were controlling cotton oil were likely to continue their operations. Prime summer yellow American oil has therefore been irregular, sometimes fetching as much as £37 10s., and at other times as little as £35, according to the feeling of the market. About £36 is the spot value as we write. At this price there is really no temptation to lay in stocks of edible oil for the fish-frying trade, and it seems better and safer to buy from hand to mouth, although the American "bull" party declare that the price will be at least £40 before any new-crop oil can come into the market. We are rather inclined to place reliance upon the stimulating effect of high prices for cotton-seed upon the Indian cultivator; and it may be pointed out that the January arrivals of cotton-seed from "Countries other than Egypt"—i.e., principally from India—are enormously greater than they have ever been. If they should continue at the present rate the market for cotton oil will be swamped. The following are the figures:—

	1906.	1907.	1908.	1909.	1910.
	Tons.	Tons.	Tons.	Tons.	Tons.
Imports from Egypt	40,892	63,903	80,004	59,182	38,559
Other countries	17,889	18,880	15,569	22,932	60,672
Total	58,781	82,783	95,573	82,114	99,231

Price of oil.
February 1st. £17 7s. 6d. £24 15s. £22 5s. £25 £27 5s.
The Egyptian figures reflect the shortage of the cotton crop this season.

Rape Oil.

The market for rape oil has disappointed expectations, and has been very quiet and at times rather flat during February. There is no appreciable difference in the value of English rape, but Stettin colza has been sold at about £1 per ton less money. The dulness of rape and castor oils is a continuously strong market for all other oils is a curious feature, but it is probably connected—certainly in the case of castor oil—with the disorganisation of the textile trades. Rape-seed statistics for January are as under:—

	1906.	1907.	1908.	1909.	1910.
	Qrs.	Qrs.	Qrs.	Qrs.	Qrs.
Imports of seed	15,199	12,132	19,429	9,528	10,025

Prices of oil.
Feb. 1st. £26 £31 £35 £29 10s. £29

Turpentine.

The market for turpentine, from being one of the most erratic of the whole group of oil and paint markets, has now become one of the most stable. The price has altered very little during February, and as we write American spirits are about 5s. per ton dearer than they were at the end of January. Compared with other markets, turpentine at £40, or thereabouts, is not extravagantly high.

	1906.	1907.	1908.	1909.	1910.
	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
Imports of turps.	36,602	44,511	48,810	27,001	48,332
Price Feb. 1st	£47 10s.	£51 15s.	£37	£30 10s.	£41 12s. 6d.

BOMBAY PORT TRUST.

A Retrospect.

THE Budget Estimates of the Bombay Port Trust for 1910-11 have been issued. They show that, excluding the rebate, the gross revenue under all heads is estimated at Rs. 83,64,447, or Rs. 5½ lakhs more than the Budget Estimates for 1909-10. The increase includes a sum of Rs. 97,597 withdrawn from accumulated depreciation funds for the purchase of a new Pilot Schooner so that the actual increase is, say, Rs. 4¼ lakhs.

The Expenditure on Revenue Account is estimated in the aggregate at Rs. 72,33,684 or Rs. 2,42,185 in excess of the Estimate for 1909-10. This increase is accounted for to the extent of Rs. 1,00,000 by the provision made for the purchase of a new Pilot Schooner already referred to. New works chargeable to revenue including contingent works are provided for to the extent of Rs. 1,39,038. Under Municipal rates an increase in the General Tax of Rs. 29,000 is allowed for and also an increase of Rs. 8,000 in the amount of the Trustees' contribution towards the maintenance of St. George's Hospital. Provision is made for the first time in the Estimates for the supply of labour for handling goods at the Docks departmentally in consequence of the Contractors Messrs. Hajee Cassam Kurumsee and Dadabhoi, who for so many years have carried on the work satisfactorily, terminating their contract.

The Estimates as thus framed show a surplus, without allowance for any rebate, of Rs. 11,30,763.

The Committee recommend that the existing rebate of 12½ per cent on Bunder Wharfage fees, Dock dues on goods, Port dues and Water-supply to shipping be continued during the year 1910-11.

The Estimates provide for a total expenditure under Capital of Rs. 1,08,67,000 namely:—

	Rs.
Section (i) New Works (ordinary)	11,17,000
" (ii) New Docks Construction	69,53,000
" (iii) Mazagon-Sewri Reclamation	27,97,000
	1,08,67,000

Provision is made for borrowing Rs. 131 lakhs in all to cover this outlay and allow a margin for expenditure after 31st March 1911, pending the raising of further loans in that year. It will probably be convenient to raise say 100 lakhs of this amount in sterling in London and the balance locally.

The recent congestion in Railway traffic owing to the defective goods terminal arrangements in Bombay has strongly emphasized the need for pressing on the Mazagon-Sewri Reclamation which will afford the required increased accommodation for the Cotton, Grain and Seeds and other Export Trades. No pains are being spared to push on these works and also the New Docks, there being likewise great pressure on the wharf space available for loading vessels.

Sir Walter Hughes is about to retire from the Bombay Port Trust and thus sums up his stewardship:—

As this is the last Budget I shall have the privilege of submitting, I avail myself of the opportunity to indulge in a brief retrospect. I became Chairman in June 1892, or shortly after the close of the year 1891-92. Allowing for two years (November 1898 to December 1900) spent as Chairman of the Improvement Trust, my term of office in the Port Trust consequently covers a period of 16 out of the last 18 years. The year 1891-92 was remarkable for unusual activity in the export of wheat from Bombay (it still holds the record under that head, namely, 730,000 tons), while the Trade in other commodities was indifferent. In the following year (1892-93) the wheat exports fell off—there was no material improvement in other respects, and the finances of the year showed a deficit of rather over Rs. 1½ lakhs (£10,000).

The first Budget for which I was responsible submitted in February 1893, was for the year 1893-94 and was framed for a revenue under all heads of Rs. 47,11,110 (£314,000) and for an expenditure of Rs. 46,95,000 (£313,000), so that there was practically an equilibrium between income and outlay. The actual results, it may be mentioned, very closely corresponded with the estimates, as the receipts were Rs. 47,13,215, and the accounts disclosed an actual deficit of Rs. 12,866 (£850) only.

In the year 1910-11 we are able to anticipate with confidence that the receipts will aggregate Rs. 83½ lakhs (£557,600), and that the expenditure will not exceed Rs. 72½ lakhs (£482,000), leaving the handsome surplus of Rs. 11½ lakhs (£75,000), of which Rs. 5 lakhs (£33,700) is to be refunded to the Trade in the shape of rebates on the charges.

These figures bear witness to the great increase in the business of the Port during the period in question and to the present highly prosperous condition of its finances. But they afford no information as to the progress made in the consolidation and improvement in the general financial position. It has first to be remarked that there have been no increases since 1892-93 in any of the rates on goods. In fact, the rates on both goods and shipping have been reduced, notably those on Coast Cargo and Water-supply and for the use of the dry dock. Comparing the position at the end of 1910-11 with that at the end of 1892-93, the Revenue Reserve Fund, intended to provide for temporary deficits caused by the falling off in receipts due to bad seasons or to delay in the development of the receipts from works of improvement, has been increased from under Rs. 13½ lakhs (say £90,000) to nearly Rs. 66 lakhs (£432,000). Regular Sinking Funds for the extinction of the entire Capital debt, the accumulations under which aggregate Rs. 57½ lakhs (£385,000)* have been instituted and a Fire Insurance Fund which stands at Rs. 4¼ lakhs (£28,000) has been formed. In addition, sums aggregating Rs. 24 lakhs (£160,000) have been appropriated from surplus revenue to meet the cost of Capital works,

* In 1892-93 this fund stood at £5,400 only.

while in the four years ending 1910-11 the refunds granted to the Trade in the shape of a rebate on charges will amount to Rs. 25¼ lakhs (£169,000) apart from the reduction in rates already referred to.

Consequent on the reduction in Port dues on shipping sanctioned a few years previously, the Port Department in 1892-93 was not paying its way. An immediate remedy was applied by economizing in expenditure and the Department has since worked with a small surplus. It has been a principle throughout which has been adhered to as closely as possible that each Department of service (e.g., Port Department, Pilotage, Dock Master's Department, etc.) should be self-supporting and the principle has afforded a valuable basis for regulating charges and controlling expenditure.

Under Capital Account the debt of the Board at the end of 1892-93 stood at Rs. 494 lakhs (£3,292,000) and at the end of 1910-11 will amount to Rs. 1,032 lakhs (£6,878,000), showing an increase of Rs. 538 lakhs (£3,586,000). Many vast improvements have been effected or are in progress to the property of the Board, the accommodation for shipping and goods and the equipment of the Port, but this is not the occasion for referring to them in any detail. It is sufficient to say that the increase in indebtedness is more than covered by the increases in the assets shown in the block account. Of the total debt a sum of two millions sterling is due to Government which ranks after the amount raised on debentures for the payment of interest.

Together with the increase in the accumulated funds the gross assets have increased since 1892-93 from Rs. 557 lakhs (£3,713,000) to Rs. 1,235 lakhs (£8,233,800) or by Rs. 678 lakhs (£4,520,000).

The balance sheet thus shows an increase in the Surplus Assets from Rs. 63 lakhs (£421,000) to Rs. 203 lakhs (£1,353,000) or 1½ millions sterling. It should be added that this is without taking account of the appreciation in the value of the great land estates of the Board. The lands are included in the block account of cost price which is much below their present market value.

The figures amply justify the appreciation in which the Trustees' debenture loans are held by the public, the prices they are quoted at being appreciably above those of any other local body in India.

—Discussing the possibilities of **aloe cultivation in Mauritius**, a correspondent in the *Times Financial and Commercial Supplement* of February 25th points out that this industry was tried in that island some thirty years ago and failed. The nature of the aloe, he explains, which produces only a handful of fibre from a vast mass of huge and wide-spreading leaves, requires a large area of ground and this is not available in Mauritius, where intensive cultivation of small areas is necessary.

THE IRON TRADE AND ITS PROSPECTS.

WHILE it is true that the iron warrant is no longer the barometer of commerce (since the visible supply of iron available for speculation has become so insignificant), yet it remains true, says the *Economist* of February 10th, that the iron market contains the index of trade. For some time past the reading of the index has been blurred by the emanations from the warrant market. The actual rise in iron warrants last year was not justified by the actual increase in demand for finished material, and the growing demand for finished material was rather checked by the too rapid increase in the price for raw iron. That increase was caused mainly by the purchases of those who anticipated a large demand for British pig iron from America, but this did not come up to expectations. The advance in Cleveland warrants last year from 48s. to 52s. 9d. had the very natural effect of increasing the production of all the furnaces. The natural effect of the increased make and stocks was a decline in the price of warrants to about 51s. at the close of the year. Meanwhile, however, the home prospect had been brightening, and, with a steadily growing demand for shipbuilding and structural material, everything pointed to a good and steady market for pig-iron. But the General Election disorganised the ring and put a check on business generally, consumers holding back their orders. Pig-iron drooped as if it were tending back to the low level of last spring, but the fall was checked in turn by the coal crisis, and the prospect of a miners' strike either in the North of England or in South Wales or in both. In the North of England some furnaces were blown out during the uncertainty about the coal supply, and the stream of iron into warrant store was arrested. Thereupon warrants rallied again, and this was assisted by the reduction in the Bank rate. It seems evident that the consumption of pig-iron is again increasing, as the increase in the foreign shipments for January amounts to nearly 50,000 tons, and reduced quantities are now going into store. In Cleveland the total make has not been so much reduced, as some furnaces have been turned from Cleveland iron, which is the basis of warrants, and placed on hematite iron, for which there is a growing demand from steel-makers. It is now a matter of minor importance whether America comes to us for pig-iron in quantity, which is unlikely, seeing that the American furnaces are exceeding their previous records. But there is one thing to be noted about the increased and increasing American production of pig-iron, that it is exceeding the immediately available supplies of American iron ore. America is already a large importer of ore from Europe, and, from the contracts reported, it seems probable that not less than 2,000,000 tons of ore will this year be shipped from Spain and Sweden to the United States. Now this not only means a large exceptional demand for shipping, but such a draft upon the mines as to raise the level of prices well above normal, and our smelters

have to operate on actual and prospective dearer ore and fuel. The cost price of raw iron is, and will be, materially higher this year than last, apart from any increase in the consumptive demand for it. So far as makers' iron is concerned, there is now more run upon hematite or steel-making iron than upon ordinary, which is not surprising, considering the conservatism with which steelmakers have retained their orders with work at the shipyards and elsewhere accumulating. The advance in ore is equal to about 8s. per ton of hematite iron smelted, as compared with the lowest point of last year, and irrespective of the advance in fuel and in other items in the cost of production. There is undoubtedly more doing both in the steel and finished iron trade since the year opened, but it is also undoubtedly the case that the expansion of business has been checked by the advance in raw material and coal. Both steel and finished iron makers have advanced their prices and will not at current prices give much forward margin for delivery. The steel works are all much better employed than they were, if not absolutely at full pressure. In the North of England, however, the steel-makers are now well employed, and are now maintaining their prices for what new business is obtainable, but business was much upset by the elections and is now rather unsettled by the coal crisis. In South Wales the blast furnaces are running full time, but operations otherwise are checked by uncertainty as to what will be the upshot of the dispute between the coalowners and miners before the end of March. It is noteworthy that while steel bars are firmer the orders for tinplates seem to be falling off, and the tinplate trade was the most prosperous branch of the iron trade last year. In the Birmingham district there is quite a hopeful feeling now that the elections are over. Staffordshire bars and strips were last week advanced 5s. per ton, and, in fact, prices all round are higher. The general position is that while business in the iron and steel trades continues to improve, it is restrained by the advances in raw material and in coal, but it will be materially relieved when coal matters are finally and amicably arranged in Northumberland and Durham and South Wales. As far as iron and steel are concerned, there seems little doubt that prices have seen bottom.

—According to Mr. J. Bruce Walker, the Canadian Government Commissioner of Immigration at Winnipeg, 90,000 American farmers trekked into Canada during the year 1909, bringing with them £18,000,000 in stock, implements, and cash. This American invasion still continues, for, according to the same authority, 320 American settlers came into the single province of Manitoba in the last week of January, with total effects of the value of £224,000.

SUPPLIES OF RUBBER.

Estimated Future Production.

In order to throw some light on the question of the relation between the supply and demand of rubber in the near future, says the *Times Financial and Commercial Supplement* of February 25th, the following tables have been prepared, but it should be clearly understood that the figures only attempt to forecast the prospects as they appear to-day and, so far as it is possible to determine them, of the productions in the years 1910 to 1914. Obviously, no account can be taken of the companies about to be floated. In the case of such an admittedly difficult subject, the best estimates can only be approximate, but the method of calculation in the present instance probably renders them sufficiently conservative to be likely to err on the side of under-estimation. Throughout the figures have been based on companies' prospectuses and returns. In those cases where the estimated production is not given in pounds, the output has been taken, for the purpose of calculation, at 1,000 lbs. per acre per annum for all areas planted for upwards of from five to six years, and where the number of trees alone has been given the annual yield has been taken at 1 lb. per tree. Bearing in mind the fact that trees over five and six years of age usually yield a larger output, and the fact that the lowest average yield in the Malay States, for example, is stated to be 1 lb. 7½ oz. per tree per annum after "tapping" has been properly started, the estimate of one pound can hardly be considered excessive, while the 100 lb. per acre estimate is generally adopted by plantation companies. The first table shows the estimated production of 175 plantation companies owning properties in different parts of the world which were formed before the close of 1908. Most of them are European companies, and the number does include the many rupee companies operating in Ceylon, Malay, and India.

Production of Old Companies. (000's omitted.)

	No. of Cos.	1909	1910	1911	1912	1913	1914
		lb.	lb.	lb.	lb.	lb.	lb.
Malay States	68	4,861	6,295	7,013	8,191	8,499	11,289
Ceylon and India	72	1,105	1,446	2,187	3,773	5,504	10,136
Borneo, Dutch E. Indies, etc.	26	196	373	1,246	2,365	3,507	4,604
Africa, S. America, etc.	9	247	333	417	614	647	967
Total	175	6,409	8,462	10,873	14,843	18,157	26,996

It will be noticed that the production in 1909 is given as 6,409,000 lb., equal to about 2,900 tons, and as the total world's production of plantation rubber in that year is estimated on trustworthy authority at rather more than 4,000 tons, it follows

that the output of rupee companies and private producers must have reached about 1,100 tons, or 38 per cent. of the production of these 175 companies. Perhaps it should be explained that several of the plantation companies, especially in Africa, South America, etc., derive some part of their output from indigenous trees. In the next table is given the estimated production of the various new public plantation companies which have been registered since the beginning of 1909 up to the present date (February 23rd). Of those floated during the current year account has only been taken of the output indicated in the prospectuses which have appeared in the *Times*.

Production of New Companies. (000's omitted.)

	Nos. of Cos.	1910	1911	1912	1913	1914
		lbs.	lbs.	lbs.	lbs.	lbs.
Malay States	68	554	1,512	3,580	6,361	9,721
Ceylon and India	14	178	489	1,108	1,778	2,635
Borneo, Dutch E. Indies, etc.	28	223	349	845	1,745	3,559
Africa, S. America, etc.	14	1,987	2,671	3,357	3,979	5,052
Total	122	2,942	5,021	8,890	13,963	20,967

The new companies number 122, some of which it is expected will harvest a small crop this year, the aggregate estimated amount being about 1,000 tons. In 1914 it is hoped to bring this total up to 20,967,000 lbs.—equal to about 9,000 tons.

In the third table the estimates of production by old and new companies in the years 1910 to 1914 are combined. The total production in 1910 is seen to be estimated at 11,394,000 lbs., or about 5,000 tons. Assuming the output of the various rupee companies and private estates to be in the proportion of 30 per cent. of that quantity, the total yield of plantation rubber would be 7,500 tons. This compares with estimates by various authorities ranging from 7,000 to 9,000 tons, and to a production of 2,000 tons in 1908 and 4,000 tons in 1909.

Production of Old and New Companies. (000's omitted.)

	No. of Cos.	1910	1911	1912	1913	1914
		lbs.	lbs.	lbs.	lbs.	lbs.
Malay States	134	6,840	8,525	11,771	14,967	21,010
Ceylon and India	86	1,624	2,686	4,881	7,282	12,771
Borneo, Dutch E. Indies, etc.	54	598	1,595	3,210	5,252	8,163
Africa, S. America, etc.	23	2,325	3,068	3,971	4,626	6,019
Total	297	11,394	15,894	23,783	32,023	47,963

From these figures it appears that the production in 1912 will amount to about 23,783,000 lbs., equal to about 10,000 tons and in 1914 to 47,963,000 lbs., or about 21,000 tons. According to statistics issued by Messrs. Gow, Wilson, and Stanton, the receipts at Para, which may be taken as representing the output in Northern Brazil, in 1899-1900 were 26,693 tons; in 1904-5, 33,100; in 1907-8, 36,680; and in 1908-9, 38,150 tons. Roughly the world's production in 1909 amounted to 70,000 tons, of which Brazil contributed 40,000, plantation owners 4,000, and the rest of the world 26,000. Now, assuming that the Brazilian production in 1914 remains in the neighbourhood of 40,000 tons, what the production of indigenous rubber-yielding trees in other parts of the world is maintained at 26,000 tons, and that the output of plantation companies reaches 21,000 tons plus a total of 6,300 tons or 30 per cent. representing the output of the rupee companies and private producers, a total of 93,300 tons is reached. It is just possible, however, that the basis of calculation of the production of plantation rubber may have been rather too high to make adequate allowance for "resting" the trees, and for trees damaged or otherwise "put out of action". Allowing, therefore, 20 per cent. under this heading, or 5,460 tons, an aggregate production in 1914 of 87,840 tons is obtained. This estimate is, of course, merely approximate, but it may serve to indicate in a general but reasonable way the course the rubber market is perhaps likely to pursue. It should be borne in mind that the figures do not take into account the stimulus to production which would be brought about by the continuance of the present high prices. The inducement to increase production on this account is reflected in the additional supplies already forthcoming from the Amazon Valley and other areas producing wild rubber and to schemes for working properties which are not profitably workable on a low level of prices.

—The British Engineering Standards Committee have issued a third report (No. 50) on **standard locomotives for Indian Railways**. This report is submitted in view of the issue of a new publication in supersession of the first and second reports (published in 1903 and 1907), and the opportunity has been taken of revising the recommendations in the light of subsequent experience. Among the changes are the inclusion of a metre gauge tank engine of the 2-6-2 type, the exclusion of the 5 ft. 6 in. gauge 2-8-0 type goods engine (design A) of which it has been found that no use has been made, the redesigning of the metre gauge 4-8-0 type goods engine with a shorter wheel base, and a reduction in the diameter of the cylinders of the 4-6-0 passenger engines and the 2-8-0 goods engines for 5 ft. 6 in. gauge. The report contains tabulated particulars of the standard engines, together with 12 plates of 5 ft. 6 in. gauge and four of metre gauge locomotives.

TRADE OF CEYLON.

Exports.

THE Report of the Ceylon Chamber of Commerce for the half-year ending 31st December, 1909, has been issued and contains a good deal of commercial information.

Tea.

Exports for the year of both black and green tea aggregate 191,860,059 lbs., an increase of close on 11½ million lbs. compared with those of the previous year.

	1909.	1908.
Black Tea	185,797,866 lbs.	174,418,174 lbs.
Green Tea	6,062,693 "	5,631,147 "
	191,860,059 lbs.	180,049,321 lbs.

The increase is especially marked in shipments to the United Kingdom, which have exceeded those of 1908 by approximately 10½ million lbs. and those to America and Australia show an increase of about 2½ and 2 million lbs. respectively. On the other hand, there has been a falling off in shipments to Russia of about 2 million lbs., and to other Countries collectively of 1 million lbs., compared with the previous year's figures, and of which India is responsible for half a million.

The total quantity of tea offered at local sales during the year was 80,739,686 lbs. against 85,071,326 lbs. in 1908, though the quantity actually sold at Auction was about the same for the two years named, and the average price realised was 40 cents per lb. for 1909 against 38 cents for 1908. Prices have been in favour of producers throughout the year, a feature being the high market prevailing since early July. The average price during this period remaining steady at 40 cents rising to 43 cents, about four to five cents above 1908. Another feature was the fine flavor sent from the Uva District during July-August-September, the more remarkable as all Estates low and high were affected. Nuwara Eliya sent some flavory teas in February; otherwise quality has not exceeded a fair average. Apart from quality there was a strong demand for thick, coloury liquoring teas throughout the year.

Owing probably to heavy stocks held by Russians, dust and fannings have not reached the high quotations of 1908; at the same time competition was good and prices above the average were generally realised. It is noticeable that Russia has taken some 2 million lbs. less this season, a fact largely due to stalky appearance, also to choppy open and ragged leaf teas. This is leading to a preference being shown for Indian make substantiated by the increased shipments of 3 million lbs. this year over last from Calcutta to Russia.

Rubber.

Exports of Ceylon rubber for 1909 show an increase of 580,455 lbs. compared with the shipments for 1908, the actual figures being 1,492,580 lbs. in

1909 and 912,125 lbs. in 1908. The United Kingdom has taken more than the total output of 1908, during the period under review, while America, the next largest customer, has taken double the quantity she did in 1908. Shipments to Germany shew a falling off, but are more than made up by those to Belgium. The market locally has been active throughout the year at remunerative rates. In January prices according to quality were quoted from Rs. 2.65 to Rs. 3.85, and gradually rose until they reached Rs. 3.20 to Rs. 7.20 early in October, and closing at the end of the year at from Rs. 3 to 5.30 per lb.

A feature of the period under review is the number of forward crop contracts that have been made, prices paid ranging from Rs. 3.70 to Rs. 5.90 per lb. for first qualities, to be delivered during 1910, while during November and December last, negotiations were commenced which resulted early in the New Year in the sale of several 1911 crops at Rs. 4.50 per lb. (later contracts having been put through at increased rates).

Further points which deserve special mention are the general improvement in, and greater regularity of, quality, which have been noticeable during the year, many estates (more particularly those making use of crepe machines), having turned out rubber of such even quality, size, and colour that it has become customary to deal in the produce of such estates on the mark alone, without samples, which has tended to greatly facilitate business.

Statistics relating to importing markets show the position at the close of the year to be exceptionally satisfactory from a producer's point of view, and prospects for 1910 would appear to be all that can be desired.

Products of the Coconut Palm.

Shipments during 1909 compare with those of the previous year as follows:—

	1909.	1908.
Coconut Oil	581,478 cwt.	670,121
Copra	772,032 "	768,795
Desiccated Coconut	25,978,844 lbs.	27,410,230
Coconut Poonac	253,709 cwt.	304,642
Coconuts	18,135,658 nuts.	21,188,692

The export of Copra, it will be noticed, has surpassed even the record figure established in the preceding year. Shipments of the other products, though somewhat less than during 1908, are well above the average of the last ten years, the figures for Desiccated Coconut and Coconuts being second only to the record of the former year.

For the first half of the year business was steady without any great fluctuations in price, Copra ranging between Rs. 57 and Rs. 64, and Coconut Oil between Rs. 387.50 and Rs. 420. From July onwards, however, the demand outran the supply, and prices rose rapidly, Copra at the end of the year standing at Rs. 84 and Coconut Oil at Rs. 565. These prices are remarkable in face of the satisfactory export figures, and the fact that the recorded Copra supply of the world, though slightly less than 1908,

was far in excess of any former year. The indications are that the demand is increasing more rapidly than the supply, promising a continuance of favourable prices in this section of the Colony's trade.

IMPORTS.

Piece-Goods Trade.

The prominent feature during the year has been the enormous advance in Cotton which in December, 1908, stood at 5.07d. while at the end of December, 1909, the price was no less than 8½d., or an advance of nearly 3½d. per lb. during the year. The heavy stocks of Piece-goods mentioned in the last Report have come in useful in keeping local wants supplied, for it has become impossible to place orders at home at anything like the equivalent of ruling local prices. This branch of trade during the last two or three years has been discouraging.

Rice.

Imports for the year show an excess of 430,580 bags over those for the preceding year, the chief feature being the increase in the landings of Calcutta kinds which aggregated 1,569,123 bags compared with 849,520 bags in 1908.

Total Imports have been as follows: 3,649,734 bags in 1909 against 3,219,154 bags in 1908. With larger supplies the market has naturally been more in favour of importers, and at the close of the year the average rate for all descriptions may be said to have declined 90 cents per bushel from the rates ruling at the commencement of 1909.

Coal.

	1909.	1908.	1907.
	Tons.	Tons.	Tons.
From United Kingdom	260,853	266,539	272,463
" India	270,577	383,269	293,569
" Other Countries	21,112	47,727	42,328
	552,542	697,535	608,350

The actual quantity of coal of all descriptions entered inwards during 1909 shows a decrease of 141,993 odd tons compared with 1908 imports, which at first glance might be taken to indicate a diminution in the bunkering trade of the Port. Such, however, has not been the case, and the lesser quantity shewn as imported is due to large arrivals having been entered at the Customs at the end of 1908.

—His Majesty's Commercial Attaché at Yokohama (Mr. E. F. Crowe) reports that the figures of the actual Rice crop of Japan as published in the Official Gazette, are 52,423,979 koku (about 260,175,000 bushels). This is 4.18 per cent less than the second official estimate; the crop, nevertheless, remains a record one.

THE CATTLE CONFERENCE AT LUCKNOW.

Mr. W. H. MORELAND, C.I.E., I.C.S., Director of Land Records and Agriculture, United Provinces of Agra and Oudh, contributes the following article to the current number of the *Agricultural Journal of India*:—

I have been asked by the Editor to give a short account of the proceedings of the Cattle Conference which was held last August at Lucknow, and which excited a quite exceptional amount of attention in the United Provinces. The idea of the Conference was not a novelty, since it had been preceded by the Industrial Conference of 1907 and the Sanitary Conference of 1908, the object in each case being to ascertain through free discussion, the views of representatives of the public and to formulate the main lines of a policy to be pursued by Government on the subject under consideration.

The Cattle Conference had its origin partly in the general feeling of dissatisfaction caused by the high prices of cattle and of dairy produce, and partly in the desire of the departments most directly concerned to obtain an authoritative expression of opinion on subjects where the religious and social sentiments of the people can never be left out of account. Membership was limited to representatives of the province but among the visitors were the Inspector-General of the Civil Veterinary Department and two representatives of the Military Department. The members fall naturally into three groups, the divisional representatives, the Government nominees, and the official element. The divisional representatives were chosen on the nomination of Commissioners from among Indian landholders who were most likely to represent the feelings of the agricultural population; the Government nominees were for the most part representative of special interests, and included besides European planters and landholders and representatives of the Upper India Chamber of Commerce, such authorities as Mr. Abbott of Jhansi, the pioneer of the Central Indian hay-trade, and Mr. Kewenter of Aligarh, the leading dairyman in Northern India; the official element consisted of representatives of the general administration and of the Public Works, Forest, Agricultural, and Veterinary departments. In all about forty members met under the presidency of the Hon'ble Mr. D. C. Baillie, a Member of the United Provinces Board of Revenue; and it must be said that a more competent and authoritative conference could scarcely have been brought together.

The proceedings opened on the 4th of August when the Lieutenant-Governor welcomed the members and the president delivered his address. The Conference then divided into committees which sat for the next three days, discussing the agenda with an entire absence of formality, set speeches being practically ruled out, and the tone of the discussions being throughout friendly and conversational. The recommendations of the committees were then discussed by the full Conference, and transmuted into a series of Resolutions which form the final record.

of the results of the deliberations. The discussions were for the most part conducted in the vernacular, and the papers circulated daily were accompanied by translations, so that no difficulty was caused by the presence of members unacquainted with English.

Turning to the Resolutions that were passed, the first group recorded the actual position. It was held that though prices have increased, especially for the better class animals, there was no actual insufficiency of working cattle, but there were differences of opinion on the question whether the class of animals had deteriorated. It was recognised that the decrease in cows disclosed by the cattle-census was probably temporary, being due to recent famines, and that there is a tendency to substitute buffaloes for cows among dealers in milk. The general feeling was that the fully-cultivated districts of the province must continue to depend for the supply of cattle on the grazing-districts which lie on the North, South and West, and that the protection of the grazing-grounds was a matter of great importance.

When, however, the question of legislation to protect grazing-grounds came under discussion, there was a marked divergence of opinion: the representatives of the cultivated districts desired to have the large grazing-grounds protected by law, but this was strenuously opposed by the representatives of those interests, who in turn recommended the reservation of grazing areas in the cultivated districts, a proposal that was opposed by some of the representatives of the cultivated districts. Eventually no agreement could be come to on this question, and the present position is likely to be maintained: the larger landholders voluntarily preserving the existing grazing grounds, though objecting strongly to being compelled to do so, and the smaller men breaking up the land for cultivation until the necessary adjustment in prices ensures its retention for grazing.

Leaving the recognised grazing-grounds, the Conference then turned to consider the question of preserving and improving waste land of other kinds. Recommendations were made for administrative action tending to increase the number of the groves which are such prominent features in the landscape of the province; co-operation was offered in the efforts of Government to increase the productivity of the ravine area; and a request was made for experiments to be instituted to show whether fuel and fodder reserves can be made a commercial success on land which is on the margin of cultivation.

The Conference then considered the fodder-supply, and an interesting discussion took place on the contention which has been frequently advanced in the past that the provision of more fodder merely leads to the survival of useless cattle, and that cattle will always multiply up to the limit of subsistence in years of plenty and die off in years of dearth. It was conclusively shown that this contention no longer applies to the circumstances of the province, as animals past work are now speedily eliminated in almost all districts. Thus, the main argument that

has been used in the past in support of a policy of inaction is no longer available, but few definite recommendations for increasing the fodder-supply could be made, as it was recognised that this must be governed mainly by economic conditions.

The next discussion of special importance related to the supply of bulls. So far as the valuable breeds in the north of Oudh are concerned, it was recognised that the bull-depot now being established by Government should meet the needs of the case; but there was a general feeling that Government should provide a supply of ordinary bulls, which landholders could purchase in order "to supplement, and it is expected in time to supplant" the present system under which the village cows are ordinarily covered by sacred bulls. The recognition by such a body of landholders that the time-honoured system of providing bulls as a religious act is wearing out and requires to be supplemented, and eventually supplanted, is a matter of the greatest interest, both socially and economically, and raises a problem of much practical importance in the supply of sound bulls at reasonable prices.

The question of introducing improved breeds either for work or for dairy purposes produced another interesting discussion, in the course of which it was clearly recognised that organised action is necessary, one or more bulls and a suitable number of cows being introduced simultaneously into a definite area. It was thought that large landholders might undertake this on their estates, and that it is a most suitable function for local agricultural associations, Government assisting in the work of purchasing the stock, and where necessary granting advances towards its cost.

Turning to the prevention of disease, the increased popularity of the Civil Veterinary Department in recent years was shown in a most gratifying manner by the general demand for more veterinary assistants and for increased attention to the treatment of cattle; and the Conference was able to recognise that the prejudices against inoculation are disappearing and that the influence of landholders is the most important factor in this matter.

The supply of dairy products was the next topic, and the Conference declared that there was no disproportionate rise in price, but that adulteration was greatly on the increase, and they recommended legislation, applicable only to towns, providing that nothing should be sold as milk, butter, or ghee, which is adulterated. A similar recommendation had previously been made by the Sanitary Conference, and it is understood that legislation is in prospect. Recommendations were also made to municipalities for the encouragement of sanitary dairies in their vicinity, and to the railway systems for developing the supply of milk by rail.

Finally a recommendation was made for an enquiry into the sources of cattle-supply to the various districts, and for the collection of information on various points which had come up during the discussions; and the Conference broke up with mutual expressions of cordial good-will between the

official and the non-official members. Perhaps the final result can best be summarized in the following words, with which the Chairman submitted its proceedings to Government:—

"It cannot be claimed for the Conference that it has suggested any fresh or original measures to help towards the solution of the problems considered by it, but the meeting was certainly not without value. It has led to the discussion from all points of view of the questions raised by a considerable body of landholders, and it has given evidence of a general desire to give personal assistance in future measures and assurance that there is no general tendency to look at these questions from a narrow or sectarian point of view. The general agreement of the members of the Conference gives good reason to believe that so far economic changes have not produced acute difficulties in connection with the production of plough and milk cattle, and affords indications that further development will be on natural lines."

COTTON AND YARN 100 YEARS AGO.

In its issue of February 22nd, the *Manchester Guardian* writes:—We are indebted to Mr. Hugh S. Greg, of 1, Booth Street, Manchester, for the following particulars of the prices of cotton and cotton-twist between the years 1802 and 1818. The figures were contemporaneously compiled by Mr. Samuel Greg, our correspondent's great-grandfather, and the wide margin of difference between the cost of the raw material and the value of the yarn will no doubt excite the envy of cotton spinners to-day:—

Average price of cotton per lb. compared with twist sold.

From	Price of Cotton.	Price of Twist.	Counts.	Price Difference.
	D.	D.	Nos.	D.
December 1802 to December 1805	19'06	39'08	25'09	20'02
December 1805 to December 1806	19'08	36'18	25'00	17'01
December 1806 to December 1807	21'54	36'70	25'78	15'16
December 1807 to December 1808	24'83	38'00	24'61	13'17
December 1808 to July 1809	26'83	41'91	24'37	15'08
July 1809 to December 1809	30'73	37'01	24'69	16'28
December 1809 to July 1810	20'93	40'79	22'97	19'86
July 1810 to December 1810	19'73	38'51	22'96	18'76
December 1810 to July 1811	17'96	34'40	23'09	16'44
July 1811 to December 1811	17'43	27'71	23'59	11'28
December 1811 to July 1812	17'81	29'72	23'15	11'91
July 1812 to December 1812	18'24	29'09	24'45	10'85
December 1812 to July 1813	24'73	35'46	25'22	10'71
July 1813 to December 1813	25'12	35'08	25'52	9'96
December 1813 to July 1814	33'52	46'92	25'06	13'40
July 1814 to December 1814	31'67	45'40	26'00	13'73
December 1814 to July 1815	25'72	37'48	23'65	11'76
July 1815 to December 1815	26'53	38'44	25'00	11'91
December 1815 to July 1816	20'47	37'74	25'04	17'27
July 1816 to December 1816	20'73	33'08	25'03	13'07
December 1816 to July 1817	22'03	34'65	25'07	12'35
July 1817 to December 1817	20'44	33'06	25'46	13'16
December 1817 to July 1818	20'46	34'55	25'06	14'09
July 1818 to December 1818	21'13	32'95	23'04	11'82

EASTERN BENGAL AND ASSAM.

Crop Reports.

(By Telegram.)

Shillong, March 15th.

The following is a summary of the weather and crop reports of Eastern Bengal and Assam for the week ending the 14th instant:—

The weather is dry with light scattered showers at a few stations. More rain is urgently needed for cultivation.

Ploughing for winter rice and *bhadri* crops is in full swing.

The sowing of jute and *aus* rice has commenced on low land.

The harvesting of sugarcane and tobacco is progressing; that of mustard is nearly finished.

The sowing of potato is going on in the Khasi Hills.

The prospects of spring rice, sugarcane, tea, linseed and *til* are good and of wheat and tobacco fair.

The average price of common rice has risen about one per cent.

Cattle disease is reported in Malda, the Naga Hills, Goalpara, Kamrup, Darrang, Nowgong, Sibsagar and Lakhimpur.

NEW REFERENCE BOOKS.

THE SIMPLE CARBOHYDRATES AND THE GLUCOSIDES.

By E. FRANKLAND ARMSTRONG. 3s. 6d. net. Longmans and Co.

HANDBOOK OF PRACTICAL ECONOMICS.

By J. SCHRIJVERS. Translated by F. M. CAPES. 5s. Sands and Co.

THE TECHNICAL DICTIONARY IN SIX LANGUAGES.

By A. SCHLOMANN. Vol. VII., Hoisting and Conveying Machinery. Compiled by P. STURZENEGEL. 7x4, 651 pp. 10s. 6d. net. Constable.

THE COMMON-SENSE OF POLITICAL ECONOMY. Including a Study of the Human Basis of Economic Law. By P. H. WICKSTEAD. 94x6, 702 pp. 14s. net. Macmillan.

(A substantial volume by a writer of ability, basing a constructive system of political economy on the "Marginal" theory of Jevons and the Geneva School.)

THE DESIGN AND CONSTRUCTION OF INTERNAL-COMBUSTION ENGINES.

A Handbook for Designers and Builders of Gas and Oil Engines. By HUGO GULDNER, Chief Engineer and Director, Guldner Motoren-gesellschaft, Aschaffenburg. Translated from the Second Revised Edition, with additions on American Engines, by W. DIEDERICHS, Professor of Experimental Engineering, Cornell University. 11½x8½, xix + 672 pp. 42s. net. Constable.

MODERN ENGINES.

By T. W. CORBIN. ("How Does it Work" Series, No. 3.) 7½x5, 135 pp. 1s. net. Pearson.

CUBAN SUGAR.

The Cuban sugarcane crop is once more causing uncertainty and upsetting the sugar markets. Czarnikow's Price Current of 24th February, says:—The absorbing topic this week was the Cuban crop, which, according to Guma, is suffering from drought, whilst other correspondents say that only the young Canes planted last spring are suffering, the old Canes yielding better than last year. The new plantings every season, which are not all made in spring, are usually about 20 per cent. of the total area, and they are only partly cut late in the following season, when they yield barely half the usual weight per acre. But for the present crop the new plantings must have been much larger, as shown by the increased estimates made before there was a question of quality; yet Willett on 10th February credits February-May with only 35,000 tons excess

production from increased area, which, instead of 20 per cent., must have been nearer 40 per cent. of the total. Last year beneficial showers in January-February (which the market then considered very harmful) made these Canes of the previous Spring specially fit for cutting in the following Summer, thus contributing to raise production; this year the old Canes are yielding decidedly better during the dry cool January-February, and we must see how far this will offset any falling off in Spring Canes, but 1,800,000 tons (which estimate was subject to weather) may now be taken as a maximum. Many planters (who, however, are generally sanguine only when they want advances) are estimating not over 10, perhaps 15 per cent. increase.

The Cuban crop up to the present compares as follows, in thousands of tons:—

	1910.				1909.			
	Six ports.	Out-ports.	Total.	Factories.	Six ports.	Out-ports.	Total.	Factories.
Estimate	1,300	530	1,830	175	976	422	1,398	169
Production	...	...	...	...	1,064	450	1,514	170
Per cent. of total	71	29	...	...	70	30	...	...
Number of Factories	140	35	...	175	134	35	...	169
Production December-January	248	133	381	169	179	59	238	165
" February	300?	...	?	...	254	102	356	170
" Previous week	74	26?	...	171	65	23	...	170
" Last	68	21?	...	172	65	23	...	170
" Following	...	...	...	...	63	22	...	170

	1908.				1907.			
	Six ports.	Out-ports.	Total.	Factories.	Six ports.	Out-ports.	Total.	Factories.
Estimate	833	330	1,163	168	1,179	346	1,525	183
Production	680	281	962	168	1,105	323	1,428	183
Per cent. of total	71	29	...	...	77	23	...	...
Number of Factories	133	35	...	168	148	35	...	183
Production December-January	98	54	132	153	315	212	527	183
" February	213	62	275	168	257	65	322	183
" Previous week	56	16	...	166	65	16	...	183
" Last	56	17	...	168	65	17	...	183
" Following	52	15	...	168	62	15	...	183

—Alcohol has often been proposed for use in gas and oil engines, and in a paper read before the Canadian Society of Civil Engineers, Mr. G. L. Guillet recently described some experiments carried out by him with an ordinary oil engine, using **wood alcohol as a fuel**. At first it was found impossible to obtain satisfactory running with alcohol, but the troubles were traced to insufficient fuel supply and defective ignition. It would appear from the experiments that the hot tube igniter gives most uncertain firing even with a suitable explosive mixture in the cylinder, and the range of load over which satisfactory ignition could be obtained was comparatively narrow, even with electric ignition, which was, how-

ever, a decided advance over the hot tube system. It was clear, too, from the experiments that the ordinary gasoline vaporiser is somewhat unsatisfactory when used with alcohol. Although the experiments led to no startling discoveries they serve to indicate the lines along which progress towards a satisfactory alcohol engine will be likely to move—that is, a strong and certain ignition coupled, probably, with a higher compression and a more perfect vaporisation of the fuel. It appears that there are no inherent difficulties in the use of alcohol as a fuel, and indeed, as we have often pointed out, there are British firms which have for some time past supplied alcohol motors.

SEA-BORNE TRADE OF INDIA.

THE following is a summary of the accounts relating to the Sea-borne Trade and Navigation of British India for the month of February 1910, and for the eleven months, 1st April 1909 to the end of February 1910, compared with the corresponding period of the years 1907-08 and 1908-09:—

	MONTH OF FEBRUARY			ELEVEN MONTHS, 1st APRIL to the end of FEBRUARY		
	1908	1909	1910	1907-08	1908-09	1909-10
IMPORTS—						
MERCHANDISE, PRIVATE—						
Bengal	3,97,45,663	3,02,75,730	3,72,67,689	48,74,81,814	40,69,57,670	43,01,69,965
Eastern Bengal and Assam	2,26,636	3,04,043	3,76,013	45,88,692	53,79,094	53,04,690
Bombay	3,57,86,753	2,77,69,533	3,33,49,109	40,31,63,145	37,38,28,309	36,36,29,270
Sind	79,01,284	65,99,785	75,24,820	9,15,97,821	10,47,98,603	9,14,02,444
Madras	91,91,122	89,57,423	73,50,385	9,32,25,170	10,78,81,094	8,78,30,406
Burma	92,25,305	99,27,684	94,48,785	9,99,92,935	12,01,02,588	9,87,37,001
TOTAL	10,20,76,763	8,20,34,198	9,53,16,801	118,00,49,577	111,89,47,358	107,70,73,976
DITTO, GOVERNMENT STORES	56,36,986	48,70,227	12,74,771	5,97,01,767	7,08,45,567	5,17,80,683
TOTAL MERCHANDISE	10,77,13,749	8,69,04,425	9,65,91,572	123,97,51,344	118,97,92,925	112,88,54,659
TREASURE, PRIVATE—						
Bengal	45,03,968	28,00,337	65,60,784	6,85,25,646	3,24,94,864	5,24,29,882
Eastern Bengal and Assam	...	...	15,367	87,491	1,76,669	...
Bombay	2,58,43,287	1,13,07,227	2,23,07,514	21,41,08,095	16,79,11,257	25,81,77,015
Sind	10,99,175	6,26,225	7,88,043	70,79,043	54,01,631	70,16,960
Madras	6,20,224	8,91,563	4,58,161	71,60,872	63,97,555	1,20,74,725
Burma	1,13,796	94,130	1,20,635	14,00,537	4,84,855	13,21,827
TOTAL	3,21,80,450	1,57,79,482	3,02,50,504	29,83,74,013	21,27,78,053	33,11,97,078
DITTO, GOVERNMENT	...	...	...	9,46,40,685	11,23,146	9,73,999
TOTAL TREASURE	3,21,80,450	1,57,79,482	3,02,50,504	39,30,14,698	21,39,01,199	33,21,71,077
GRAND TOTAL OF IMPORTS	13,98,94,199	10,26,83,907	12,68,42,076	163,27,66,042	140,36,94,124	146,10,25,736
EXPORTS—						
MERCHANDISE, PRIVATE—						
(Foreign Merchandise)—						
Bengal	1,03,357	1,67,588	1,23,522	18,30,937	19,87,291	14,86,059
Eastern Bengal and Assam	...	500	2,700	750	9,239	5,140
Bombay	21,99,032	19,16,870	24,29,915	2,67,25,582	2,06,38,414	2,36,85,175
Sind	1,00,485	2,39,185	2,81,058	43,24,463	41,83,084	34,15,275
Madras	35,803	45,094	61,023	9,98,744	9,39,643	13,45,277
Burma	45,049	24,257	60,793	6,03,302	4,47,282	4,66,876
TOTAL	24,89,726	23,93,494	29,59,011	3,44,83,778	2,82,04,953	3,04,03,802
(Indian Merchandise)—						
Bengal	3,87,20,814	4,97,63,828	5,69,09,668	64,47,67,938	61,26,61,510	65,01,28,449
Eastern Bengal and Assam	14,08,888	32,00,764	23,31,935	3,79,23,142	4,64,74,954	4,16,54,610
Bombay	3,14,28,936	4,44,17,961	7,23,76,707	41,66,80,151	34,78,16,253	45,45,15,061
Sind	76,56,615	99,84,215	1,48,74,784	16,56,76,091	6,88,57,174	18,40,58,659
Madras	1,39,65,556	1,61,91,027	1,70,10,823	16,87,99,546	16,28,61,756	17,21,93,296
Burma	3,18,73,710	1,90,22,334	2,27,41,532	14,42,00,529	10,16,65,523	12,07,39,099
TOTAL	12,50,54,519	14,25,80,129	18,62,45,449	157,80,47,397	134,03,37,170	162,32,89,174
Total Foreign and Indian Merchandise exported—						
Bengal	3,88,30,171	4,99,31,416	5,70,33,190	64,65,98,875	61,46,48,801	65,16,14,508
Eastern Bengal and Assam	14,08,888	32,01,264	23,34,635	3,79,23,892	4,64,84,193	4,16,59,750
Bombay	3,36,27,968	4,63,34,831	7,48,06,622	44,34,05,733	36,84,54,667	47,82,00,236
Sind	77,57,100	1,02,23,400	1,51,55,842	17,00,00,554	7,30,40,258	18,74,73,934
Madras	1,40,01,359	1,62,36,121	1,70,71,846	16,97,98,290	16,38,01,399	17,35,38,573
Burma	3,19,18,759	1,90,46,591	2,28,02,325	14,48,03,831	10,21,12,805	12,12,05,975
TOTAL	12,75,44,245	14,49,73,623	18,92,04,460	161,25,31,175	136,85,42,123	165,36,92,976
DITTO, GOVERNMENT STORES	73,382	68,787	41,941	11,80,904	10,12,283	7,51,977
TOTAL MERCHANDISE	12,76,17,627	14,50,42,410	18,92,46,401	161,37,12,079	136,95,54,406	165,44,44,953
TREASURE, PRIVATE—						
Bengal	57,287	39,697	61,716	28,44,207	48,78,332	16,19,636
Eastern Bengal and Assam	...	...	...	...	...	...
Bombay	32,75,373	28,40,342	44,04,281	4,12,04,362	4,56,32,331	4,73,96,948
Sind	1,92,205	34,601	2,29,707	14,77,523	7,25,994	29,87,608
Madras	3,449	14,080	11,855	45,32,863	41,14,869	70,44,442
Burma	5,000	20,000	12,000	1,03,275	4,38,000	85,250
TOTAL	35,33,314	29,48,720	47,19,559	5,01,62,230	5,57,89,526	5,91,33,884
DITTO, GOVERNMENT	...	10,000	...	18,520	...	45,100
TOTAL TREASURE	35,33,314	29,48,720	47,19,559	5,01,80,750	5,94,06,255	5,91,78,984
GRAND TOTAL OF EXPORTS	13,11,50,941	14,80,01,130	19,39,65,960	166,38,92,829	142,89,60,661	171,36,23,937
GROSS AMOUNT OF IMPORT DUTY COLLECTED, including Salt	60,90,158	50,27,008	57,24,239	6,67,99,812	6,74,17,090	6,64,29,435
DITTO, EXPORT DUTY COLLECTED	17,03,588	14,20,120	17,33,828	81,64,507	62,16,836	78,49,289

SPINNING AND WEAVING RETURNS.

The following statistics of cotton spinning and weaving in Indian mills in January, 1910, compared with the corresponding period of 1908 and 1909, are published by the Commercial Intelligence Department:—

No. 1.—Abstract Statement of the Quantity (in pounds) of Yarn Spun.

	MONTH OF JANUARY			TEN MONTHS, APRIL TO JANUARY		
	1908	1909	1910	1907-08	1908-09	1909-10
British India.						
Bombay	38,201,109	42,948,081	36,288,396	383,381,240	390,458,497	367,178,164
Madras	3,214,106	3,385,618	2,975,271	31,126,545	32,728,910	24,094,646
Bengal	3,699,952	3,179,484	3,009,747	34,576,287	32,951,754	28,407,260
United Provinces of Agra and Oudh (also Ajmer-Merwara)	3,340,364	3,525,337	3,355,117	30,732,620	32,214,560	33,226,834
Panjab	1,175,487	1,111,927	1,060,227	10,723,054	11,064,298	8,874,036
Central Provinces and Berar	2,342,851	2,736,382	2,319,145	22,985,679	24,550,234	25,555,711
TOTAL	51,973,869	56,886,829	49,007,903	513,525,425	523,968,248	497,336,651
Foreign Territory.						
Native States of Indore, Mysore, Baroda, Nandgaon, Bhavnagar, Hyderabad, Wadhwan, Quilon (a), Kishengarh, Ujjain and Pondicherry (b)	2,070,479	2,354,099	2,710,938	20,399,254	23,086,797	28,739,595
GRAND TOTAL	54,044,348	59,240,928	51,718,841	533,924,679	547,055,045	526,076,246

(a) Mill closed since October, 1909.

(b) Including the production of one mill only from April, 1909.

No. 2.—Abstract Statement of the Quantity of Woven Goods Produced.

[N.B.—The weight in pounds represents the weight of all woven goods; the measure in yards represents the equivalent of the weight of the grey and coloured piece-goods.]

		MONTH OF JANUARY			TEN MONTHS, APRIL TO JANUARY		
		1908	1909	1910	1907-08	1908-09	1909-10
British India.							
Bombay	pounds	11,074,070	11,577,482	12,922,443	131,357,564	130,759,897	158,170,570
	yards	48,677,365	49,648,006	55,292,151	573,251,949	573,389,689	679,857,636
	dozens	45,491	45,875	51,149	584,562	508,766	547,323
Madras	pounds	601,125	641,607	584,055	6,376,458	6,164,876	6,464,715
	yards	1,850,923	2,087,526	1,870,901	20,773,330	20,153,113	19,927,002
	dozens	1,958	526	1,262	12,768	9,218	13,186
Bengal	pounds	167,845	191,618	260,482	1,561,284	2,395,201	2,507,975
	yards	726,450	965,189	1,188,310	6,397,391	14,374,877	12,264,669
United Provinces of Agra and Oudh (also Ajmer-Merwara)	pounds	864,989	850,121	785,369	7,167,639	7,993,176	9,262,272
	yards	3,196,263	3,266,933	3,164,472	27,970,824	30,283,046	34,515,400
	dozens	4,186	5,515	4,963	35,800	30,251	45,440
Panjab	pounds	43,939	48,765	22,368	373,169	418,035	315,718
	yards	126,939	119,745	60,281	1,034,433	1,042,338	777,015
	dozens	29	...	3	1,126	3,778	2,102
Central Provinces and Berar	pounds	701,113	866,595	792,079	6,525,516	7,516,617	8,704,716
	yards	2,890,735	3,493,123	2,900,739	26,761,110	29,949,803	33,024,127
	dozens	550	353	626	6,755	4,128	5,169
TOTAL	pounds	13,153,081	14,176,188	15,365,796	153,361,630	155,247,802	185,425,964
	yards	57,498,675	59,583,573	64,476,854	656,189,037	669,197,916	780,365,849
	dozens	52,214	52,269	58,003	641,011	556,141	613,220
Foreign Territory.							
Native States of Indore, Mysore, Baroda, Nandgaon, Bhavnagar, Hyderabad, Wadhwan, and Pondicherry (a)	pounds	703,490	705,610	1,201,202	6,378,423	6,852,720	10,881,516
	yards	2,740,856	2,749,166	4,840,677	24,541,238	25,986,851	43,357,225
GRAND TOTAL	pounds	14,156,571	14,881,798	16,567,998	159,740,058	162,100,522	196,307,480
	yards	60,239,531	62,332,738	69,317,531	680,730,276	695,184,767	823,723,074
	dozens	52,214	52,269	58,003	641,011	556,141	613,220

(a) Including the production of one mill only from April, 1909.

WEEKLY TRADE MOVEMENTS.

For the week ending 12th March, 1910.

COTTON GOODS.

Twist and Yarn.

Foreign—Imports by sea into	Calcutta lbs.	110,514
	Bombay "	210,159
	Madras "	108,500
Indian—Exports by sea from	Calcutta "	176,400
	Bombay "	7,241,768
	Madras "	...

Grey Piece Goods.

Imports by sea from	Calcutta yds.	8,206,391
Foreign ports into	Bombay "	3,300,165
	Karachi "	177,091
	Madras "	53,082
	Rangoon "	427,391

White Piece Goods.

Imports by sea from	Calcutta yds.	3,943,418
Foreign ports into	Bombay "	3,487,675
	Karachi "	1,466,528
	Madras "	31,513
	Rangoon "	527,933

Other Piece Goods.

Imports by sea from	Calcutta yds.	2,177,960
Foreign ports into	Bombay "	4,647,870
	Karachi "	895,071
	Madras "	162,797
	Rangoon "	1,149,330

Piece Goods.

(Indian and Foreign.)

Despatches by rail from	Calcutta cwt.	18,085
	Bombay "	4,952
	Karachi "	15,634
	Madras "	4,827

Raw Cotton.

Imports into Bombay	By sea cwt.	287
	Coastwise "	30,959
	By rail "	371,671
Imports into Karachi by rail	"	46,921
" " Calcutta by rail and river	"	20,936

* B-N. By. figures not included.

JUTE.

Arrivals by all routes in Calcutta	cwt.	198,758
Exports by sea from Calcutta	Gunny bags No.	15,785,591
	Jute cloth yds.	22,453,149
	Jute "	216,889

COTTON SEEDS.

Exports by sea from Bombay	cwt.	500,452
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OIL SEEDS.

Linseed.

Imports into	Calcutta by rail and river cwt.	47,777
	By sea "	9
	Coastwise "	2,689
	By rail "	85,457
	Karachi by rail "	...
Exports by sea from	Calcutta "	36,069
	Bombay "	36,703
	Karachi "	...

Rape and Mustard Seed.

Imports into	Calcutta by rail and river cwt.	95,668
	By sea "	...
	Coastwise "	...
	By rail "	43,733
	Karachi by rail "	345,245
Exports by sea from	Calcutta "	18,009
	Bombay "	57,483
	Karachi "	108,256

RICE.

Arrivals by all routes in Calcutta	cwt.	334,995
	Calcutta "	268,296
	Chittagong "	...
Exports by sea from	Bombay "	6,907
	Karachi "	6,443
	Madras "	1
	Rangoon "	183,293

TEA.

Arrivals by all routes in Calcutta	lbs.	513,051
Exports by sea from	Calcutta "	636,410
	Chittagong "	...

WHEAT.

Imports into	Calcutta by rail and river cwt.	66,440
	Karachi by rail "	302,956
	By sea "	...
	Coastwise "	22,767
	By rail "	23,803
Exports by sea from	Calcutta "	4,006
	Bombay "	275
	Karachi "	228,740

EXPORTS—RUNNING TOTALS INCLUDING FIGURES RECORDED ABOVE.

	FROM APRIL		FROM JANUARY					
	1908.	1909.	1909.	1910.	1909.	1910.	1909.	1910.
	Wheat.		Linseed.		Rape and Mustard Seed.		Cotton Seed.	
Calcutta	Cwt.	51,852	3,381,563	82,837	105,259	20,791	155,389	Not reported.
Bombay	"	89,015	2,653,292	197,853	268,259	62,735	216,913	2,174,165
Karachi	"	3,878,170	17,454,566	...	...	1,045,615	2,120,895	Not reported.

KEROSENE OIL, WEEK ENDING 12th MARCH, 1910.

Imports by sea into—	FROM			
	Russia.	America.	All other foreign countries.	TOTAL.
	galls.	galls.	galls.	galls.
Calcutta	...	...	...	...
Bombay	...	...	...	...
Karachi	...	...	...	...
Madras	...	...	...	...
			Bengal	1,018,400
			E. B. & Assam	...
			Bombay	229,900
			Sind	...
			Madras	...
			Indian Ports, Non-Br.	...
			Foreign Ports	...
Exports by sea from Burma to				

IMPORTS OF SUGAR, WEEK ENDING 12th MARCH, 1910.

Country of Shipment.	REFINED SUGAR IMPORTED INTO						TOTAL.
	Calcutta.	Chittagong.	Bombay.	Karachi.	Madras.	Rangoon.	
	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.
United Kingdom	33	...	...	...	1	48	82
Germany	...	...	...	1,000	...	...	1,000
Austria-Hungary	...	...	...	7,899	...	...	7,899
Other European Countries	...	...	...	...	...	...	...
Java	16,887	...	...	...	2,812	...	19,699
Mauritius	...	...	34,433	14,811	...	...	49,244
Other Non-European Countries	...	...	1,188	...	...	...	1,188
							Total refined
							79,112
							Total unrefined
							35
							Grand Total
							79,147

RESULTS OF AUCTION TEA SALES IN CALCUTTA.

DISTRICTS.	SEASON 1909-10.				SEASON 1908-09.			
	Sold in sale of 9th March		Sold to 9th March		Sold in sale of 2nd March.		Sold to 2nd March.	
	Packages.	Average price per lb.	Packages.	Average price per lb.	Packages.	Average price per lb.	Packages.	Average price per lb.
	A. P.	A. P.	A. P.	A. P.	A. P.	A. P.	A. P.	A. P.
Assam	42	6 8	176,262	7 4.2	130	5 11	184,078	6 7.5
Cachar	641	5 11.1	161,519	5 10.2	1,027	4 10.2	140,374	4 11.5
Sylhet	679	5 8.8	115,962	5 9.7	591	4 4.9	112,070	4 11.3
Darjeeling	...	...	61,747	10 0.5	...	...	62,919	8 7.8
Dooars	...	...	192,305	6 10.8	67	5 0.5	185,766	6 0.3
Terai	...	...	17,980	6 3.3	...	...	25,006	5 1.6
Chittagong	...	...	7,964	5 10.4	...	...	7,878	4 11
Chota-Nagpore	...	...	1,901	6 4.4	66	4 6	1,904	5 1.2
Kumaon and Kangra	...	...	3,318	5 8.1	45	5 3	2,266	5 7.7
Madras	...	...	110	5 11.7	16	4 8	185	5 2.3
Dehra Dun	...	...	356	5 11.2	...	...	...	...
Nepal	320	4 8	928	5 7.8	...	...	1,003	4 8.1
All other places	...	...	76	5 5	...	...	...	...
TOTAL	1,682	5 7.5	739,528	6 10	1,942	4 9.5	724,049	5 11.8

(The above do not include second-hand Tea, damaged Tea and Dust from those concerns which sell only that grade on this market.)

Season 1909-10 Average price of 46,789 packages Dust* sold to 9th March

" 1908-09 " 42,859 " " 2nd "

* On account of gardens which sell only that grade on this market.

NOTICE.

The undermentioned publications can be purchased from the Statistical Department of the Custom House.

COMMERCIAL GUIDE (MONTHLY).

	RATE.
	Rs. A.
Per annum	100 0
Per half-year	54 0
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FOR LESS THAN 3 MONTHS:—	
To Subscribers	per copy 8 0
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In India	" 2 8

WEEKLY MANIFEST.

First copy per annum	100 0
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" " " half-year	12 0
" " " quarter	8 0
FOR LESS THAN 3 MONTHS:—	
To Subscribers	per copy 1 0
To Non-Subscribers	" 2 0
POSTAGE FOR ONE YEAR:—	
Abroad	per copy 5 0
In India	" 3 8

DAILY LISTS—IMPORTS OR EXPORTS (separately).

One copy of either per annum	65 0
" " " half-year	35 0
" " " quarter	20 0
For less than 3 months whether to Subscribers or Non-Subscribers, annas 5 per copy.	
POSTAGE FOR ONE YEAR:—	
Abroad—One copy despatched in batches once a week	5 0
In India—One copy despatched daily	20 0
In India—One copy despatched in batches once a week	5 0
The above charges apply also to back numbers.	

MISCELLANEOUS.

Review on the Maritime Trade of Bengal (per copy)	1 0
Annual Statement of the Sea-borne Trade and Navigation of the Bengal Presidency (per copy)	6 0
Rules under the Sea Customs Act (VIII of 1878), published by the Board of Revenue, L. P., with appendices (per copy)	4 12
Schedule IV of the Indian Tariff Act, 1894 (VIII of 1894 with subsequent amendments) (per copy)	0 6

N.B.—All communications regarding the above Publications should be addressed to the Collector of Customs, Calcutta, by designation only and not by name.

H. F. HOWARD,

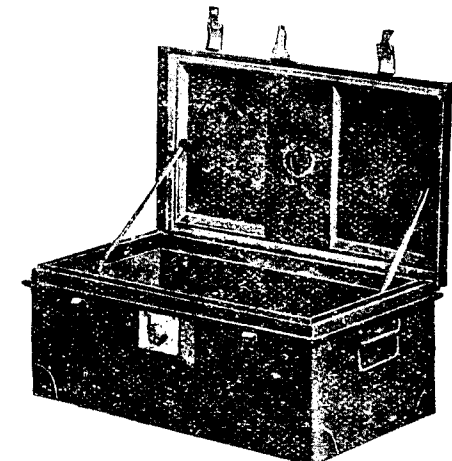
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23rd September, 1909.

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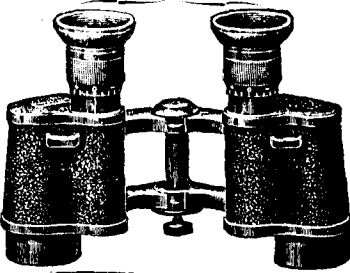
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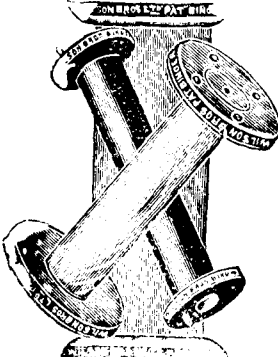
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REGISTERED.

The Indian Trade Journal.

Issued by the Commercial Intelligence Department,
India.

VOL. XVI. No. 208.] CALCUTTA, THURSDAY, MARCH 24, 1910. [ANNAS 4

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NOTES.

MONEY MARKET.

	Wednesday Evening
PRESIDENCY	Calcutta 7 per cent. (Mar. 3)
BANK RATES	Bombay 7 per cent. (Mar. 3)
	Madras 8 per cent. (Mar. 7)
	On demand 1-1½
	Telegraphic 1-4½
EXCHANGE	Transfers
	3 months 1-4½
	6 months 1-4½
GOVERNMENT PAPER (3½ per cent.)	Rs. 93½.

The spot price of wheat at Karachi on the 18th March was Rs. 32-15-4 per candy of 656 lbs. This is for white wheat on a basis of 30 per cent red wheat, 5 per cent barley and 3 per cent dirt the price of bags included. The price of Indian grey yarn (20's) at Bombay on the 22nd March was Re. 0-7-6 to Re. 0-8-0 per lb. and of Muttia Bhawnagar cotton, March delivery, Rs. 268 per candy of 784 lbs.

The wholesale spot prices of the undermentioned articles in Calcutta on the 23rd instant were as under :—

Jute—C. D. M. and Co. (Red) Group		
per 400 lbs.	Rs.	35 0 0
" M. per 400 lbs.	"	32 0 0
Rice—Ballam No. 1 per B. md.		Nil.
" Moonghy "		Nil.
Linseed—Bold 4% per B. md.		Nil.
Rapeseed—Yellow, mixed, bold.		
Cawnpore, 4% per B. md.	"	Nil.

The total approximate gross earnings of State and Guaranteed Railways from 1st April 1909 to 5th March, 1910, show a gain of Rs. 2,76,77,986 and Rs. 47,55,966 as compared with the corresponding figures for 1908-09 and 1907-08 respectively.

In their weekly report on the Shanghai piece-goods market, dated the 24th ultimo, Messrs. Noël, Murray and Co., Ltd., say:—Since we wrote our last report better opportunity has been afforded for gauging the trend of our market for Indian yarn with the result that the rather pessimistic views expressed therein are entirely refuted. Buyers are more readily meeting the views of holders than was thought would be the case, their orders from the country being evidently of an urgent nature, and it is satisfactory to notice are much more general. Fully 5,353 bales have been placed by importers during the interval, in addition to what have changed hands amongst the Natives themselves, which must be considerable as a large quantity was bought on speculation for delivery after the New Year holidays. In the majority of cases quite substantial advances are being paid. Buying is chiefly for the following markets:—No. 6s for Newchwang, No. 10s for Tsingtan, Tientsin, Newchwang and the River, including Szechuen, No. 12s and 16s for Kiukiang and the No. 20's for the River and Szechuen markets.

The following return shows the number of bales of cotton imported and exported at the various ports of the United Kingdom during the week and 8 weeks ended 24th February, 1910:—

	IMPORTS.		EXPORTS.	
	Week ended 24th Feb., 1910.	8 weeks ended 24th Feb., 1910.	Week ended 24th Feb., 1910.	8 weeks ended 24th Feb., 1910.
	Bales.	Bales.	Bales.	Bales.
American . . .	51,615	383,606	6,288	39,448
Brazilian . . .	1	8,165	—	1,267
East Indian . . .	12,837	48,907	4,467	8,852
Egyptian . . .	5,369	63,551	1,948	20,634
Miscellaneous . . .	2,641*	13,994†	225	2,106
Total . . .	72,668	518,223	12,928	72,307

* Including 5 bales British West African, and 1,430 bales British East African.

† Including 1,249 bales British West Indian, 237 bales British West African, and 3,535 bales British East African.

NOTE.—Cotton "in transit" or "for transhipment under bond," if described as such in the ships' reports, is not included in this return.

The proposed uniform sale-note for the American cotton goods trade has again been under discussion by a committee representing the buyers and "converters" in conjunction with the two

committees on the same subject appointed by the National Association of Cotton Manufacturers and the American Cotton Manufacturers' Association. The only result of the meetings was a report signed by the buyers' and converters' committee, stating that they were in sympathy with the efforts of the associations to adopt such a contract as should do away with many of the uncertainties now existing as to the rights of buyers and sellers. The immediate adoption of such a contract, the report said, could not be expected, the committee feeling that there was not yet a sufficient agreement by the trade upon the purposes sought. The committee also felt that the views of the buyers, and particularly the converters, of cloths should be sought further. A committee of buyers was therefore suggested to consider the question with the committee already existing.

Mr. H. G. Hester has compiled the following statement of the average weights of cotton bales handled at the American ports and overland from September 1st to January 31st inclusive:—

	1910.		1909.
	Bales.	Average weights, lb.	Average weights, lb.
Texas . . .	2,207,385	513.56	532.35
Louisiana . . .	865,523	513.57	522.41
Alabama, etc. . .	321,519	515.04	521.92
Georgia . . .	1,356,090	506.56	505.65
South Carolina . . .	190,941	495	490
North Carolina . . .	280,193	495	507
Virginia . . .	403,876	490	485
Tennessee, etc. . .	613,798	518.94	521.70
Total five months . . .	6,238,824	509.72	519.43
Total to December 31st . . .	5,490,255	510.46	520.79

The difference in average weight between this season's and last season's bales was 10.33 lb. at December 31st and 9.71 lb. at January 31st. The January bales must therefore have been appreciably heavier this season than last.

The Corn Trade News gives the following summary of the world's crops as on the 1st instant:—United States of America—Private reports winter wheat worse, owing to damage by alternate thawing and freezing; "Modern Miller" not worse than recently, and "North Western Miller" bulletin hopeful. Receipts well maintained. Canada—Ogilvie Flour Milling Co. say home consumption largely increased, and estimate export surplus must be materially reduced. Winnipeg receipts fallen off and much smaller than year ago. India—Punjab official report shows increase wheat area nearly million acres, prospects good. Argentina—Latest threshing returns wheat and linseed worse. Larger number

steamers loading and increased shipments indicated. Australia—Loading and chartered tonnage being worked off, shipments smaller. New Zealand—Portion wheat, oats crops ripened prematurely. Russia—Recent official crop report says winter grain not favourable, especially in east and south-east, unofficial reports say generally crops about normal, small acreage. Weather better, arrivals ports increasing. Roumania—Weather mild, favourable crops, wheat acreage good increase; spring sowing commenced. Hungary—Winter crops good, spring sowings progressing. Austria—Condition winter crops satisfactory, wheat area larger. France—Weather wet, stormy last week; many complaints about crops especially in west, but elsewhere the condition still considered about fair, fine weather urgently wanted; supplies light. Germany—Crops look well, but growth recommenced unusually early, causing some fears possible damage later; supplies native larger. Italy—Official bulletin, 20th February, says wheat crop satisfactory, spring sowing is in full swing. Spain—Weather still too dry centre and south, crops not promising well. Holland and Belgium—Weather too wet, fears delay spring sowing. North Africa—Crop reports now favourable. United Kingdom—Reports of condition winter wheat varied. Weather rather better, but fair reduction wheat acreage considered certain.

The prices of British corn per quarter of 8 bushels, as received from the inspectors and officers of Excise in the week ended 26th February, 1910, were as follows:—Wheat 32s. 7d.; barley, 24s. 3d.; and oats, 17s. 10d.

We take the following paragraph from C. Czarnikow's Weekly Price Current dated London, March 3rd:—The Cuban sugar crop continues to engage the attention of operators, who still try to draw conclusions from early weekly receipts on the final results. Therefore, when in addition to drought the weekly receipts were again lower, speculation gathered fresh force, especially on the Continent, and August moved from 14s. to 14s. 7½d. to 14s. 7d., and equal to 5.10 cents, July Javos to 4.67 cents, and new crop Beet to 4.50 cents, whilst New York rose from 4.30 to 4.39 cents. Canes are richer than a year ago, can be moved and ground in dry weather more easily and rapidly than during rain last year, and as in January—March their supply usually exceeds the grinding capacity, it is idle to talk of lower weekly production. That would recall the fears of beneficial showers in 1909, and we must defer such conclusions till April.

Writing on March 1st, the Manchester Guardian says:—The standard copper market in London has again been extremely steady during the past week, the highest price of the week being £59 10s., and the lowest £59 7s. 6d. It is many months since a week has passed with such narrow movements,

and confidence in the present value as likely to be maintained is growing, although consumers do not come in very freely. Judging from various signs the business position in the United States is not developing as was expected at the beginning of this year. There is a hitch somewhere, and it is not too certain that the delay in the expansion of American domestic trade can be attributed comfortably and absolutely to what is known as the "Washington scare." It is more probable that the general restriction in production of manufactured goods caused by extremely high prices in leading staples of commerce is responsible, and this factor is likely to be operative for at least three months. The reports about that American copper production will show a large decrease, and that progress will be made in the reduction of stocks, but the market here would like to see some actual proof before putting credence in these rumours, and how this proof is to be obtained while the American statistics are viewed with scepticism it is rather difficult to discover. Prices of manufactured copper and brass, i.e., tubes, etc., have remained unaltered for nearly a month.

Although reports of the abandonment of the huge American copper merger project are denied, it is admitted, says the Manchester Guardian, that there are several reasons for temporarily suspending the negotiations. It is deemed best to await the decisions of the Supreme Court in the Standard Oil and Tobacco Trust cases, and a further clarifying of the legislative situation at Washington, so that the consolidation, when finally effected, may be made to conform to the Government's ideals of a "good trust." Further, it is understood that the organisers desire to see the price of copper reach what they consider a normal level. These problems, however, are gradually being worked out, and it is probable that April will find the preliminaries out of the way and the road clear for the big combine. Meanwhile, it is regarded as practically settled that the Nevada Consolidated will not go into the Utah Copper Company combination, but will be taken into the big consolidation independently. It is not expected that there will be any hitch in bringing about the Butte merger, as the dominant interests in the companies concerned are said to have the situation well in hand. With the Utah Copper and Butte consolidations disposed of, Mr. John D. Ryan and his associates will, it is believed, lose no time in completing the merger of south-western properties and that done, much of the arrangement work will be over. In the meantime the curtailment of production is going on, with a view to reducing the surplus supply of metal which has weighed down the market and prevented the price from reaching what is regarded as a normal level.

A large meeting of members of the National Amalgamated Society of Brassworkers was

held at Birmingham on March 1st to consider the proposal of the employers to get the trade scheduled under the Trade Boards Act as the only means of preventing sweating and underselling. Mr. W. J. Davies, the general secretary, expressed astonishment at the proposal, and said that it was the first time in the history of any labour movement that any body of employers had proposed to go to the Government to obtain State control. The employers had given them an assurance that they would stand by the men and fight zealously to put an end to the existing state of affairs. The Bishop of Birmingham, too, had interested himself in the agitation for the redress of the scandals in the trade, and had expressed approval of the proposal. A number of operatives spoke in favour of the movement, and said that competition had depraved the trade. A resolution was passed urging the speedy adoption of the employers' proposal, so that a minimum rate of wages could be fixed, and sweating arrested.

The statement below shows the quantity and value of manganese ore exported by sea from each province of British India to countries of final destination in February, 1910:—

Countries of final destination.	BENGAL.		BOMBAY.	
	Quantity.	Value.	Quantity.	Value.
February, 1910—				
United Kingdom	15,000	13,500	396,000	3,05,812
Holland	...	...	36,000	27,000
Belgium	92,000	90,000	264,000	2,55,675
France	50,000	50,000	109,000	97,225
United States of America	...	...	...	...
TOTAL	157,000	1,53,500	805,000	8,85,712
Countries of final destination.	MADRAS.		TOTAL.	
	Quantity.	Value.	Quantity.	Value.
February, 1910—				
United Kingdom	30,000	9,000	441,000	3,28,312
Holland	...	...	36,000	27,000
Belgium	...	...	356,000	3,45,675
France	...	...	159,000	1,47,225
United States of America	126,000	56,700	126,000	56,700
TOTAL	156,000	66,700	1,118,000	9,04,912

At the Annual Meeting of the Bombay Chamber of Commerce on the 16th instant, Mr. C. H. Wilson said:—Our chairman in the interesting address to which we have just listened has dealt with the events of the past year in such a comprehensive manner that in rising to second the motion there is only one subject on which I would ask permission to offer a few remarks, and that is the **increased duty on silver** and its probable effect upon our great local industry, as to which I cannot help thinking that the opinions hitherto expressed have been unduly pessimistic. It seems to have been generally assumed that the increased duty would lead to a corresponding falling off in the Indian consumptive demand, that this would entail a serious decline in the world's price of silver and our exchanges with silver-using countries, and that a formidable handicap would thus be created in favour of these countries to the detriment of our own industries. Now it will be evident that any decline in the price of silver due to a falling off in the Indian consumptive demand can hardly be greater than the proportion which such falling off bears to the total amount of silver available in the world's markets. This amount during the past three years has averaged about 214 million ounces, while the net imports of silver into India on private account in the same period have averaged 62 million ounces. A reduction in these imports commensurate with the increase in duty would amount to 6 million ounces, or something under 3 per cent of the total world's production, and we thus have a rough measure of the worst that can befall us. The next point for consideration is whether this worst is likely to happen, whether in short the Indian consumer is, as a matter of fact, likely to buy less silver than he did before, because of the extra Rs. 6 or so per 100 tolas which he will now have to pay for it, and I think we may safely conclude that no such result is at all probable, all experience going to show that the Indian demand is dependent on a variety of factors of which cost within certain limits would really appear to be the least important. In looking over the records of the past few years we find an advance of 11 per cent in the average price accompanied by an increase of 4 per cent in the volume of net private imports. A fall of 2 per cent in the price by an increase of 35 per cent in imports, a fall of 3 per cent in the price by a fall of 11 per cent in imports and so on, showing clearly that no very intimate relation exists between the Indian demand for silver and its cost to the consumer; and it follows that any effect produced by the enhanced duty in question should be of a very trifling and temporary nature.

The following figures represent the quantity and value of gold and silver imported from and exported to foreign countries into and from British India during the month of February 1910. The total imports of gold were 393,037 ozs. valued at Rs. 2,42,28,040; of these 206,252 ozs. priced at

Rs. 1,32,08,123 represented bullion, 183,366 ozs. worth Rs. 1,08,20,585 represented sovereigns and other British gold coin, and 3,419 ozs. valued at Rs. 1,99,332 represented other coined gold. The exports of gold totalled 48,976 ozs.* in quantity and Rs. 27,87,337 in value, and of these 48,974 ozs. valued at Rs. 27,87,079 represented bullion, 2* ozs. worth Rs. 167 represented sovereigns and other British gold coin and the quantity* (not stated) but valued at Rs. 91 represented other coined gold. The total imports of silver were 3,621,079 ozs. priced at Rs. 60,22,464; of these 3,410,260 ozs. valued at Rs. 54,64,643 represented bar, 207,296 ozs. worth Rs. 5,52,709 represented Government of India rupees, and 3,523 ozs. valued at Rs. 5,112 represented other coin. The total exports of silver were 1,004,020 ozs.* valued at Rs. 19,32,222; of these 8,869 ozs.* worth Rs. 27,093 represented bullion, 283,884 ozs. priced at Rs. 7,57,023 represented Government of India rupees, 351,229 ozs. valued at Rs. 5,27,097 represented British dollars and 360,038 ozs. worth Rs. 6,21,009 represented other coin. During the month the net imports of gold amounted to Rs. 2144 lakhs and of silver to 40.9 lakhs of rupees. The figures marked with an asterisk* are defective, the weight of certain postal parcels not being declared by the Post Office.

Another volume has been added to the list of commercial literature in India by the publication of the *Advancement of Industry*, by Mr. H. H. Ghosh. The book deals at length with the principal industries now in vogue in this country and offers suggestions as to their improvement. The publishers are Messrs. R. Cambray and Co., Calcutta, and the price Rs. 3.

The daily prices of opium per chest for the periods mentioned below were as follows:—

For the week ending 19th March, 1910—

In the Calcutta market—

Behar opium—Rs. 2,638; 2,638; 2,764; 2,798; 2,798; 2,798; 2,798.

Benares opium—Rs. 2,625; 2,625; 2,750; 2,780; 2,780; 2,780; 2,780.

The prices in the time bargains for the Behar opium of the 4th sale of 1910 were Rs. 2,640; 2,640; 2,766; 2,800; 2,800; 2,800; 2,800.

In the China market—

At Hongkong—(Exchange Rs. 129 to 130 per \$100)

Behar opium—\$2,080 and 2,100; 2,100 and 2,120; 2,130; 2,140; 2,180; 2,190 and 2,200; 2,200; 2,200.

Benares opium—\$2,080; 2,100 and 2,120; 2,150; on the 13th, 14th and 15th instant. \$2,190 and 2,210; 2,225; on the 17th and 18th instant.

At Shanghai—(Exchange Rs. 173 per 100 taels.) Behar opium—On the 15th, 16th, 18th and 19th instant, 1,585; 1,620 and 1,660; 1,705 and 1,710; and 1,725 taels respectively.

Benares opium—On the 15th, 16th, 18th and 19th instant, 1,595; 1,630 and 1,670; 1,715 and 1,725; and 1,735 taels respectively.

For the week ending 12th March, 1910—

In the Bombay market—

On the 6th and 7th instant (new 1909-10) Rs. 1,350 to 2,350; (new 1908-09) Rs. 1,400 to 2,435; (old 1907-08) Rs. 2,500 to 2,560. From the 8th to 12th instant (new 1909-10) Rs. 1,350 to 2,600; (new 1908-09) Rs. 1,375 to 2,660; (old 1907-08) Rs. 2,700 to 2,740. The latest prices at Hongkong and Shanghai were (new) Rs. 2,369 and 2,618; (old) Rs. 2,420 and 2,687 respectively.

At the public auctions of East Indian tanned hides held in London on February 24th, 90,929 Madras, Bombay and Ceylon were offered (including about 18,000 calf) and 57,088 sold. There was a very fair attendance of buyers, and a good demand for all fair to good qualities. Good to best Madras tan-nages advanced $\frac{1}{4}$ d. to $\frac{1}{2}$ d. per lb., the better grades showing most appreciation. Fair to good were firm to $\frac{1}{4}$ d. dearer, and dull ordinary unchanged. In these "extra heavy" with few exceptions, were about $\frac{1}{4}$ d. easier, and "3rd heavy" and "fourths" were barely steady. Other assortments sold readily at about $\frac{1}{4}$ d. per lb. advance. Rejections partly sold at last prices. Best calf gained 1d. per lb. and 3rd calf were unchanged. Buffalo leather was again scarce and sold at full prices, Bombays sold at $\frac{1}{4}$ d. to $\frac{1}{2}$ d. per lb. advance. Ceylons were steady. The stock in brokers' hands is about 50,000.

The Oil and Colour Trades Journal gives the following particulars as to the state of the oil market at Hull on February 24th:—Rape oil has kept steady with Jamba at 24s. 10 $\frac{1}{2}$ d.; no East Indian rape oil has been on offer. Soy bean oil is steady with spot at 26s. 3d.; March-April, 26s. 4 $\frac{1}{2}$ d.; May-August 26s. 6d. The exports of soy oil totalled 398 tons, of which New York took 155, Rotterdam 111, Boston 66, Amsterdam 24, Gothenburg and Leghorn 13 each, and Genoa 17 tons. For linseed oil the market has been steady at 32s. 9d. spot; 32s. March-April, and 31s. 9d. May-August. The exports only amounted to 27 tons, of which Asiatic Turkey and the Philippines took 5 each, Alexandria and Chili 4 each, and Christiana, Constantinople, Havana, and Port Said 2 each. The market for cotton oil has fluctuated but closed firm with refined cotton oil at 28s. spot; 28s. 3d. March-April, and 28s. 9d. May-August; crude cotton oil is quoted 26s. 10 $\frac{1}{2}$ d. The shipments amounted to 664 tons for the week, of which America took 370, Germany 99, Belgium 85, Holland 40, Turkey 57, and Egypt 10 tons each. Turpentine has been a quiet market with spot at about 42s. 3d., and petroleum has ruled steady at about 6 $\frac{1}{2}$ d. The market for tallow is firm with mutton about 34s. 6d.; beef, 35s.; and mixed 33s. Home melted is quoted about 33s. Lard oil has been a firm market, with refined at 56s. per cwt. and olive oil has kept good with Levant and Candia at about £48 10s. The market for palm oil has a rising tendency, with Lagos at about £30 2s. 6d. for March-April.

With reference to the petroleum deposits at **Comodoro Rivadavia**, His Majesty's Consul at Buenos Aires (Mr. A. C. Ross, C.B.), reports that there are five wells, from 500 to 520 metres in depth, sunk at Comodoro Rivadavia by the Government. The water flush system of boring has been employed; considerable quantities of water as well as oil and gas are given by all the wells, and it has not been found possible to separate the oil from the water. When the water has been shut off from the oil, an excellent heavy burning oil should be obtained. A company, using the Canadian Galician system of boring, has sunk wells in San Rafael, a place in Mendoza province, some 700 miles from Buenos Aires and from Bahia Blanca. One of these is 710 metres deep; at 200 metres a large quantity of heavy oil and a good deal of gas were found; at 450 metres a very large volume of gas and a considerable quantity of light oil were encountered, and at 500 metres the bore entered a clay bed. About a mile distant from this well, a heavy oil was struck, at a depth of 210 metres, which rose to the surface and overflowed the borehole at the rate of over 10,000 gallons in 24 hours; on sinking the borehole another four metres, the output of oil was increased to over 15,000 gallons in 24 hours. In the province of Jujuy, two boreholes have been sunk in the department of Santa Barbara; the mining camp is about 12 miles from Yuto station on the Central Northern Railway. Here, at a depth of 100 metres, quicksands 450 metres deep, carrying a large volume of water, were encountered; at 550 metres from the surface a bed of plastic clay, containing "oil shows", was encountered, through which boring is being carried out. The Santa Barbara district has perhaps 40 or 50 natural outflows of petroleum, and such are found in very large numbers in the neighbourhood of Tartagal in the north, and again still further north in Bolivia. A large quantity of surface oil can be obtained in the Santa Barbara district by striking hand pits 5 or 6 metres in depth; the oil is all of fine quality and makes an excellent lubricant, even for electric light machinery. The Tartagal oils have the same characteristics. Expert observation of the oils of Argentina suggests, adds His Majesty's Consul, at any rate so far as surface oils are concerned, that the farther north they are found the lighter they are. All the oil samples seen appear to have an asphalt basis.

The weather conditions in India during the week ended March 19th were marked by the passage of a disturbance approaching north-west India from Persia, which has given local precipitation in Baluchistan and Kashmir. In north-west India and the central parts of the country temperature has risen and is generally in excess.

We have received the following agricultural notes from Mr. W. C. Renouf, I.C.S., Director of

Agriculture, Punjab:—Light rain in the middle of February in the Salt Range and in submontane districts was beneficial to the standing crops. Some damage was done to early gram by cold winds at the end of February, but taken all round, prospects are distinctly good. Unirrigated wheat in the North is particularly promising. It is proposed to take a full class of 38 at the **Agricultural College** next July. As only ten of these will be scholarship holders it will be possible to admit a considerable number of **private students**. The three years' college course is framed specially for young men of the agricultural class who own or will own substantial estates and who will ultimately take up the management of their estates. It is hoped that a considerable number of young men of the class described above will present themselves for admission. The advantages of a practical and liberal education in agriculture for those who will make agriculture their profession should be obvious. Copies of the prospectus can be obtained on application to the Principal of the College. A **practical vernacular course** lasting one year is under consideration and it is hoped that it will be possible to start this as soon as the three years' college course has been established. The monthly **Zemindari practical classes** at Lyallpur which had to be abandoned during the time of the Exhibition have been restarted. A new departure has been made in the holding of an outstation ploughing class at Gurdaspur where 30 new Rajah Ploughs bought by the District Board and others will soon be at work. Fifteen pairs of cattle and over twenty men have received instruction. Owing to shortage of staff such facilities to purchasers of machinery, etc., can only be undertaken at District Headquarters where the numbers are sufficiently large to justify the expenditure of time. It is just about a year since the Department began to recommend light furrow turning ploughs for weed eradication and the rapid preparation of land for seeding and only a few results are to hand. These, however, are very promising as the ploughs have not only done what was claimed for them as labour saving implements but have been instrumental in substantially increasing the crop yields. In one instance the user has doubled his yield of rice on grassy land. In another case the purchaser whose land was yearly deteriorating on account of weeds and insufficient cultivation and whose crop yield was rapidly diminishing has this year secured a full crop of wheat by using those ploughs. Another instance shows a remarkable improvement with a crop of gram where the user has been unable for some years back to secure a crop at all—and has this year prospects of an excellent outturn. The practical class at Lyallpur on wheat reaping by machinery will begin on April 4th and extend over ten days. Visitors from a distance are requested to send their names to the Deputy Director of Agriculture, Punjab, Lyallpur, in order to secure priority of tuition. If necessary the class will be split into 2 sections to avoid delay.

Applications in respect of the following new inventions were filed in the Patent Office, Calcutta, during the week ending 14th March, 1910:—J. A. Sandeman, tea planter, Ghazipur Tea Estate, Kalania P. O., A. B. Railway—Improvements in rotating cylindrical driers. J. Fitzgerald-Lee, army tutor, Rawalpindi, British India—A wigwam tent for bivouacking purposes. E. A. West, West's Patent Press Co., Ltd., Cawnpore—Improvements in presses for baling hay or other fodder for transport. N. Pavia, engineer, Turin, Corso, Siccardi N. 51 and G. Casalis, employee Turin, Corso Principe Oddone N. 23—Improvements in automatic couplings for railway vehicles and the like. M. U. Schoop, chemist, Villa Plaisance, Garenne-Colombes, near Paris—An improved method of applying metallic coatings. A. R. Hubbard, engineer, 1, Peckham Road, Surrey, England—Improvements in spring wheels. T. A. Cooke, manufacturer, trading as Henry Blann and Co., Breton Works, Rugeley, England—Improvements in cash boxes and the like. J. Weiser, engineer, chief manager, Petroleum Distillery in Mährisch-Schönberg, Austria—Process and apparatus for manufacturing asphalt and coke by distillation. J. Martin, engine fitter, 17, Adelaide Street, Bradford, Manchester—A self-lubricating picker spindle for looms. Rosi Lamp'l (nee Muller) and P. J. Lamp'l, portrait painters, 47, Bahnstrasse, Schöneberg, near Berlin—Improvements in and relating to the production of inimitable graphic impressions. J. M. Malloch, consulting engineer, 8, Panmure Street, Dundee, Scotland—Improvements in shuttle looms for lays of looms. W. G. Firman, tea garden manager, Borelli Tea Company, Tezapore, Assam, British India—Improvements in tea breakers and the like. S. Taylor, jute merchant, Nalgola, Dacca, E. Bengal—An improved process for decorticating jute. A. Manuel del Espino, engineer, Bengal Assam Steamship Co., 6, Chapel Road, Hastings, Calcutta—A new or improved method of an apparatus for removing scale from the boiler tubes and tube plates of marine boilers and the like.

NOTICES.

ENQUIRIES.

(For particulars address the Director-General of Commercial Intelligence, 5, Olive Street, Calcutta.

An asterisk (*) preceding an enquiry indicates that bank references are offered.)

Hides.

(616).—A Barcelona firm desires to appoint a buying agent for hides in Calcutta.

Cocoanut Oil.

(617).—A Hongkong firm requires the addresses of shippers of cocoanut oil.

Galena.

(618).—A officer in a Native State desires the addresses of firms in India in a position to purchase

large quantities of galena (lead sulphide) which assays over 78 per cent.

Weldless Chains.

(619).—A London firm manufacturing weldless steel chains, chain adjusters, lifting clamps, etc., desire to appoint a firm of engineers or general merchants as their agents in Bengal.

Coal.

(620).—A Rangoon firm desires to be placed in touch with a Calcutta coal firm not already represented in Burma.

BOOKS OF REFERENCE.

The following publications have been received and may be consulted by any desirous of studying them at the Office of the Director-General of Commercial Intelligence, 5, Olive Street, where they will be displayed in the ante-room till Wednesday, the 30th March, 1910:—

Foreign and Colonial Publications.

Australia—Vital Statistics of the Commonwealth of — for the quarter ended 30th September, 1909 — Bulletin No. 17; Trade, Shipping, Oversea Migration, and Finance of the Commonwealth of Australia for the month of November, 1909, Bulletin No. 35; Bulletin No. 36 for the month of December, 1909 Bulgaria—Statistique Agricole pour L'Annee 1906 and 1907. Canada—Monthly Report of the Department of Trade and Commerce of — November, 1909; Laboratory of the Inland Revenue Department Ottawa, — Bulletin No. 195 — Cream of Tartar; Bulletin No. 197 — Lime Fruit Juice (Lime Juice); Weekly Report No. 317, February 21st, 1910. Mexico — Resumen de la Importacion y de la Exportacion, Noviembre de 1909, No. 132; Boletin de Estadistica Fiscal Agosto de 1909—Numero 342. United States—Annual Report of the Commissioner General of Immigration for the fiscal year ended June 30, 1909. Bureau of Chemistry — Cir. No. 48—The Cold Storage of Apple Cider; Bureau of Plant Industry—Cir. No. 8—The Smuts of Sorghum; Bulletin No. 166—The Mistletoe Pest in the Southwest; Bulletin No. 169—Variegated Alfalfa; Bureau of Soils — Bulletin No. 63 — Reference List on the Electric Fixation of Atmospheric Nitrogen and the use of Calcium Cyanamid and Calcium Nitrate on Soils; Office of Experiment Stations—Bulletin No. 222—Irrigation in Texas.

Indian Publications.

Bombay—Administration Report of Irrigation Works in the Bombay Presidency, 1908-09, with Accounts and Statistical Statements. Burma—Forest Pamphlet No. 14, Forest Economy Series No. 7—Padank (*Pterocarpus Macrocarpus*, Kurz.) Punjab—Report on the Operations of the Department of Land Records, for the year ending 30th September, 1909.

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The Indian Trade Journal.

THURSDAY, MARCH 24, 1910.

SAN HEMP INDUSTRY.

THE latest contribution on san hemp (*Crotalaria Juncea*) is *Agricultural Ledger* No. 7 (Vegetable Product Series No. 112) issued from the office of the Reporter on Economic Products and published by the Superintendent of Government Printing, India, Calcutta. According to this *Ledger*, this particular hemp may be grown on any land where jute or rice thrives; but, as water for steeping is of the greatest necessity, especially during the latter part of the cold weather, it is chiefly grown near rivers and swamps. The *Ledger* in question deals particularly with san hemp as grown in the Pabna district, where two varieties are known—Boran and Chotna. The first of these is grown for its fibre but the second is used as a manure, being either ploughed or cut when green and left on the field to serve the purpose of manuring. But the cultivation of both varieties is considered necessary in

order to enhance the fertility of the soil before jute or rice is grown. When jute is to be grown, san is generally the previous crop, and the result is a yield of from 576 to 658 lbs. per bigha (.33 acre). Without san, the yield is only 247 to 411 lbs. per bigha. With san, two crops a year are obtained from the same soil. But it is said not to be profitable to cultivate san more than three years in succession on the same ground; after that period the soil requires a change, and this is usually given by growing gram or sarson as the previous crop.

The area under san in the Pabna district (almost entirely in the Serajganj sub-division) may be estimated at about 27,000 acres. The total annual production may be said to be about 130,000 maunds (4,758 tons); at any rate, the *Ledger* says, it cannot be more than 150,000 maunds (5,490 tons). This estimate of production is based on the information obtained from local dealers in the fibre as well as the cultivators.

Almost the entire production of the district is exported. A small portion, however, is consumed locally, being used for fishing nets, gunnies, and cordage and ropes, especially for towing boats against stream, such ropes being known as *goons*. It is stated at Ullapara that native merchants, chiefly from Dacca, known as the *Gooniahs* (i.e., dealers in, or manufacturers of, *goons*) come in during the season to purchase the fibre, which they carry to their native place where it is made into *goons* or other kinds of ropes.

San hemp is sown in October-November when the soil still holds moisture in it. Two ploughings are necessary before the seed is sown. After sowing the seed a third ploughing is given. The next treatment is laddering and the operation is complete. For a bigha of land about $\frac{1}{2}$ maund of seed is required. The usual price of a maund of seed is from Rs. 6 to Rs. 8 (8s. to 10s. 8d.). If labour is hired, the total expenses till the completion of sowing come to about Rs. 2 per bigha. The crop is ready for harvest during January-February. Then the whole plant is up-rooted or pulled up and tied in bundles. The process of retting san hemp fibre is similar to that of jute. The amount of fibre turned out by a bigha of land is on an average 4 maunds (329 lbs.). If the average price of the fibre is taken at Rs. 6 per maund, the value of the outturn of a bigha comes to about Rs. 24 (32s.).

The cost of cultivation, seed, preparation of fibre, etc., are considered under several heads. (1) As already stated, the cost of ploughing and sowing a

bigha of land, if done by hired labour, is about Rs. 2 (2s. 8d.). (2) The quantity of seed required per bigha is $\frac{1}{2}$ maund (41 lbs.), the price of which is about Rs. 4 (5s. 4d.), taking the price per maund at Rs. 8 (10s. 8d.). (3) Assuming six men can harvest the crop of a bigha in a day, and the wages of a man annas 4 per diem, the expenses of harvesting a bigha (.33 acre) is about Rs. 1-8 (2s.). (4) The expense of carriage to the water-side for steeping cannot be ascertained exactly. It varies according to the distance of the field from the water-side. It must be remembered that san is grown on fields not far off from rivers, or swamps, so that practically this expense of carriage to the water-side is nominal. In certain cases, however, this expense may be taken at Re. 1 (1s. 4d.) per bigha (.33 acre). (5) The cost of extracting the fibre of the crop of a bigha of land may, on an average, be taken at Rs. 2 (2s. 8d.). (6) Although rent of land cannot strictly be called a part of the cost of cultivation, still we cannot neglect it, being from Rs. 1-8 to Rs. 2 (2s. to 2s. 8d.) per bigha (.33 acre).

All these expenses may be summarised as follows:—

	Rs.	A.	P.
Ploughing and sowing	2	0	0
Seed	4	0	0
Harvesting	1	8	0
Carriage to water-side	1	0	0
Retting	2	0	0
Rent of the land	2	0	0
Sundry expenses	0	8	0
Total cost	13	0	0

As already stated, the value of the outturn of a bigha is about Rs. 24. So that the net profit left to the cultivator is approximately Rs. 11 (14s. 8d.) per bigha (.33 acre).

The commercial experts to whom samples of fibre were submitted confirmed the conclusions, deduced from the results of the chemical examination, that these fibres were of remarkably good quality. They were also particularly satisfactory in respect of length, strength and colour. Several of them were above the average length, were said to have been very well prepared, and were expected to find a ready market.

It may be of interest, says the *Ledger*, to compare the results of the three chemical examinations made in the present instances with the figures obtained for specimens of Burmese and Indian

san hemp previously received at the Imperial Institute:—

	Registered No. 30844.	Registered No. 30846.	Registered No. 30848.	Burmese San Hemp.	Calcutta San Hemp.
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Moisture	8.0	8.3	8.2	9.8	9.4
Ash	0.3	0.3	0.3	3.1	0.6
a—Hydrolysis, loss	7.5	6.3	6.7	9.2	10.5
b—Hydrolysis, loss	16.0	15.7	15.7	15.8	14.0
Acid purification, loss	1.0	1.0	1.4	3.7	1.6
Cellulose	87.9	88.8	87.6	87.5	90.8

This comparison, it is contended, indicates that the three samples from Eastern Bengal and Assam were of very good quality and closely resemble those received from Burma and Calcutta. The present samples, however, probably contained smaller amounts of soluble extraneous impurity than the latter, since they suffered smaller loss on a—hydrolysis and acid purification.

—His Majesty's Commercial Attaché at St. Petersburg (Mr. H. Cooke) has forwarded the following statistics of the foreign trade of Russia during the year 1909, taken from the official "Commercial and Industrial Gazette" of 9th February:—

Year.	By European Frontiers.		By Asiatic Frontiers.*	
	Imports.	Exports.	Imports.	Exports.
	Roubles.	Roubles.	Roubles.	Roubles.
1907	696,299,000	991,526,000	141,429,000	61,278,000
1908	747,307,000	937,976,000	152,227,000	60,382,000
1909	779,688,000	1,375,046,000	140,381,000	76,936,000

*Figures given are for the period 1st January to 27th December, 1909. Rouble=2s. 1½d.

The figures for both imports and exports by European frontiers are the largest ever yet recorded. The decline last year in the imports by Asiatic frontiers is doubtless due to the abolition, from 1st March last, of the free port in the Russian Far East. The large increase in exports in 1909 is explained by the abundant harvest. The export of grain from European Russia during the period 1st January to 26th December amounted to 660,319,000 pounds (about 10,565,100 tons), as against 329,408,000 pounds (about 5,270,500 tons) in the period 1st January to 27th December, 1908.

CHAMBERS OF COMMERCE.

BENGAL.

We take the following particulars from the abstract of the proceedings of the Bengal Chamber of Commerce for the month of February, 1910:—

Seventh Congress of Chambers of Commerce of the Empire.

In the January Abstract, reference was made to the rules governing the procedure of the Congress of Chambers of Commerce of the Empire. According to these rules, Chambers representing a population of a million and upwards, are entitled to five votes. But the Indian delegates found at Sydney that it had been decided to allow only two votes to the Bengal Chamber, and one vote to the Upper India Chamber. Against this decision the delegates protested, and they subsequently asked the support of the Bengal Chamber to their protest. After consideration, the Committee recently addressed the London Chamber on the subject. They showed that at the last census (1901) the population of Calcutta and Howrah was 1,184,581. It follows, therefore, that the Bengal Chamber of Commerce should have been given five votes instead of two. It is not known to the Committee if a similar departure from the procedure rules was made in the case of Chambers other than Indian. But if not, they consider that the restriction is unfair to the Indian Chambers, which represent not only an enormous population but an immense volume of trade. The foreign trade of Calcutta is vastly greater than the aggregate trade of any of the Australian or South African provinces. According to the last issue of the *Statesman's Year Book*, the total trade of New South Wales for 1907-08 was not more than £50½ millions, and of Victoria about £53 millions, while none of the other Australian colonies reached £15 millions. Similarly, the import and export trade of Cape Colony for the same period was not more than £60 millions; and that of the Transvaal aggregated about £47 millions. On the other hand, the import and export foreign trade of Calcutta during 1907-08 was about £91 millions. Figures for the various Canadian provinces are not before the Committee, but the total trade of the Dominion in 1907 did not exceed £133¼ millions, against India's total of upwards of £250 millions. In view of these figures it did not seem to be necessary to do more than to bring the matter before the notice of the authorities of the Congress. For if the procedure rules are strictly adhered to in the case of the Colonial Chambers, it is difficult to understand why they should be so departed from as to weaken the influence of the Bengal Chamber in the Congress. The same remarks apply to some of the other Indian Chambers, notably Bombay and Upper India.

The Eastern Bengal State Railway.

On the 17th January the Committee informed the members of the Chamber that the Secretary of State had decided that the Eastern Bengal State

Railway should, for the present, continue to be worked by State agency. Shortly afterwards, the Indian Tea Association directed attention to the need for the closer association of the management of the railway with the mercantile community. When the question of the future working of the line was under consideration last year, this point was discussed. It has been now again examined by the Committee, who have addressed the Railway Board in regard to it. They have expressed the opinion that the end in view might be attained, to some extent, by the formation of a Committee, on which the leading commercial Association would be represented. In connection with the East Indian Railway there has been in existence for a number of years past a Consulting Committee of merchants. Of this body the Agent of the line is Chairman; and the members are appointed by the Railway authorities. A somewhat similar plan, with certain modifications, might, it is thought, be followed for the Eastern Bengal State Railway. It would be undoubtedly an advantage if the mercantile and trading classes could be enabled to place their views upon questions of policy, proposed extensions, rates, etc., readily and easily before the management. An Advisory Committee, if properly constituted, ought to become the recognised channel of communication for these opinions. Its members would be actively engaged in commercial pursuits, and they would consequently have an intimate knowledge of the needs of the trade in the matter of transport facilities. Their association with heads of the lines would enable them to regard the question coming before them not only from the standpoint of the merchant, but also from that of the railway. And it would not seem to be unreasonable, therefore, to anticipate that they would be able to do much useful work, which would have the ultimate effect of benefiting both the Railway and its constituents.

In writing to the Railway Board the Committee of the Chamber did not do more than thus briefly sketch the main feature of this proposal. They thought that the details might be formulated subsequently, if the Board were prepared to accept the principle. At the same time they pointed out that the suggested Committee would be very greatly restricted in its usefulness if it were to be merely a consulting body. Its members should be nominated, not by the railway, but by the different commercial and trading organisations; and they should be empowered to offer advice to the management and to raise questions for discussion. It does not necessarily follow that their advice must be in all cases accepted by the management, who would be of course solely responsible for the working of the railway, and whose control would be as complete as it now is. But the Committee ought not to have to wait until they are consulted by the management upon any question. It ought to be within their competence to bring matters to notice, to suggest remedies for grievances and difficulties, and to recommend improvements, modifications in rates and fares, etc.

Headway of the Lower Ganges Bridge.

The question of the headway of the new bridge over the Ganges at Sara was referred to in the Abstract for August last. The Committee there stated that the Inland Steamer Companies had urged that the span of the bridge should be 300 ft. between pier and pier, over the entire length of the navigable portion of the river at ordinary flood level. A lesser span might be adopted at such portions where river traffic would not obtain at any season of the year. The companies required a headway of 42 ft. above the highest flood level reached during the last fifteen years. As an alternative they were, however, prepared to accept a headway of 33' 6" over the fixed part of the bridge, provided a lift span of the full width of 300 ft. were constructed in a suitable position for navigation.

The Government of India were of opinion that a headway of 34' 6" should be provided. To this the Steamer Companies took exception, and after further correspondence the Government have decided upon a headway of 40 ft. over the highest known flood level. This is equal to a headway of 42 ft. over the highest recorded flood level during the last twenty-one years, and is acceptable to the companies.

The Committee of the Chamber are glad to observe that the matter has been thus satisfactorily settled, and no action appears to them to be necessary so far as the Chamber is concerned.

Late Shipment of Piece-goods.

The Board of Directors of the Manchester Chamber of Commerce have forwarded to the Committee the following recommendation in regard to the late shipment of piece-goods, namely:—

1. Delayed Instructions.—Inasmuch as the execution of contracts for India is often interrupted by delays in forwarding assortments of patterns or borders, or instructions for headings, stamping, numbering, ticketing or otherwise, it is understood that if such instructions or any of them, are despatched from India so late as to interfere with the due execution of the order, the supplier shall have liberty to extend the shipment time sufficiently to cover any consequent delay in preparation, without thereby incurring any liability under penalty clauses for late shipment.
2. For goods where the initial process of manufacture can not be proceeded with until receipt of particulars—for example cloth with woven designs special borders or headings—the particulars of assortment shall be despatched from India not later than the second mail after confirmation of the order.
3. For goods where the initial process of manufacture can be proceeded with at once, such as plain cloths for dyeing or printing, practicable assortments shall be in the possession of suppliers not later than 10 weeks before the contract date of the first shipment; or
4. For prints where any engraving of designs is necessary, 12 weeks before the contract date of the first shipment.
5. The dates in paragraphs 2, 3 and 4 are mentioned as those most suitable for general adoption, but are subject to special arrangements made either prior to or at time of booking a contract.

In response to a request made by the Manchester Chamber, the Committee have invited the views of their Piece-goods Sub-Committee, and of the

Calcutta Import Trade Association upon this recommendation.

Grain Bags for South Africa.

The question of the weight of the grain bags exported from Calcutta to South Africa was last mentioned in the Abstract for September. During February it was brought to the notice of the Committee by the Association of Chambers of Commerce of South Africa. The Association referred to the regulations of the South African Governments, whereby bags used for exporting grain must weigh not less than 2½ lbs. each.

In reply, the Committee forwarded copies of the recent correspondence between the General Manager of the Central South African Government Railways and themselves on the question. In writing to the Railways administration, they had shown that it would be exceedingly difficult, if not impossible, for jute mills to guarantee such exactness as is required by the regulations of the South African Governments. In the circumstances, therefore, they had recommended South African exporters to purchase 2½ lb. bags, as there would then be very little chance of parcels containing odd bags of a lower weight than 2½ lbs. They also pointed out to the Association that they had come to this conclusion after consultation with the manufacturers and exporters of bags; and that no useful purpose would be consequently served by their again raising the question.

Calcutta Port Trust: Hours for Opening the Jetty Gates.

In the Abstract for August last, reference was made to the following proposal, which had been put forward by the Calcutta Port Commissioners, viz.—(a) that the hour for opening all the gates except two, on the Calcutta Jetties, should be 10 A.M. instead of 9 A.M.; (b) that the two gates should continue to be opened at 9 A.M., and (c) that on Saturday afternoons the hour of closing should be 4 o'clock, instead of 6 o'clock, with the exception of the two gates. The Committee of the Chamber took no exception to this proposal. But they suggested that it should be adopted tentatively, and be given a trial for say three months. They also thought that at the end of the trial period, they might be informed whether any congestion of traffic had occurred, either on the Strand Road or in the jetty compound, as a result of the later opening.

Early in February, the Port Commissioners intimated that the changes had been given a trial for three months, and that there had been no resultant congestion of traffic. The Commissioners proposed now to go further, and to discontinue the arrangement whereby the gates are opened at 9 A.M., as there appears to be no need for these gates to be opened before 10 A.M. On the other hand the traffic passing through the two open gates after 4 P.M. on Saturdays has been found to be heavy. It is proposed, therefore, to give the Jetty and Custom House officers discretion to keep open, on Saturday,

afternoons, such number of gates as they may consider to be necessary to cope with the traffic.

After consulting the Liners' Conference, the Calcutta Import Trade Association and the Shipping Sub-Committee of the Chamber, the Committee have replied to the Commissioners to the effect that they offer no objection to these proposals.

TARIFF CHANGES AND CUSTOMS NOTIFICATIONS.

The *Board of Trade Journal*, published on the 3rd instant, in the section relating to Tariff Changes and Customs Regulations, gives particulars about:—

DOMINION OF CANADA.—Regulations respecting Temporary Admission of Tourists' Automobiles.

COMMONWEALTH OF AUSTRALIA.—Customs Decisions.

NEW SOUTH WALES.—Regulations under Pure Food Act, 1908.

SOUTH AFRICAN CUSTOMS UNION.—Customs Decision.

STRAITS SETTLEMENTS.—Regulations as to Registration of Imports and Exports.

FEDERATED MALAY STATES.—Continuation of Export Duty on Gold to end of 1910. Importation of Animals: Quarantine Restrictions.

BRITISH GUIANA.—Customs Forms for Transshipment of Goods.

FRANCE.—Customs Decisions. Imports of Coffee and Cocoa.

PORTUGUESE EAST AFRICA (LOURENÇO MARQUES).—Restriction of Importation of Bees and Honey.

SERBIA.—Increase of Certain Import Duties. Customs Treatment of Trimmings, etc. Regulations respecting Certificates of Origin.

UNITED STATES OF AMERICA.—Customs Decisions.

CUBA.—Reduction of Certain Import Duties.

ARGENTINE REPUBLIC.—Temporary Reduction of Customs Duty on Sugar. Temporary Duty-free Admission of Articles for the 1910 Exhibitions.

VENEZUELA.—Revised Customs Tariff.

—A return of new company registrations during 1909, compiled by the *Investors' Guardian*, shows that a larger number of companies were registered in England and Scotland last year than in any previous year in the history of joint stock companies. The total registered capital does not compare with that of the boom period of company promotions between ten and fifteen years ago, but it is the largest within the past seven years. The steady growth in the number of registrations, notwithstanding wide fluctuations in the total registered capital, is an outstanding feature of the statistics. An analysis of the statistics by groups of industries brings out strongly the magnitude of the "rubber boom." The capital of rubber companies registered last year amounted to £13,736,000, against £2,151,000 in the previous year. The total capital of the rubber companies registered during the past four years is no less than £25,290,000. The statistics also show a revival in mining registrations.

FOREIGN SEABORNE TRADE OF CALCUTTA.

THE Foreign Seaborne Trade of Calcutta continued satisfactory during February and exhibited an increase in value of 21.58 per cent on the trade recorded for February, 1909. The total value of the month's trade aggregated 10 crores, being greater by 1.7 crores. Imports were valued at 4.38 crores or an increase of 32.26 per cent. Exports totalled 5.66 crores or an improvement of 71 lakhs equivalent to 14.43 per cent. Under imports both merchandise and treasure were received in larger quantities. Merchandise valued at 3.73 crores rose by 70 lakhs or 23.09 per cent. Treasure aggregating 65 lakhs (40 lakhs of gold and 25 of silver) was better by 37 lakhs or an advance of 129.37 per cent. Movements of treasure were of no importance in the export trade and the figures above given practically consist of merchandise. With a continued expansion during the past few months, the summary of the seaborne trade for the eleven months of the current official year now past has correspondingly improved and the total trade to the end of February has reached in value a total of 113 crores being an increase over 1908-09 of 7.43 crores equivalent to 7 per cent. Imports have preponderated in this increase and valued at over 48 crores have risen by over 4.3 crores or 9.79 per cent. Of this value 5.24 crores represent receipts of the precious metals which have risen by 2 crores of the total rise under imports; gold valued at 3.18 crores improved by 1.48 crores and silver valued at over 2 crores has risen by 50 lakhs. In imports of merchandise the value declared was 43 crores, which rose by 2.31 crores or by 5.68 per cent. Exports have accumulated a value of nearly 65 crores giving an increase of 3.12 crores or 5 per cent. Merchandise in fact benefited in value to the extent of 3.45 crores, but there was a decrease in the value of treasure exported to the extent of 32 lakhs. The net value of gold and silver retained in the country in the past eleven months was 5.08 crores.

The chief feature in the import trade for the past month was the introduction of Act VIII of 1910, otherwise an Act to amend the Tariff Act of 1894. It was introduced on the 25th February and became law on the 4th March: incidentally it enhanced the duties on Liquors, Opium, Silver, Tobacco and Petroleum. During the short time it was operative in February, it made but little difference in the revenue: what its ultimate effect will be remains to be seen. The imports of cotton goods during the month were satisfactory and valued at 159 lakhs gave an increase of 51 lakhs over the figures for the same month of 1909. Whether these larger imports can be absorbed is uncertain, but the latest market reports intimate that locally there is much inactivity and prices far from strong, owing to the absence of demand from the consuming centres. Stocks in the Bazaar are described as heavy, and forward business as non-existent. Metals exhibited quite a healthy demand: the value rose by over

21 lakhs owing to the larger receipts of copper, iron and steel. Sugar, chiefly refined, increased in quantity by 106,062 cwt. and in value by nearly 10 lakhs. Other increases were not of importance and, turning to decreases, the most serious was the continued falling off in the demand for machinery, amounting in the past month to a loss of nearly 13 lakhs in value. Imports of mineral oil were smaller both from foreign and Customs ports. There was a satisfactory decline in imports of grain and pulse: from foreign ports the saving was 7 lakhs in value, but from Indian ports it was as much as 50 lakhs.

Opium is the primary cause of the increased value recorded in the export trade: owing to the considerably higher range of prices now ruling the total value was enhanced to the extent of 30 lakhs, in spite of a decline of 100 chests in the number shipped. Next in importance rank Hides and Skins which record a large rise in quantity combined with an increased value of over 26 lakhs. Exports of raw jute were greater by 80,107 cwt., but the lower prices at which shipments were made give an increased value of only Rs. 1,24,373: from the same cause the larger shipments of gunny bags and cloth only gave an increase of 9 lakhs in value, or a total aggregate of 121 lakhs. In the coasting trade shipments of jute manufactures were on a much larger scale, the total value rising from 24 to 36 lakhs. Oilseeds and tea both showed a small improvement in trade; and, although lac exports were greater by 8,934 cwt., the value showed a loss of over three lakhs. Owing to smaller shipments of rice to foreign ports, the movements of grain and pulse were not so great, but larger despatches were made to Indian ports. Indigo fell to the extent of 6 lakhs and trade was also smaller under saltpetre and silk. To foreign ports exports of coal rose by 99,706 tons, largely due to the quantity (40,585 tons) sent to Australia; to Indian ports there was actually a decrease of 17,765 tons.

—The Federated Malay States Government Gazette of 21st January contains a draft of an Enactment to amend the Law relating to fraudulent marks on merchandise sold in the Federated Malay States. It is provided, under the proposed Enactment, that every person who sells or exposes for sale any goods to which a forged trade mark or false trade description is applied shall, except under certain specified conditions, be guilty of an offence, and liable to the penalties prescribed. It is also laid down that, in any prosecution for an offence against the Enactment, evidence of the port of shipment shall, in the case of imported goods, be *prima facie* evidence of the place or country in which the goods were made or produced. The Resident-General is empowered to make rules for the establishment of a system of registration of trade marks.

WORLD'S COTTON INDUSTRY.

THE practical unanimity with which spinners of American cotton in England have worked short time for more than seven months in order to defeat the operations of speculators whose aim is to inflate the price of the raw material continues to have considerable influence in all cotton manufacturing countries, as proved by the following reports received in Manchester by Mr. C. W. Macara, President of the International Cotton Committee:—

America.—Mr. Parsons, president of the Arkwright Club, Boston, telegraphs:—In addition to the reduction of working hours by statute, which took place on January 1st in Massachusetts, curtailment will continue in north, say 10 per cent, until June. Fall River begins system of running five days weekly. Mr. Bryant, American Cotton Manufacturers' Association, Charlotte, wires: Curtailment about 10 per cent.

Austria.—The owners of over 90 per cent of the Austrian spindles have agreed to a reduction of 33 per cent for six months, or 25 per cent for eight months. Both American and Egyptian spindles are included in this agreement.

Belgium.—Organized short time to the extent of one day per week until the end of March.

France.—Early next month a meeting will be held for the purpose of deciding the question of a resumption of organised short time.

Germany.—Short time has been worked to some considerable extent and the various associations are endeavouring to obtain it on a more general and systematised basis. The proposal is to stop 174 hours during March, April, May, and June. By statute the working hours of the German cotton mills have been reduced from January 1 to 58 per week. In several parts, especially in the west, the legal working hours to December 31st was 64½. Every effort is being made to obtain the adhesion of the necessary 75 per cent in order to carry out the above proposal.

Holland.—No organised short time, but the consumption of American cotton has been considerably reduced, East Indian cotton replacing it.

Italy.—An arrangement has been come to by spinners of American and Indian cotton, owning one million spindles, to stop one and a half or two days a week. The restriction will be enforced by a special commission, meeting monthly.

Japan.—Organized short time to the extent of 27 per cent till the end of April.

Russia.—Short time has been worked in some of the cotton mills. If the ruinous condition of trade continues short time will probably be worked in the Moscow district during the summer months. The Polish cotton mills are said to be already on short time.

Switzerland.—Fifteen per cent reduction of output during the three months beginning on February 14th.

PRICES OF COMMODITIES.

THE following are the index-numbers of the prices of forty-five commodities, worked out to the month of January, by Mr. A. Sauerbeck, the average of the eleven years 1867—1877 being 100 :—

Average.		Monthly Numbers.	
1878—1887.	=79	February, 1895	=60.0
1880—1899.	=66	July, 1896	=59.2
1900—1909.	=73	July, 1900	=76.2
		December, 1901	=68.4
1883.	=82	May, 1907	=82.4
1886.	=61	December, 1908	=72.3
1900.	=75	January, 1909	=72.0
1902—1903.	=69	June, 1909	=75.1
1904.	=70	August, 1909	=74.9
1905.	=72	September, 1909	=74.7
1906.	=77	October, 1909	=75.2
1907.	=80	November, 1909	=75.5
1908.	=73	December, 1909	=76.3
1909.	=74	January, 1910	=77.1

There is an advance in the index-number, which is due to articles of food. Corn was firm, and sugar a little dearer, while meat (beef and mutton), and also butter were distinctly higher. There was no change in materials in the aggregate, and the fall in cotton was nearly compensated by better prices for coarse wool, flax, and jute. Iron was firmer, tin lower, and coal higher. Among "sundry materials," linseed oil was higher.

The prices and index-numbers of silver compare thus (60.84d. per ounce being the parity of 1 gold to 15½ silver = 100) :—

	Price.	Index- No.
Average, 1890—1899	31d.	55.8
" 1900—1909	26½d.	44.0
" 1893	35½d.	58.6
" 1902	24¼d.	39.6
Lowest, November, 1902	21¼d.	35.6
End March, 1905	25½d.	42.4
" December, 1906	32½d.	53.1
" December, 1908	23¾d.	38.1
" December, 1909	24½d.	39.9
" January, 1910	24d.	39.4

—**Magnalium** is made by melting together aluminium and magnesium in a vacuum, and then allowing the compound formed to cool in a vacuum or under a pressure of 100 to 200 atmospheres. Different percentages of the constituent metals are used. Magnalium, which has a very low specific gravity, is a solid, silver-white metal, which is capable of taking a high polish. Besides its use in the construction of aeroplanes, it is employed as a reflecting material for mirrors, and in the manufacture of wire and tubes. The harder varieties of magnalium may be cast the same as ordinary aluminium.

THE POSITION OF EDIBLE OILS.

In an article on this subject to the *Manchester Guardian* a correspondent says :—The remarkable change which has come over the markets for edible oils, and fats and also those for soap-making materials during the past year is well worth some investigation, so that a reasonable opinion may be formed as to whether the present level of prices is likely to be maintained. Almost every kind of material which can be used for making what the Americans call "compounds," i.e., butter and lard substitutes is now from 30 to 50 per cent dearer than it was in the early part of 1909. The change has been traced to a general and world-wide movement in the relation of gold to commodities, and no doubt part of the advance in edible oils may be thus accounted for. Probably a greater factor is the tendency towards better living on the part of the masses of population throughout all civilised countries. This has certainly raised the price of bacon, and has also led to a far greater demand for the edible fats. Causes of this kind are more or less permanent in their nature, and will operate perhaps for years until it has been possible so to increase production as to meet the altered conditions. But there are less stable causes at work connected with the variations in the annual supplies of oils. Early last year a great scarcity of olive oil was caused by a partial failure of the crop, and the prices rose until about £65 per tun was reached. This was special and far from permanent as was shown by the rapid fall to about £36, when the new crop began to be gathered in. The reaction was, of course, far too great, for olive oil became cheaper than the oils with which it is commonly adulterated, and the price recovered until now it is again approaching £50 per tun. Another special cause, which may probably disappear in a few months was the short American and Egyptian cotton crops. The Egyptian shortage would not have mattered very much, but in America the consumption of edible cotton oil for "compound" making is enormous and the short supply was of great importance. In Europe there is no edible cotton oil which can take the place of American for the manufacture of edible fats, the British makes of cotton oil being considered unsuitable by most margarine manufacturers. A strenuous attempt has been made this year to use British oil, the great difference in price being a strong incentive, but one does not hear that much progress has been made in this direction. The cotton oil statistics will no doubt rectify themselves during this year, unless some unexpected catastrophe should overtake the cotton crops again.

As a set-off against the shortage of cotton oil we have had during the year a rapid development in the manufacture and use of the new oil produced from the Manchurian bean, known to the trade as "Soya" oil. The average quantity of cotton seed crushed in Great Britain is about 600,000 tons, and during 1909 as much as 350,000 tons of Soya bean were crushed. At the beginning of the year the price of

the new oil was about £4 per ton less than that of soapmaking qualities of cotton oil, but now the difference is only 10s. per ton, showing how rapidly this Soya oil has come into favour. Attempts are now being made to prepare an edible Soya oil, and there is little doubt that this will eventually be accomplished. The future possibilities of the Soya bean crop are unknown, but it is known that the industry is extraordinarily profitable at present prices, both for the agriculturist in Manchuria and for the seed crushers in Hull and Liverpool, and consequently development is likely to be rapid and continuous. The position in the nut oil group is still favourable to the maintenance of high prices. The finest edible cocoanut oil is quoted at £48 per ton, and the best arachide oil will cost as much as £46. The latter price is supported by a shortage in the crop of arachide nuts, but the principal cause of the high prices is the general advance in the provision market. On the other hand, there has been a fairly good supply of copra for cocoanut oil making, amounting to nearly 350,000 tons during 1909, and the high prices of this class of oil are perhaps attributable to the fact that great improvements have been made in its preparation and that large quantities which used to be prepared for soap-makers are now being consumed both in Europe and in the United States as a food. The short supply of olive oil in Europe has assisted this movement, and as the preparation of edible cocoanut oil is a paying enterprise this development is likely to continue. Another change which is being brought about by the dearth of edible oils is the attempt which has met with some success, to prepare palm kernel oil so that it shall be suitable for human consumption. A short time ago such an idea would have been laughed to scorn, but lately the manufacturers of margarine have bought very large quantities of palm kernel oil, and the price has risen rapidly in consequence. Of course in the end this struggle to provide larger quantities of edible oils and to widen the sources of supply will cause the production to exceed the demand, and a general slump in values will be inevitable, but this result is as yet out of sight.

With regard to the question of increased production generally, there are two factors to be considered—first, the actual output of oil-bearing seeds and fruits; and, secondly, the multiplication of the mechanical means to deal with them. With regard to the first, it is obvious that present prices of cotton seed, linseed, beans, etc., must act as a great stimulus to the agriculturist, and the output must increase. In the case of the soya bean the silver question comes in as a factor; for the farmer is paid in a depreciated currency, and to him it appears as though he were receiving enormously high prices for his produce. The second factor—viz., the multiplication of means to deal with oil seeds—is not quite so easily estimated. The profit of seed-crushers during the latter part of 1909, and the beginning of the present year is no doubt very great, for the prices obtained for both cake and oil are

high, and although the cost of material is high too, the margin of profit has been greatly increased. This should, of course, tend to increase a flow of capital into the crushing industry; but it takes time to erect an oil mill and furnish it with machinery, and the business has been worked for some years at a very small margin of profit, so that capitalists are likely to wait a little to see whether the better conditions bid fair to be permanent before they begin to take the matter up seriously. The fear of tariffs is particularly likely to affect the development of the oil-crushing industry, for Free Trade in the raw material is absolutely essential to it. The rapid growth of the new bean oil industry in this country is almost wholly due to the fact that the British mills can get the bean without any tariff hindrance, whereas the German mills have to pay a heavy duty.

Taking all the circumstances into consideration, the chances appear to be in favour of a high level of prices in the edible oil and fat markets, at any rate until the early autumn, when the effect of the new crops will begin to be felt.

HUMAN HAIR INDUSTRY.

In Bohemia, Moravia and Silesia the marketing of human hair and the making of human-hair nets is an important business. The chief centres for the industry are found in the south-east part of Bohemia, centring in the towns of Trhová-Kamenitz, Chotěbar, Chrast and Raubowitz. The business is both a factory and a home industry, one class of human hair coming from China, and the other class being a home product. According to the United States Consul at Prague, large quantities of what are known as combings are imported from China, via Trieste or Hamburg, packed in cases wrapped in straw, and weighing from 123 to 130 lb. per bale. This Chinese hair is all chemically bleached in a solution of hydrogen peroxide and assorted according to lengths, then dyed colours and shades desired by purchasers. The lengths vary from 6 to 35 inches. The work of assorting and classifying the hair according to various lengths is done by girls and women, beginners being paid from 6d. to 7d., and expert workers from 1s. 8d. to 2s. 6d. per day. The dyeing and bleaching are done by men, who receive £2 18s. 4d. to £3 15s. per month. The human-hair nets are made from Chinese hair, as the native hair is too fine and soft. This business is largely a home industry, the work being done by women and girls. An experienced worker earns from 1s. to 1s. 4d. per day, but each net maker is obliged to have an assistant to tie together the single hairs in order to save the time of the net maker. Each week the net makers are given a quantity of hair, which they take to their homes, and when the nets are finished and delivered by the workers they are allowed 20 per cent for waste of material. The human-hair nets are exported to the United States, England, France and Germany, very few being worn in Austria.

Qualities and Prices Paid.

All of the hair cut in Austria for export is taken from the heads of the peasants in Bohemia, Moravia, and Silesia. The first quality comes from Moravia and Bohemia and the less valuable from Silesia, while a considerable quantity of inferior hair also is cut in Hungary. The quality of the human hair depends upon the prosperity of the people and the care taken of it before cutting. The hair is collected by peddlers, or hair merchants, who must be of good reputation in order to obtain their license. These men, usually accompanied by their wives, make trips through the country lasting usually from four to six weeks, going from house to house in their efforts to induce women and girls to part with a portion of their hair. The maximum amount of hair generally purchased by a shrewd dealer on one of these trips is from 11 to 14 lb., while many return with less than 5 lb. The price paid depends on the length of the hair and its colour, chiefly the latter. The entire head of hair is not sold at one time usually but one braid being disposed of at once, and another portion being disposed of in about four years. No hair is cut from the heads of dead people or those suffering from disease. The prices paid for braids are from 8s. 4d. to £4 7s. 6d. each, the former being for small braids of short hair. Prices paid by the lb. vary from £2 8s. 7d. to £16 13s. 4d., the latter price being for blonde or gray hair ranging 24 to 28 inches long. All the native hair is shipped in its natural state, without being bleached or dyed, and the estimated annual exports are placed at 13,000 lb.

EASTERN BENGAL AND ASSAM.

Crop Reports.

(By Telegram.)

Shillong, March 22nd.

The following is a summary of the weather and crop reports of Eastern Bengal and Assam for the week ending the 21st instant:—

The weather is seasonable. There has been good rain in Tippera, none in the Rajshahi division and Chittagong, light showers elsewhere. Preparatory cultivation for winter rice and *bhadai* crops, the sowing of *aus* rice and jute and the harvesting of tobacco are progressing in the plains. Burning *ghums* have commenced in the hills.

The prospects of tea, linseed, *till*, sugarcane, and spring rice are good, tobacco and wheat fair. Potato promises well.

The average price of common rice has risen one per cent.

Cattle disease is reported in Malda, Goalpara, Kamrup, Darrang and Lakhimpur.

AN AUTOMATIC EMBROIDERY MACHINE.

In presenting the following account of the new German-Swiss automatic embroidery machine, Mr. D. I. Murphy, the United States Consul, St. Gall, Switzerland, reviews the steps which led to its final development:—

There has existed for some time past considerable uneasiness among St. Gall's embroidery manufacturers because of the fear that a new labour-saving invention might be monopolised by a single concern. To make the situation easily understood, it should be stated that an important firm in Rorschach some years ago acquired the exclusive right in Switzerland and partial rights in some other countries to the automatic embroidery machine invented by a Swiss named Grobli, son of the original inventor of the Schiffli machine.

Ever since 1898 this firm has carried on a large and profitable trade, increasing from time to time the capacity of its plant. Within the past few months an improved "automat", much superior to the old machine, has been invented; and it now develops that the Rorschach concern has been able to bind the Vogtlandische Maschinenfabrik, of Plauen, Germany, the owners of the patent, not to sell in Switzerland and the Vorarlberg without their authorisation.

The St. Gall manufacturers are naturally exercised, some of them even fearing that, if the monopoly is to continue, they will be forced to remove their plants over the German border. Indeed, one firm is already constructing a factory at Constance, just over the line, and another is preparing to build at Friedrichshafen, across Lake Constance. Discussion of the situation in Cantonal Legislature, and the rumour that a New York syndicate was arranging to control 1,000 of the new machines, have not relieved the feeling of apprehension.

The Original Machine.

Mr. Consul-General Du Bios, under date of March 17th, 1898, made a report of this invention. Among other things he stated "Grobli spent 16 years perfecting his invention, during much of which time he has been in New York. It is an automatic sticker on the plan of the jacquard. It does its work remarkably well and will eventually do away with all the human stickers now employed on the Schiffli machines. The largest Schiffli embroidery establishment in Switzerland has secured control of the patent, and it is claimed that all the other manufacturers will be compelled to go to this concern to secure the privilege of using this new and important invention. . . . This machine is said to work with more accuracy than the human sticker, and the result of its operations is far more satisfactory as the embroidery is smoother, neater, requires far less mending, and the stitching speed can be considerably increased."

Shortly after securing the Swiss rights to the original automat, the Rorschach (the Stickerei Feldmühle) firm proposed to the St. Gall manufacturers

the organisation of a stock company to control a limited number (500) of the machines. A committee of experts was appointed (Mr. Carl Kaufmann, now Treasury Agent at St. Gall, being one of them). The proposition was most carefully considered, and was rejected on the ground that the invention was new, probably imperfect, and practically untried. This committee, however, recommended that 50 automats be contracted for, with the privilege of increasing the number if they proved satisfactory. This counter proposition was rejected by the Rorschach firm. That concern, which since 1898 had largely employed the automat, again presented in 1905 the original proposition to the manufacturers, but without result.

Opinions differ as to the value of this automat, some contending that the Rorschach firm has had a decided advantage over manufacturers using the Schiffli machine alone. Others, among them some of the most noted experts, point out that in the cottage industry—which is not subject to factory laws and has no ordinary working day—it possesses no advantage over the old hand machine. They also say that although the automat has been on the market for a number of years, only 450 of them have been sold in the whole of Europe, not counting those in the Rorschach establishment. But be that as it may, the Stickerei Feldmühle has several times greatly increased the capacity of its plant, and during the hard times consequent upon the American financial crisis was undoubtedly prosperous, never ceasing to pay handsome dividends.

The New Machine.

The new "automat," which is the invention of Director Zahn, of the Vogtlandische Maschinenfabrik of Plauen, Germany, promises to revolutionise the embroidery industry. Like the old machine, it is on the jacquard principle. The stencilling of the cartons is most ingeniously executed by a punching machine simultaneously with the embroidering of the first sample strip, thus materially lessening the cost of preparing them. The services of the embroiderer or stitcher are dispensed with, one man being able to attend 25 machines. The new machine produces one-and-a-fifth more embroidery every working day, and of a better and smoother quality than can possibly be produced by the old method. Probably one of the most decided advantages will be to the manufacturer who desires to turn out large quantities of embroidery of a single design, the great expense of frequently changing the jacquard cards being avoided. These are all tremendous advantages to firms working a large number of machines, and there are no two opinions as to the value and importance of the new machine.

Negotiations have been under way for some weeks between the Stickerei Feldmühle and the St. Gall manufacturers, and I am advised that an agreement has practically been reached. The terms of this agreement will undoubtedly be of such nature as to permit Swiss manufacturers in general to secure

the new machine upon the same conditions as the German manufacturers, with the addition of a fixed sum to be paid for each automat to the Rorschach firm. As soon as one of these automats is installed in a St. Gall factory further reports will be made upon its working, and the exact terms of the agreement will be given.

INDIAN FISH TRADE.

In spite of the real abundance of excellent sea fish all round the Indian coast, says the *Pioneer*, there is no country in the world in which the supply has hitherto been more scanty, often inferior and always high priced. Even in our port towns the supply does not always appear to keep pace with the demand; while, up-country, the case has seemed hopeless owing to the great distances to be travelled and the absence of up-to-date refrigerating arrangements on our railways. Nevertheless it has been found that the potential inland demand is enormous, and that in the absence of fresh fish it would turn to good quality preserved fish—smoked, salted, kippered or tinned. But such is sometimes the lack of private enterprise in this country, so far as new industries are concerned, that wholesomely preserved Indian fish has till quite lately been practically unobtainable, with the result that last year we imported fish to the value of about Rs. 35 lakhs, though our seas are teeming with fish of even better quality. It is a strange state of affairs certainly, and too much attention cannot be drawn to the fact that the Government of Madras, with Sir F. Nicholson at the fishery helm, have set out to remedy it. We have alluded to this official enterprise before, but the public memory is a short one, and if India is ever to have a plentiful and cheap supply of preserved fish, an adequate demand must be forthcoming, which can only be if people know of what is being done. Probably most of us have heard that excellent substitutes for the kipper, the bloater and the haddock have been evolved at the Government fish-curing factory at Ennore, and there is now an already huge but still growing demand for smoked fish. In fact this business promises to be an enormous one, and private capital is bound to be forced into it sooner or later—the sooner the better. But there are a few 'tips' connected with the fish-supply which are not so well known and which may appeal to the angler as well as to the trade. It has been found, for instance, that if a well cleaned fish be soaked for a few minutes in a brine solution to which a trace of boric preservative has been added it will keep perfectly fresh for twenty-four hours even in warm weather and without the use of ice. If in addition it is wrapped in the patent fish paper now on the market, and to which we are presently referred, its keeping qualities will be improved. But in this connection another 'tip' is that common 'butter paper' is just as good and much cheaper than any other obtainable. All that is required is an air-tight

paper, and this condition is obtained by the use of 'butter' which closes the pores of the paper. Still another hint is that sterilisation (which does not alter the flavour) has a wonderful effect on keeping fresh fish in excellent condition. A properly-cleaned fish (and too much stress cannot be laid on the necessity of scrupulous cleanliness in this matter) treated in this way has been hung in the open air till it attained complete dryness, without the slightest taint; and fish similarly treated have been sent up-country in warm weather, without ice, and have arrived at their destination in fine condition. In short, recent experiments have shown that there is a huge demand for Indian fish, both for inland consumption and for export, and that there is no difficulty in obtaining a sufficient supply of the raw materials, or of curing it as it ought to be cured, or even in adapting it to the tastes of the people of India or the world in general. The Madras Government have now quite an important fishery business on their hands, but we understand that they are prepared to part with it as soon as a suitable purchaser comes along who will undertake to work the industry to the best advantage.

THE PROPERTIES OF SAND.

SOME instructive matters were touched upon during the discourse of Mr. C.E.S. Phillips, F.R.S.E. at the Royal Institution on February 11th. The title of the lecture was "The Electrical and Other Properties of Sand." The colour of the sand of Alum Bay, I. W., is due to a layer of iron oxide with which each sand grain is coated, but iron is present in even the whitest sand. The black iron sands of New Zealand consist mainly of magnetite, while the black sand of the Isle of Wight is chiefly silicate of iron. The properties of the former were exhibited by means of a magnet optically projected on the screen, the lines of force being beautifully shown by the arrangement of the particles of sand. Numerous photographic slides were produced to demonstrate the effects obtained by sand in large quantities. Some beautiful photomicrographs exhibited variations in the composition of sand and the shape of the grains. Sand from the Sahara, with its wealth of marine shells, proved that this arid desert was once the bed of a huge ocean. The uses of sand were next touched upon, the chief topic being glass making, and to illustrate the subject a red-hot crucible containing molten glass was brought into the lecture-theatre and the contents poured out on to a slab. On cooling a crystal-clear disc of glass was held up for inspection. Sand has an important place in warfare, as a bank of sand 20 inches thick is proof against modern rifle-shots. The electrical properties of sand were then shown, a jet of sand being allowed to fall in turn on a square of metal, paper, and wood, these being connected with an electrostatic volt-meter. Wood gives the best effect; metal soon "tires," this being due to the surface becoming pitted and retain-

ing a protecting layer of sand. The electricity of sand is positive, but, curiously, a rod of silica—sand is chiefly silica—shows negative electricity. This difference was shown to vary according to whether the silica rod is excited at the side or on the rough ends, the latter giving positive electricity. The electrical properties of sand are of considerable interest in studying the curious phenomena of sand-storms. Those who have walked on a stretch of wet sand have noticed the singular drying effect which occurs when the sand is pressed by the foot. This is due entirely to an alteration in the "piling" of the sand grains. Normally the grains are close together, but abnormal piling is brought about by pressure of the foot—that is, the space between the edges of the grains is enlarged and the water drained away. If the pressure of the foot is continued the sand becomes wetter than ever, the partial vacuum quickly bringing water from the surrounding sand. The various theories of quicksands were next referred to, the lecturer favouring the theory that the mobile character of the sands is due to the imprisonment between the grains of gases from organic matter. The practicability of this theory was well shown by comparing the properties of ordinary wet sand and an artificial quicksand, produced by adding sodium peroxide to the sand before adding the same amount of water as in the blank experiment. The terrible properties of the Goodwin Sands were shown experimentally to be due to the exhaustion of air beneath the ship, the effect being compared to that exhibited by the leather suckers, by which boys lift heavy stones. Boring operations show that the Goodwin Sands are 80 feet deep and rest on solid chalk. It was next shown that the amount of sand in a tube has no effect on the rate of flow out of a nozzle at the bottom of the tube, this being due to the way sand grains interlock. Shrieking sands derive their name from sounds emitted by certain sands when they are struck. Some shrieking sand in a mortar was pressed by a pestle and gave out a squeal almost human in its tone. The lecturer concluded by playing on a kind of sand organ composed of four long tubes of sand, each of which gave out a different note—the dampness and method of packing being other factors accounting for the variation in tone.

Among the exhibits in the library were galvanit by the Galvanit Company, and a display of radium by Messrs. Ambrecht, Nelson & Co. Mr. Rosenberg, the inventor of galvanit, informed the representative of *Chemist and Druggist* from which the above has been extracted that the sales of galvanit have much exceeded anticipation; the factory is working night and day to fill the shoals of orders which the extensive advertising has brought.

—During the past year the various mints in Native States absorbed 4,756,814 tolas of silver. Of this 850,780 tolas were of new silver, the balance being of silver obtained from old coins.

CAN CENTRAL SUGAR FACTORIES BE MADE TO PAY IN NORTHERN INDIA?

In its issue for February *Tropical Life* writes:—"If the sugar industry in India is to hold its own against the foreign importer," wrote Mr. C. J. Mackay, Superintendent of the Cawnpore Sugar Works, some little time back in the *Agricultural Journal of India*, "development will have to be along the line of intense cultivation by the grower to increase the outturn of sucrose per acre, and improvements introduced in the making of raw jaggery or 'gur' by the villager, so as to prevent the heavy losses by inversion and adulteration entailed by the crude methods at present employed. If this can be done, the Indian refiner will have nothing to fear from foreign competition in India, and may even in time be able to export to other markets, if not barred by prohibitive duties. "The Indian cultivator, however," adds Mr. Mackay, "is quick to adopt improvements in cultivation and seed, if he is satisfied that they will increase his profits; but in the growing of sugar-cane he is faced with two serious problems, i. e., the soil and climate. The soil has been exhausted by many centuries of continuous cropping, and the supply of suitable manures at a moderate cost is very limited, but even were the manures to be available, the climate is against the Indian sugar planter, as the annual rainfall, though usually sufficient in quantity, is badly distributed throughout the year, being concentrated into a few months, followed by many months of extreme dryness." This discourages the use of fertilizers, as we found when we first published our "Fertilization of Tea." So great did we find the prejudice against using fertilizers on the Indian tea estates, although it was acknowledged that they were needed, that we went into the question of applying fertilizers in liquid form, so as to ensure that the moisture would be there to help feed the plant. It was generally considered that the idea was practical, but the tea planters were enjoying good profits at the time, and so they did not trouble about the matter. We feel, however, that later on they must give the matter a trial. With sugar the case is different; with an irregular rainfall the cane-stools should be, in fact must be, irrigated. Mr. Mackay confirms this: "the short period of growth due to the concentration of the rainfall can be mitigated by carefully thought-out schemes of irrigation."

The greatest difficulty, however, with which a central cane factory has to contend is the nature of Indian land tenure, by which the country is split up into a multiplicity of small holdings, and this seems to be an insuperable one. The effect of this system of cultivation in innumerable small farms is that a concentration of crops round the factory is, in most instances, impossible. The cane is grown in small, isolated patches, and in order to feed a large factory, cane has to be collected from a very large area, radiating many miles from the factory, with all the consequent heavy cost of handling and carrying entailed in dealing with a commodity so heavy

and bulky as raw sugar-cane. This, combined with the inevitable deterioration and loss of sugar by inversion during the period of transit from the fields to the mill, more than counterbalance the benefits gained by the continuous process.

It would seem, therefore, that central cane factories can only be profitably worked, if at all, in canal colonies, or large zemindaries, where a concentrated area is available under the personal control of the owner or planter. This difficulty of small isolated patches of cultivations is certainly a very difficult matter to get over. Japan, however, overcame it, if we remember rightly. She enticed, or forced the planters either to change lands, or their crops, so that each district turned out one crop on a large scale, instead of a large number of owners of minute patches, producing small crops that did not really pay, and never were marketed to best advantage. Perhaps the Indian cultivator can be induced to see that it is to his benefit to do the same, until more consecutive land is covered with cane. It is, we know, a difficult matter, but it may yet be arranged. The question of inducing all the cultivators, or a larger number of cultivators, in the district round a central factory, to take to cane farming should be the easiest; for every one, in Northern India at least, must know how to grow canes, since they have been cultivated there for some 2,000 years or more. If this could be done, the large local market would be supplied with the home-grown article, far more cheaply than with the imported sugars. The skill, the machinery, the market are all there. The soil and the climate difficulties can be overcome; it is only the question of the land tenure, or "which crop to cultivate," that keeps the matter back, and prevents the central factories from being a perfect success. Perhaps the cane farmers do not get a high enough price for their canes to make it worth their while to abandon other crops for sugar? This, however, can hardly be likely, as the saving of freight and transport on the local article should enable the central factory to pay relatively excellent prices. Overhead ropeways, perhaps even to be native-hauled, since labour is so cheap, might also help, in places, to solve the question of transport; their cost is low, and utility and facility for states very great. This centralization of cane gardens would also facilitate and cheapen the application of fertilizers and irrigation water, either together or singly. We hope that the Allahabad exhibition will help in some way to overcome the difficulties that are now preventing central sugar factories in Northern India being, as they should be, a complete success.

—During the quarter ending December last the exports of rice from Bangkok were 200,054 tons valued at Rs. 1.62 crores. The figures for the corresponding period of the previous year were 210,834 tons and Rs. 1.64 crores. The value of Bangkok rice exports during the past year was Rs. 7.04 crores, against Rs. 7.52 crores in 1908.

EDISON'S NEW STORAGE BATTERY.

In its issue of February 5th. the *Scientific American* gives the following particulars of Edison's new storage battery:—

The announcement was made about nine years ago that Thomas A. Edison would soon place on the market a storage battery that would be much lighter and of greater capacity than the usual battery and provided with positive and negative elements that would not deteriorate because in place of an acid an alkali would be used for the electrolyte. Much was promised for this battery, and a year or two later it appeared. The positive element consisted of nickel oxide interspersed with layers of graphite and packed in perforated nickel tubes, while the negative element consisted of iron oxide and the electrolyte was potassium hydrate. Both elements were supported in nickeled steel grids. The battery weighed about half that of the usual storage battery of the same capacity. It showed no serious effect when rapidly discharged, and no damage resulted from overcharging. Shortly after the batteries were placed on the market it was found that the graphite became oxidized and interfered with the output. After considerable research it was discovered that chemically pure nickel could be substituted for the graphite and would not become oxidized in use. But soon another difficulty developed. The nickel was packed in tubes of square cross section and these tubes would buckle or bulge outward, permitting the powdered nickel oxide to filter down over the pure nickel layers and insulate them. Then it was determined that a round tube would have to be used which would withstand the pressure of the nickel oxide. The problem of producing such tubes economically was a serious one. They had to be about the size of a lead pencil, namely, quarter of an inch in diameter and four inches long, with the sides finely perforated. A machine was eventually built which made the tubes out of perforated nickel ribbon. The ribbon was wound spirally with the edges of the coils interlocked and fastened together during the coiling process. A vast amount of money was spent in solving this one problem of the battery.

Shortly after the batteries were first put on the market they were withdrawn on account of the defects above enumerated, and about two years ago when the battery was finally completed in its present form a large number were sent out to be tested on automobiles and electric trucks. So far they have failed to develop any serious difficulties. It took the utmost patience on the part of Mr. Edison to develop the battery to a state which he now considers practically "fool-proof." Naturally the public has not been so patient and has been grumbling about the long delay in developing this battery concerning which so much has been promised.

The other day the public was invited to inspect a street railway car equipped with the new batteries which was run on a short section of track in West

Orange, U.S.A. This car differs materially from the ordinary car not only in the power source, but in general design. The amount of current to be stored in the battery is limited, and in order to make this power go as far as possible it was essential that all superfluous weight be eliminated. The question of weight is not so vital a matter in the ordinary street car and has never received a great deal of attention. Mr. Ralph A. Beach, who has been Mr. Edison's assistant in adapting the storage battery to traction, was called upon to build a special car that would be as light as possible. He found that the common street car is merely a smaller and slightly modified steam railroad car, and it was necessary for him to branch out on entirely new lines. He guarded as jealously against unnecessary weight as the builder of an aeroplane. The backbone of the car he evolved consists of two 18-foot lattice girders which extend the entire length of the body under the seats. They consist of electrically welded steel bars and are so inflexible that when loaded with two tons at the centre they show a deflection of but $\frac{3}{16}$ of an inch. Around these two girders the car is built. In the first place they form a casing to receive the batteries of which there are 210 cells, 100 on each side for power and 10 for lighting. All the superstructure of the car is built of veneer and light woodwork with the exception of the strap rails and posts, which are of bicycle tubing and act as a framework to support the weight of the roof. The roof itself consists of a single sheet of veneer bent to the proper form, and is so light as to permit of making the side posts much smaller than in the ordinary car. The fact that this car does not have to support a trolley pole has allowed of using so light a roof.

The truck contains many novel features. The connection between the truck and body is such as to permit of a side and end movement of but $\frac{1}{8}$ of an inch, although it may move vertically to a much greater degree. The object of this is to insure smooth running and to prevent the usual swaying. In place of the usual car wheels light steel wheels are used. The axles are divided at the centre, being connected by long sleeves which permit one wheel to gain upon its mate when rounding curves or in case of a slight difference in their diameter. In this arrangement will be seen the influence of the automobile. There are other features as well which remind one of the automobile and show a radical departure from the common car construction. In place of gearing the motors directly to the wheels a silent chain drive is used which, as automobile practice has shown, furnishes a more economical transmission owing to the fact that a large part of the sprocket wheels is in mesh with the chain, whereas in the spur gear transmission only one tooth, or at most, three teeth of the pinion, can engage the teeth of the gear. Furthermore the chain drive permits of a greater gear reduction. Commonly a 3 to 1 reduction is the most used on railway cars, whereas on the storage battery car a reduction of 6 to 1 is employed. This permits of using lighter

motors, and hence form, one of the principal reasons why a chain gear was adopted.

The car is equipped with two 5-horse-power 110-volt motors which are of a very light construction. During the recent tests the car maintained a maximum speed of 15 miles per hour. The total weight of the car is estimated at 5 tons, and will seat 26 passengers, whereas the ordinary street car of the same size weighs twice that amount. The battery weighs 2,700 pounds, the car body 3,500, and the truck complete 3,800 pounds. It is claimed that the capacity of the batteries is sufficient to run the car continuously for 150 miles, although in regular street traffic, where a car is obliged to stop and start and crawl behind trucks, a single charge would probably carry the car but half this distance. The car is to be tested on West Street, New York, where an excellent opportunity will be given it to demonstrate its efficiency for regular street service, not only as regards the battery, but the light car construction as well.

PROSPECTS FOR OIL-FUEL.

A CORRESPONDENT contributes the following article to the *Times Financial and Commercial Supplement*:—The report that the Admiralty have made some large purchases of oil-fuel from certain of the Scottish mineral oil companies, and are about to buy more, has given a remarkable strength to the oil market, and also to the market in oil companies' shares. The movement is in many ways interesting, and calls for comment, but it is not quite such a novelty as some of the commentators seem to think. For some years past, at all events for two or three years, the Admiralty have been buying a certain quantity of Scottish heavy paraffin oil for steam furnaces. Several of the modern destroyers have had their furnaces arranged for the burning of oil as well as of coal, and one or two cruisers are similarly fitted. The new protected cruiser "Bristol," launched by Messrs. John Brown and Co., at Clydebank recently is to have her furnaces adapted for the consumption of both coal and oil. Storage tanks are being erected at Grangemouth and also at Portsmouth for the storage of oil-fuel, and a considerable quantity of oil has been bought by the Admiralty from the Burmah Oil Company and others.

The Scottish Output.

It is clear, then, that oil is likely to be a permanent form of fuel in the British Navy, and it is largely this fact that has given strength to the market. There is, of course, a wide difference between the actual purchase by the Admiralty and the potential consumption of the Navy. The actual annual production of the Scottish paraffin oil companies may be taken at from 150,000 to 200,000 tons per annum. The potential consumption of the British Navy may be considered to be about 1,500,000 tons per annum, on the basis of one ton of oil to two tons of coal, which is the equivalent usual-

ly considered to be correct. Thus, in no circumstances can the Scottish producers meet all the potential needs of our warships. That is a fact to be recognized at the outset. But, nevertheless, there is no reason why all that the Scotch producers can or are likely to furnish should not be reserved for our own ships. It can be kept in storage tanks at the fitting stations in this country in order to replenish the tanks of the ships in home waters. In case of war the Admiralty could requisition the whole production of the Scottish stills and stop the production of light oils so as to reserve supplies of heavy oils for the steamer furnaces; but that is not the position reached yet. To supply the furnaces of such vessels as can burn oil-fuel quantities must be secured from abroad.

Foreign Sources of Supply.

What, then, are the sources of supply? Nearly all are foreign up to the present date. The British naval consumption of coal is about 3,000,000 tons per annum, which is equal to 1,500,000 tons of mineral oil, though, of course, all the ships in the Navy are not yet equipped for the consumption of oil-fuel, cheaper, cleaner, and safer than coal though it may be. The annual production of petroleum in the world is about 40,000,000 tons per annum. Here is a wide margin; but about 95 per cent of that production is the output of foreign countries. The United States yield about 64 per cent of the whole; and then comes Russia, with 22 per cent; Galicia, with 4.50 per cent; Roumania, with 3 per cent; Mexico, with 1.25 per cent; and so on. The proportions of the total supplied by British possessions are as follows:—India, about 2 per cent; Canada, about 0.20 per cent; Borneo, about 3 per cent; and Scotland and other places about 0.05 per cent. These are startling figures because they show how largely, if not absolutely, we are dependent on foreign sources for our supplies of mineral oils, even with our own home distillation. In plain English, we could not adopt oil as the sole fuel of our Navy without making large contracts for supplies with some foreign Power or Powers.

Now the sources of supply that are visibly increasing are Russia (though the latest return is still considerably below that of 1904 before the disturbances at the oilfields), Borneo and Java, Galicia, Roumania, India, Japan, Mexico, and Peru. America is also increasing her output, but from opening up new fields rather than by increasing the yield from the oldfields. The output of the United States was 117,080,960 barrels of 42 gallons each in 1904 and 179,572,479 barrels in 1908. So far this increase is satisfactory, but if the American supply were shut off it is difficult to see whence we should get our oil-fuel.

Egypt and the Empire.

It is for this reason that the further utilization of mineral oil for maritime purposes depends not on the actual and potential production of the Scotch

mineral oil companies, but on the available supplies abroad within the bounds of or under the control of the British Empire. This is why the developments which are taking place in Egypt are of such national importance. The Egyptian oil is reputedly a heavy oil, and more suitable for lubricating than for illuminating. At all events, the percentage of heavy oil remaining after refining the crude liquor is so large as to emphasize the value of this oil for fuel purposes. This is important, because the Egyptian deposits at present being worked are on the coast of the Red Sea, and therefore in a convenient position for supplying the fuel-tanks of steamers in the Eastern trades. Then east of Suez we have the deposits in Burma and Assam to be developed further, and there are the immense shale fields of Australia and New Zealand yet to be utilized. The oil shale of New South Wales appears to be among the richest in the world. What has been shipped to the Mother Country has yielded as much as 100 gallons of oil to the ton of shale: what is being retorted in Australia yields, it is stated, from 70 to 80 gallons. The crude oil distilled from this shale produces, it is understood, about 8 per cent of naphtha, 25 per cent of burning oil, 9 per cent of gas oil, and 26 per cent of lubricating oil. It is, therefore, rich in material for furnace fuel purposes. The oil shale in New Zealand is also very rich, and New Zealand has also deposits of liquid petroleum which are being exploited. With these Antipodean resources our shipping in the future may be well provided for below the Equator.

Method of Preparation.

In the preparation of petroleum products for the market by the application of heat to the crude oil the lighter portions are first drawn off. These are ether, benzine, and naphtha, which are caught in stills and condensed by cooling the vapour as it passes through water-submerged pipes. The next process is to separate the kerosene from the benzine by vaporization. The remaining oils are heavy and are further treated and separately distilled. The product of the still is run into a series of compartments and checked at each as soon as a desired specific gravity is recorded. The oils are separated by, but if the main object is to obtain oil-fuel then no separation need be attempted after the light spirit of naphtha is withdrawn. For motor spirit the benzine is redistilled after the first recovery in order to obtain the gravity desired, as motor spirit requires a specific gravity of .690 to .720. While we import about 42,000,000 gallons per annum of petroleum for lamp or illuminating purposes, we also import about 16,000,000 gallons of heavy oil for fuel purposes. It is, therefore, no new thing in our business economy. This importation of oil has, however, sprung up within the past three or four years, and the point of interest just now relates to the way in which it is destined to develop.

With Egypt and India at work and the rich deposits of Australia and New Zealand properly utilized our course abroad will be much simpler; but the

point it may be well to make clear now is that with 95 per cent of the petroleum of the world produced in foreign countries this country cannot safely adopt oil as the sole steam-raising force in the Royal Navy. It can be adopted in part, as the Admiralty are now doing, and the day may come when it can be adopted in full, but that day is yet far distant. There is much, therefore, on this ground to be said for developing all the petroleum resources within the British Empire. And they are more numerous and richer than the ordinary reader supposes.

NEW REFERENCE BOOKS.

- CIVIL ENGINEERING AS APPLIED IN CONSTRUCTION. By LEVESON FRANCIS VERNON-HARCOURT, M.A., M. Inst. C. E. Second Edition. Revised by H. FIDLER, M. Inst. C. E. 9 x 5 1/2, xv + 626 pp. 16s. net. (Longman's Civil Engineering Series.) Longman's.
- COMPANY LAW. By W. F. HAMILTON, LL.D., K.C. Third Edition by the Author, assisted by PERCY TINDAL-ROBERTSON, Barrister-at-Law. 10 1/2 x 6 1/2, cxx + 557 pp. Index 110 pp. Butterworth.
- THE LAW RELATING TO THE RECONSTRUCTION AND AMALGAMATION OF JOINT STOCK COMPANIES. Together with Forms and Precedents. By PAUL FREDERICK SIMONSON, Barrister-at-Law. Second Edition, revised and largely rewritten. 9 1/2 x 6 1/2, xix + 197 pp. 19s. 6d. E. Wilson and Sweet and Maxwell.

—The Bremen Jute Spinning and Weaving Co., Bremen, report a net profit of 505,457 marks against 751,627 marks last year, and proposed a dividend of 16 per cent against 20 per cent last year. The capital is 1.8 million marks. It is mentioned in the report that the German Jute Syndicate expires at the end of the year, and as a number of firms are only prepared to re-enter the syndicate on condition that they are allowed considerably to enlarge their plant, a policy which other members strongly oppose, the prospects of its renewal are not considered very bright. It is asserted that the productive capacity of the industry in Germany is already much greater than the demand requires. Should the syndicate not be renewed the Bremen company consider that they will fare as well in the struggle for business as any of their competitors. During the past year 10,539,181 kilos of yarn and 15,219,158 metres of piece goods were produced. Profits are now by no means so good as at the beginning of last year, and it is feared that the results this year will be worse than last. The North German Jute Spinning and Weaving Co., Hamburg, is paying a dividend of 5 per cent against 9 per cent last year. The capital is 4.1 million marks. It is one of the largest jute companies and employs about 2,306 workpeople.

JOINT STOCK COMPANIES. Number and particulars of Joint Stock Companies registered in each Province in British India in the month of January, 1910.

No.	Class and Name.	Situation of Registered Office.	Object.	Nominal Capital.
I.—BANKING, LOAN AND INSURANCE.				
(a) Banking and Loan.				
1	Karen Co-operative Agricultural Bank	Rangoon, Burma	Banking and insurance	Rs. 20,00,000
2	Sri Kunjithapatha Government Security Permanent Chittu Company	Tanjore, Madras	Banking	75,000
Total, Banking, Loan				20,75,000
(b) Insurance.				
3	People's Marriage Fund	Peshawar, N.-W. F. Province	Collecting subscriptions and distributing them at marriages	1,00,000
Total, Banking, Loan and Insurance				21,75,000
II.—TRADING.				
4	Sun Drug Company	Rangoon, Burma	Manufacturing chemicals, drugs and medicines, etc.	1,50,000
5	Kaliganj Byabasaya Sampad	Sylhet, E. B. and Assam	Trading, etc.	20,000
6	Debpura Tea Company	Jalpaiguri, E. B. and Assam	Carrying on the business of tea and coffee	1,50,000
7	Purulia Sawdeshi Bhandar	Bengal	General merchants of Indian arts	50,000
8	Vaishya Glass Works Company	Ferozabad, United Provinces	Manufacturing glass and glassware	20,000
9	K. R. Friend and Company	Ballia, United Provinces	General traders	20,000
10	Alexander and Company	Lahore, Panjab	Bankers and manufacturers of cigars and cigarettes	2,50,000
11	Wiechers Kaiser and Levy	Karachi, Bombay	Merchants and commission agents	30,000
12	Gajanan Industrial and Trading Company	Satara, Bombay	Manufacturing safety matches	40,000
13	Swadesi Stores Company	South Malabar, Madras	Trading in Indian Manufactures and Industries	20,000
14	Sri Chakrao Industries	Tanjore, Madras	Weaving and trading in cloths	20,000
Total, Trading				7,70,000
III.—MILLS AND PRESSES.				
Cotton and Jute, Screws and Presses.				
15	Sri Karthikeya Ginning Factory	Coimbatore, Madras	Ginning cotton, etc.	20,000
IV.—MINING AND QUARRYING				
16	Kadavoor Ruby Mining Company	Bombay	Extracting Rubies from mines	10,00,000
GRAND TOTAL				39,65,000

ABSTRACT TABLE OF COMPANIES REGISTERED IN THE MONTH OF JANUARY, 1910.		Rs.
2 Banking and Loan Companies		20,75,000
1 Insurance Company		1,00,000
11 Trading Companies		7,70,000
1 Cotton and Jute Screws and Presses Company		20,000
1 Ruby Mining Company		10,00,000
16	GRAND TOTAL	39,65,000

JOINT STOCK COMPANIES—continued.

Number and particulars of new companies working exclusively in India with sterling capital and similar companies increasing their capital, registered in the United Kingdom in the month of December, 1909.

No.	Class and Name.	Shares.	CAPITAL.		New Debentures issued.
			Nominal.	Extra.	
	I.—TEA AND OTHER PLANTING COMPANIES.	£ s.	£	£	£
	(a) Tea.				
1	Majagram Tea Company	10 0	55,000	...	...
2	Tricolour Tea Company	1 0	50,000	...	...
	Total, Tea	...	105,000	...	...
	(b) Others.				
3	Kedamakal Rubber Syndicate	1 0	20,000	...	...
4	Kerala Rubber Company	1 0	40,000	...	...
	Total, Others	...	60,000	...	...
	Total, Tea and other Planting Companies	...	165,000	...	...
	GRAND TOTAL	...	165,000	...	...

COMMERCIAL LEGISLATION IN 1909.

THE year was one of no little activity in legislation affecting commercial and industrial conditions. Parliament intervened to control the conduct of insurance business. The Marine Insurance (gambling policies) Act seeks to put an end to the practice of gambling in marine risks by issuing policies to those who have no interest in the subject matter of the insurance. The measures taken are strong. Henceforward it is to be a criminal offence, punishable by fine and imprisonment, for anybody to effect a policy upon a ship or cargo, either as insurer, broker, or assured, without having a real interest in their safe arrival or preservation. The law relating to life assurance companies has been consolidated and amended by the Assurance Companies Act, the main practical effect of which is to extend to fire, accident, employers' liability, and bond investment insurance companies, the obligation to make a deposit of £20,000. Existing companies need not make the deposit, and there are special regulations for Lloyd's underwriters, who must either deposit £2,000 in respect of non-marine business, or fund all premiums and provide security. In the sphere of industrial legislation, the Electric Lighting Act further develops the legal conditions for the supply of electricity. It puts an end to certain anomalies which have resulted from treating "areas of supply" too much as watertight compartments, by enabling generating stations to be constructed and power to be supplied in certain cases outside those areas. The Board of Trade

receives power to authorise the supply of electricity in bulk by provisional order. Unauthorised undertakers are prohibited from competing with statutory undertakers, thus strengthening the monopoly of the latter; and for the protection of neighbouring interests public notice is to be given of the intention to construct a generating station, so as to give an opportunity for objections to be heard. Two Acts have been passed which may be said to mark an epoch in the progress of State control of industrial organisation, the Trade Boards Act and the Labour Exchanges Act. The former provides for the establishment in certain "sweated" industries of trade boards, to consist of representatives of employers and workmen in equal proportions, together with a minority of members appointed by the Board of Trade. The chief function of the boards is to be fixing a minimum rate of wages in the trade which is then to become obligatory. The Act is to apply in the first instance to wholesale tailoring, cardboard box making, lace and net finishing, and chain making, but it may be extended to any trade in which the rate of wages is exceptionally low. The Labour Exchanges Act is the first part of the Liberal policy for dealing with the evils of unemployment. Under its provisions a series of labour exchanges has been established throughout the country, consisting of co-ordinated head and branch offices, where information is collected and distributed as to employers needing labour and labourers needing employment. The exchanges are, in fact, State registry offices for all classes of labour.

FOOD-GRAINS AND SALT.

Retail Prices of certain Food-grains and Salt at selected stations for the second half of February, 1910. (Prices are stated in annas and pies per seer of 2·00 lbs.)

	Rice, common	Wheat	Barley	Jawar	Bajra	Ragi	Gram	Salt
	a. p.	a. p.	a. p.	a. p.	a. p.	a. p.	a. p.	a. p.
BURMA—								
Rangoon	1 4	...	...	...	...	...	...	1 2
Toungoo	1 3	...	...	...	...	...	...	1 2
EASTERN BENGAL AND ASSAM—								
Rangpur	1 4	2 2	...	...	...	...	...	1 1
Backerganj	1 4	...	...	...	...	...	...	0 10
BENGAL—								
Calcutta	1 10	1 10	...	...	...	...	...	0 10
Patna	1 3	1 8	0 11	...	...	...	...	0 10
UNITED PROVINCES—								
Cawnpore	...	1 9	0 11	0 11	1 0	...	0 10	0 9
Fyzabad	...	1 9	0 11	0 11	1 0	...	1 1	0 10
Meerut	...	1 7	0 10	0 11	1 0	...	0 11	0 9
PANJAB—								
Delhi	...	1 6	0 11	0 10	1 0	...	0 11	0 9
Amritsar	...	1 4	0 8	0 10	0 10	...	0 10	0 7
Rawalpindi	...	1 5	0 10	1 0	1 0	...	0 11	0 7
SIND—								
Karachi	...	1 10	...	1 2	1 4	...	1 3	0 7
BOMBAY—								
Belgaum	...	1 7	...	1 1	1 2	...	...	0 8
Ahmadnagar	...	1 10	...	1 0	1 0	...	...	0 11
Bombay	...	2 8	...	1 5	1 5	...	...	0 11
Ahmadabad	...	1 8	...	1 0	1 3	...	...	0 7
CENTRAL PROVINCES—								
Jubbulpore	...	1 6	...	0 11	...	...	1 1	1 0
Nagpur	1 4	1 7	...	1 1	...	...	1 1	1 0
Raipur	1 3	1 7	...	...	...	...	0 11	1 0
MADRAS—								
Bellary	1 10	...	...	1 1	...	1 0	...	0 10
Madras	2 3	...	...	...	...	1 3	...	0 7
Salem	2 1	...	...	1 3	1 6	1 2	...	1 1

—In its monthly review of stock exchange values the *Bankers' Magazine* for March says that a fair amount of business has been transacted during February, but public attention has been largely concentrated on the new market for rubber shares, a section not yet included in the magazine's values, but which next month it is proposed to insert separately by way of appendix, so as not to disturb the general total. The feature of the month has been the irregularity of movements in the different departments, and the result has consequently been to minimise the net changes in values. On balance the representative list of securities shows an increase of about eight millions sterling, the exact figures for the 387 securities being—

Aggregate value, January 20, 1910	£3,709,574,000
Aggregate value, February 19, 1910	£3,717,490,000
Increase	£ 7,916,000

Notwithstanding the extreme cheapness of money, British funds have been depressed, in anticipation

of further borrowing by the Government. English railway stocks, on the other hand, have been a good market, and the rise in that department would have been much greater, but for the fact that in the case of some of the stocks dividends have been deducted from prices during the month. The steady advance in foreign Government securities continues, with attention chiefly devoted to Russian and Japanese bonds. Notwithstanding the weakness at one time displayed in the American market, prices in that department show on balance, a small rise compared with a month ago. The weakness of bank shares was due in part no doubt to the continued cheapness of money, while the market has been affected by the realisation of several "deceased estates." Insurance shares have advanced. There is a small rise to note in South African mining shares, but copper shares are lower, and there is a decline in miscellaneous mining shares, chiefly due to a set-back in West Australian and West African descriptions.

EXPORTS OF WHEAT AND FLOUR.

Statement showing the exports of wheat and wheat flour from British India to foreign countries in each of the eleven months, April to February of the years 1904-1905 to 1909-10 :—

	1904-05		1905-06		1906-07		1907-08		1908-09		1909-10	
	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.
BENGAL—												
April . . .	612,129		169,868		9,074		12,855		3,360		272,044	
May . . .	1,205,348		663,696		16,598		40,881		6,506		1,06,554	
June . . .	1,477,348		631,938		29,660		42,085		5,019		748,294	
July . . .	771,165		371,322		72,099		89,656		5,924		3,43,373	
August . . .	738,300		52,489		10,967		16,770		6,610		264,333	
September . . .	605,516		59,210		13,722		10,020		4,719		13,958	
October . . .	601,563		112,845		12,545		10,256		9,432		4,985	
November . . .	1,072,242		141,709		9,843		8,998		4,591		6,077	
December . . .	64,404		179,542		5,930		3,153		5,817		6,819	
January . . .	744,332		28,119		8,177		4,314		3,613		5,233	
February . . .	345,996		6,031		4,414		2,885		5,392		8,256	
TOTAL		8,803,813		2,396,289		193,769		191,853		60,983		2,680,924
BOMBAY—												
April . . .	523,551		646,148		89,333		68,828		20,921		168,321	
May . . .	1,149,299		881,105		167,451		166,153		42,477		716,519	
June . . .	577,691		534,536		148,807		187,291		59,088		751,301	
July . . .	384,209		338,117		180,399		278,581		45,559		465,304	
August . . .	303,345		306,811		61,633		104,744		38,365		251,753	
September . . .	572,222		349,378		72,300		107,104		68,259		64,483	
October . . .	612,310		341,005		163,977		143,734		72,798		97,054	
November . . .	938,795		304,377		110,542		111,818		70,846		100,746	
December . . .	796,275		239,770		91,367		49,518		50,948		49,614	
January . . .	656,353		253,153		132,755		39,082		32,963		71,456	
February . . .	309,053		49,420		64,169		45,416		41,128		67,200	
TOTAL		6,883,103		4,298,800		1,282,094		1,280,267		543,382		2,803,701
SIND—												
April . . .	1,321,955		718,621		479,258		1,395,557		20,968		17,306	
May . . .	1,379,457		1,542,890		1,145,804		1,341,517		14,573		212,803	
June . . .	1,753,445		3,345,233		2,724,725		1,851,899		117,881		3,263,113	
July . . .	3,180,587		2,501,383		3,178,056		2,886,485		490,141		4,831,931	
August . . .	2,931,607		1,889,121		1,764,921		2,879,693		247,313		3,044,522	
September . . .	2,658,385		52,399		265,183		2,775,333		467,967		416,967	
October . . .	2,335,563		569,923		1,372,291		2,429,341		686,313		757,944	
November . . .	3,397,137		1,002,671		956,949		1,061,105		220,400		698,865	
December . . .	3,163,243		662,303		800,202		344,783		15,321		630,334	
January . . .	2,320,373		209,253		487,397		65,599		33,978		1,130,369	
February . . .	1,372,003		66,060		734,417		21,359		20,045		354,038	
TOTAL		26,816,855		12,969,687		14,268,943		17,051,471		2,334,900		15,372,192
OTHER PROVINCES—												
April . . .	513		110,370		136		212		90		2,112	
May . . .	715		13,485		30		1		3		2,007	
June . . .	1,095		4,056		37		225		7		2,004	
July . . .	1,095		7,649		4		6		6		4	
August . . .	369		268		...		1		...		...	
September . . .	542		6		...		5		...		...	
October . . .	421		63		...		...		...		...	
November . . .	870		...		2,001		...		...		...	
December . . .	1,077		17		1,190		...		2		...	
January . . .	2,900		...		1,522		...		10		35	
February . . .	20		36		397		4		...		...	
TOTAL		8,502		135,950		5,324		454		118		6,162
GRAND TOTAL		42,512,273		19,800,926		15,750,130		18,524,045		2,939,363		20,862,979

N.B.—The figures of wheat flour included in this statement are taken as representing 70 per cent. of wheat used in its manufacture.

IMPORTS OF SUGAR.

Imports of Foreign Sugar (excluding Confectionery and Molasses) into British India in the month of February, 1910, and in the eleven months ending 28th February, 1910, compared with the corresponding periods of the previous year. The statement shows, as far as possible, the original sources of all such sugar imported :—

Countries of production of total imports.	Share of each country in the total imports in February 1909.	Share of each country in the total imports in February 1910.	Share in the eleven months ending 28th Feb. 1909.	Share in the eleven months ending 28th Feb. 1910.	Countries of production of total imports.	Share of each country in the total imports in February 1909.	Share of each country in the total imports in February 1910.	Share in the eleven months ending 28th Feb. 1909.	Share in the eleven months ending 28th Feb. 1910.
	Cwt.	Cwt.	Cwt.	Cwt.		Cwt.	Cwt.	Cwt.	Cwt.
Russia . . .	194	...	20,236	22,100	Philippines . . .	...	...	5,000	...
Denmark . . .	...	...	340	...	China . . .	123	215	6,306	7,222
Germany . . .	346	315	2,881	51,389	Japan . . .	...	...	...	36
Holland . . .	39	71	445	740	Egypt . . .	...	9	...	9
Belgium . . .	50	71	925	1,442	Natal . . .	...	...	2	11
France . . .	...	54	418	306	Réunion . . .	...	...	19,505	...
Spain . . .	...	...	4	6	Mauritius . . .	218,661	146,378	2,334,512	2,064,960
Italy . . .	...	...	27	1	West Indies . . .	6	15	121	114
Austria-Hungary . . .	218,784	29,667	1,696,641	667,294	South America . . .	23	48	482	572
Straits Settlements . . .	18	28	744	1,615	Australia . . .	...	...	105	7
Java . . .	219,608	445,055	5,891,193	7,408,796	From non-producing countries - Origin unknown . . .	13	39	482	478
					TOTAL	657,870	622,965	9,980,369	10,227,038

Quantity of Beet and Cane Sugar imported by sea from Foreign countries into each province of British India in the month of February, 1910, compared with the corresponding period of the year 1909 :—

PROVINCES.	Beet Sugar.		Cane Sugar.		TOTAL.	
	1909.	1910.	1909.	1910.	1909.	1910.
	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
Bengal . . .	46,290	13,227	179,301	283,980	225,591	297,207
Eastern Bengal and Assam . . .	...	...	...	1,806	...	1,806
Bombay . . .	26,058	10,262	206,182	206,626	232,240	216,886
Sind . . .	133,911	5,045	23,789	43,371	157,700	48,416
Madras . . .	8,273	1,549	3,141	235	11,414	1,784
Burma . . .	4,883	114	26,042	56,750	30,925	56,864
TOTAL	219,415	30,197	438,455	592,768	657,870	622,965

IMPORTS OF COTTON YARN.

Quantity of Cotton Yarn No. 31 and higher counts, imported by sea from foreign countries into each province of British India in the month of February, 1910 :—

	Bengal.	Eastern Bengal and Assam.	Bombay.	Sind.	Madras.	Burma.	TOTAL.
	lb	lb	lb	lb	lb	lb	lb
Mule and water, Nos. 31 to 40 . . .	98,229	...	134,893	...	219,065	...	452,187
" " " 41 to 50 . . .	17,150	...	80,287	...	15,030	...	62,467
" " " above No. 50 . . .	42,600	...	67,450	...	68,010	...	176,060
Orange, red and other colours, Nos. 31 to 40 . . .	371,484	...	104,900	90,392	281,250	71,195	919,221
Orange, red and other colours, Nos. 41 to 50 . . .	...	...	1,600	...	2,800	13,435	17,835
Orange, red and other colours, above No. 50 . . .	...	...	...	...	51,800	40,850	92,150
TOTAL	529,463	...	339,130	90,392	635,455	125,480	1,719,920

WEEKLY TRADE MOVEMENTS.
For the week ending 19th March, 1910.

COTTON GOODS.			
Twist and Yarn.			
Foreign—	Calcutta lbs.	148,301	
Imports by sea into	Bombay	137,742	
	Madras	215,850	
Indian—	Calcutta	442,400	
Exports by sea from	Bombay	6,439,420	
	Madras	...	
Grey Piece Goods.			
Imports by sea from	Calcutta yds.	21,853,306	
Foreign ports into	Bombay	1,870,867	
	Karachi	628	
	Madras	822,455	
	Rangoon	186,794	
White Piece Goods.			
Imports by sea from	Calcutta yds.	7,536,323	
Foreign ports into	Bombay	3,044,937	
	Karachi	280,490	
	Madras	594,315	
	Rangoon	359,801	
Other Piece Goods.			
Imports by sea from	Calcutta yds.	2,795,200	
Foreign ports into	Bombay	6,930,655	
	Karachi	171,720	
	Madras	933,950	
	Rangoon	1,221,819	
Piece Goods.			
(Indian and Foreign.)			
Despatches by rail from	Calcutta cwt.	19,493	
	Bombay	6,627	
	Karachi	16,675	
	Madras	5,401	
Raw Cotton.			
Imports into Bombay	By sea cwt.	852	
	Coastwise	46,602	
	By rail	327,025	
Imports into Karachi	By rail	46,204	
Imports into Calcutta by rail and river		13,318	

JUTE.			
Arrivals by all routes in	Calcutta cwt.	190,985	
Exports by sea from	Calcutta	18,180,535	
	Gunny bags No.	12,822,250	
	Jute cloth yds.	133,144	
	Chittagong—Jute	...	
COTTON SEEDS.			
Exports by sea from Bombay	cwt.	730,024	
OIL SEEDS.			
Linseed.			
Imports into	Calcutta by rail and river cwt.	62,164	
	By sea	5	
	Coastwise	2,987	
	By rail	104,941	
	Karachi by rail	41,398	
Exports by sea from	Calcutta	50,777	
	Bombay	...	
	Karachi	...	
Rape and Mustard Seed.			
Imports into	Calcutta by rail and river cwt.	90,200	
	By sea	18	
	Coastwise	47,419	
	By rail	91,780	
	Karachi by rail	8,520	
Exports by sea from	Calcutta	35,995	
	Bombay	137,488	
	Karachi	...	
RICE.			
Arrivals by all routes in	Calcutta cwt.	361,653	
	Calcutta	270,555	
	Chittagong	13,917	
Exports by sea from	Bombay	7,093	
	Karachi	4	
	Madras	300,742	
	Rangoon	...	
TEA.			
Arrivals by all routes in	Calcutta lbs.	39,497	
Exports by sea from	Calcutta	803,184	
	Chittagong	...	
WHEAT.			
Imports into	Calcutta by rail and river cwt.	89,945	
	Karachi by rail	217,788	
	By sea	16,361	
	Bombay	27,492	
	Coastwise	25,025	
	By rail	737	
Exports by sea from	Calcutta	160,270	
	Bombay	...	
	Karachi	...	

* B.N. Ry. figures not included.

EXPORTS—RUNNING TOTALS INCLUDING FIGURES RECORDED ABOVE.

	FROM APRIL		FROM JANUARY					
	1908.	1909.	1909.	1910.	1909.	1910.	1909.	1910.
	Wheat.		Linseed.		Rape and Mustard Seed.		Cotton Seed.	
Calcutta . . . Cwt.	52,667	3,406,588	114,890	146,657	41,792	163,909	Not reported.	
Bombay . . . "	102,391	2,654,029	270,771	319,036	88,837	252,908	2,178,280	5,204,061
Karachi . . . "	3,888,214	17,614,835	...	...	1,132,510	2,258,383	Not reported.	

KEROSENE OIL, WEEK ENDING 19th MARCH, 1910.

Imports by sea into—	FROM			
	Russia.	America.	All other foreign countries.	TOTAL.
	galls.	galls.	galls.	galls.
Calcutta	...	...	...	...
Bombay	...	...	...	...
Karachi	...	615,090	...	615,090
Madras	...	...	...	...
Exports by sea from Burma to				Bengal . . . 875,639
				E. B. & Assam . . .
				Bombay . . .
				Sind . . .
				Madras . . .
				Indian Ports, Non-Br. . .
				Foreign Ports . . .

IMPORTS OF SUGAR, WEEK ENDING 19th MARCH, 1910.

Country of Shipment.	REFINED SUGAR IMPORTED INTO						
	Calcutta.	Chittagong.	Bombay.	Karachi.	Madras.	Rangoon.	TOTAL.
	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.
United Kingdom . . .	1	...	...	35	...	21	56
Germany . . .	...	...	...	...	...	...	...
Austria-Hungary . . .	...	...	...	...	...	...	...
Other European Countries . . .	...	...	...	...	...	...	...
Java . . .	65,507	...	...	12	...	10,052	75,571
Mauritius . . .	...	...	56,897	17,536	...	...	74,433
Other Non-European Countries . . .	3,000	...	3,391	...	...	1,493	7,887
Total refined							157,947
Total unrefined							...
Grand Total							157,947

RESULTS OF AUCTION TEA SALES IN CALCUTTA.

DISTRICTS.	SEASON 1909-10.				SEASON 1908-09.			
	Sold in sale of 16th March.		Sold to 16th March		Sold in sale of 17th March.		Sold to 17th March.	
	Packages.	Average price per lb.	Packages.	Average price per lb.	Packages.	Average price per lb.	Packages.	Average price per lb.
Assam . . .	...	...	176,262	7 4-2	83	5 10-9	184,161	6 7-5
Cachar . . .	...	...	161,519	5 10-2	435	4 10-8	141,409	4 11-4
Sylhet . . .	12	5 5	115,074	5 9-7	616	4 2-7	112,686	4 11-3
Darjeeling . . .	...	...	61,747	10 0-5	...	...	62,919	8 7-8
Dooars . . .	...	...	192,305	6 10-8	...	...	185,786	6 0-3
Teral . . .	...	...	17,980	6 3-3	...	...	25,008	5 1-6
Chittagong . . .	...	...	7,984	5 10-4	...	...	7,873	4 11
Chota-Nagpore . . .	...	...	1,901	6 4-4	...	...	1,904	5 1-2
Kumaon and Kangra . . .	...	...	3,318	5 8-1	130	5 2	2,396	5 7-4
Madras . . .	...	...	110	5 11-7	...	...	185	5 2-3
Dehra Dun . . .	...	...	356	5 11-2	...	...	...	...
Nepal . . .	...	...	928	5 7-8	...	...	1,003	4 8-1
All other places . . .	...	...	76	5 5	...	...	...	...
TOTAL	12	5 5	739,540	6 10	1,264	4 7-9	725,313	5 11-7

(The above do not include second-hand Tea, damaged Tea and Dust from those concerns which sell only that grade on this market.)
Season 1909-10 Average price of 46,952 packages Dust* sold to 16th March 5 4-6
1908-09 43,090 " " 17th " 4 11-1
* On account of "gardeas" which sell only that grade on this market.

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N.B.—All communications regarding the above Publications should be addressed to the Collector of Customs, Calcutta, by designation only and not by name.

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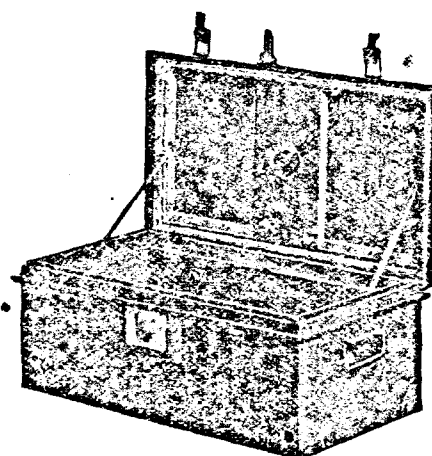
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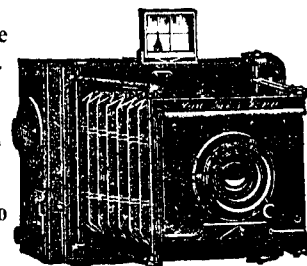
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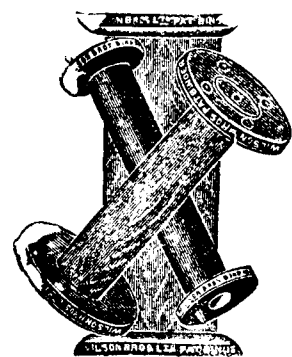
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REGISTERED.

The Indian Trade Journal.

*Issued by the Commercial Intelligence Department,
India.*

VOL. XVI. No. 209.]

CALCUTTA, THURSDAY, MARCH 31, 1910.

[ANNAS 4.]

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NOTES.

MONEY MARKET.

Wednesday Evening.

PRESIDENCY BANK RATES	Calcutta	7 per cent. (Mar. 3).
	Bombay	7 per cent. (Mar. 3).
	Madras	8 per cent. (Mar. 7).
EXCHANGE	On demand	1-4 $\frac{3}{8}$
	Telegraphic Transfers	1-4 $\frac{3}{8}$
	3 months	1-4 $\frac{1}{8}$
	6 months	1-4 $\frac{1}{8}$
	GOVERNMENT PAPER (3 $\frac{1}{2}$ per cent.)	Rs. 93 $\frac{1}{8}$.

The spot price of wheat at Karachi on the 24th March was Rs. 32-14-9 per candy of 656 lbs. This is for white wheat on a basis of 30 per cent red wheat, 5 per cent barley and 3 per cent dirt; the price of bags included. The price of Indian grey yarn (20's) at Bombay on the 29th March was Re. 0-7-6 to Re. 0-8-0 per lb. and of Mutia Bhawnagar cotton, March delivery, Rs. 270 per candy of 784 lbs.

The wholesale spot prices of the undermen-
tioned articles in Calcutta on the 30th instant were as under :—

Jute—C. D. M. and Co. (Red) Group	Nominal.
per 400 lbs.	
" M. per 400 lbs.	Rs. 32 0 0
Rice—Ballam No. 1 per B. md.	" 4 0 0
" Moonghy "	Nil.
Linseed—Bold 4% per B. md.	Nil.
Rapeseed—Yellow, mixed, bold,	
Cawnpore, 4% per B. md.	" Nil.

Sanction has been accorded to an estimate for the construction of a railway on the metre gauge from Samastipur on the Tirhut State Railway to Roserah, a length of 17.20 miles, as an integral part of that railway.

The total approximate gross earnings of State and Guaranteed Railways from 1st April 1909 to 12th March 1910 show a gain of Rs. 2,87,27,786 and Rs. 62,88,017 as compared with the corresponding figures for 1908-09 and 1907-08 respectively.

Sanction has been accorded to an estimate for the construction of a line of railway on the 5 ft. 6 in. gauge from Gujranla, on the Moradabad Gaziabad branch of the Oudh and Rohilkhand Railway to Chandpur, a length of 22.15 miles as an integral part of that railway. This project will be known as the Gujranla Chandpur railway.

The following return shows the number of bales of cotton imported and exported at the various ports of the United Kingdom during the week and 9 weeks ended 3rd March, 1910 :—

	IMPORTS.		EXPORTS.	
	Week ended 3rd Mar., 1910.	9 weeks ended 3rd Mar., 1910.	Week ended 3rd Mar., 1910.	9 weeks ended 3rd Mar., 1910.
	Bales.	Bales.	Bales.	Bales.
American . . .	18,061	403,117	5,839	47,849
Brazilian . . .	3,644	11,809	50	1,317
East Indian . .	11,048	60,352	1,162	10,014
Egyptian . . .	9,831	73,882	1,470	22,104
Miscellaneous .	1,200*	15,215†	558	2,664
Total . . .	43,784	563,875	9,079	83,948

* Including 462 bales British West Indian and 68 bales British West African.

† Including 1,731 bales British West Indian, 305 bales British West African, and 3,535 bales British East African.

NOTE.—Cotton "in transit" or "for transshipment under bond," if described as such in the ships' reports, is not included in this return.

In their weekly report on the Shanghai piece-goods market, dated the 3rd instant, Messrs. Noel Murray and Co., Ltd., say :—"The market for Indian yarn received a severe shock when the news became known that the Indian Government had decided to increase the duty on imported silver, and the consequent deterioration in the value of that commodity. Exchange on India has fallen from 176½ rupees per \$100, at which it closed last week to 170½ or the equivalent of nearly 3½% against remitters. That means a difference of three to four taels per bale, a very heavy advance on the already inflated

prices current here. To expect to obtain that all at once was a little too much, and although in some few cases a good advance has been obtained we are inclined to think the bulk of the business we have to report this week was arranged before the silver news became known here. The demand continues to run chiefly on No. 10s. for both the Northern and River markets, but No. 20s. have received fair attention at relatively firmer prices. The capabilities of this market for further expansion in prices are altogether problematical. It was thought long since that the limit must have been reached, but although the deliveries so far this year show a falling off of over 30% prices are 15 to 20% higher than they were this time last year, when sterling exchange was practically the same as it is now. The sales reported amount in the aggregate to 3,330 bales.

Messrs. Hubbard Brothers & Co., of New York, reviewing the recent fluctuations of cotton, say that they reflect the inability of the trade to make up its mind as to the course of prices during the second half of the season. "For a week or more" (their letter is dated March 1st) "opinion will be governed by the small demand from the American spinners, who, having bought freely at high prices during December, are now contemplating the slow demand for their product, as buyers endeavour to place orders on the probable price for the new crop, and are pessimistic. Then the next week the foreign spinners who did not buy so freely at that time enter the market, absorb a quantity of the hedged cotton, bringing about a sharp advance. They are enabled to buy because of the prosperity in the other agricultural countries, who having received good prices for their wheat and farm products, are buyers of cotton goods in Manchester and on the Continent at prices which astonish the foreign spinner. This is particularly true of Manchester, as the reports from the Continent are not so good as those from England." Messrs. Hubbard think that England will require another million bales of cotton before September, and that the Continent would like nearly as much if it were obtainable.

In its issue of March 7th the *Manchester Guardian* says :—"For some time past the Singapore Chamber of Commerce has been receiving from merchants interested in the yarn trade complaints concerning the false marking and labelling of Indian yarns, a practice, it is alleged, which is very detrimental to the trade in English full-reeled and properly designated yarns. The matter has already been forcibly represented to the Indian Government by the Bombay Chamber of Commerce, but the yarn still continues to be exported from India. The Singapore Chamber therefore recently decided to approach the Hongkong and Shanghai merchants with a view of finding out whether they experienced the same trouble in their markets, and

to address a general appeal from the three Chambers to the Manchester Chamber of Commerce. It is, in the opinion of the Singapore Chamber, a matter which vitally affects the British spinners, and it is thought that if the Manchester Chamber can be induced to take the matter up and act in conjunction with the three Far Eastern Chambers, and with the Bombay Chamber also, pressure could be brought to bear upon the Indian authorities. The reply of the Hongkong Chamber has been received in the form of a memorandum drawn up by a local expert in the trade, who says he is satisfied that the same malpractices do not obtain there as are prevalent in Singapore. Competition, he states, is too keen in Hongkong, and the Bombay mills have too much to lose and too little to gain to adopt any spurious labelling. It would appear that this spurious labelling of Bombay yarns is confined to counts from 24's upwards whereas 20's are the highest count of Bombay yarn imported into the Hongkong market.

The *Manchester Guardian* learns from the head offices of the International Cotton Federation that the following additional returns have come to hand :—**Spain and Portugal**—The output of the short-time movements in cotton mills has been reduced by 30 per cent, and this reduction will probably be continued until next summer. **Italy** has already been during twelve weeks of this season on organised short-time, and now an agreement has been arrived at by over 3,000,000 spindles out of a total of 3,400,000—3,500,000 spindles using American and Indian cotton to curtail the production whenever it exceeds the consumption. Baron Costanzo Cantoni, the president of the Italian Master Cotton Spinners' Association, reports on this agreement as follows :—"The whole of the yarn stocks will be taken on the 27th of February and communicated to a secretary who is pledged to secrecy. He is to tabulate the stocks of the individual firms, and submit same to a committee for the carrying on of the plan. Every fortnight all the members of the Association are to send in a statement of production, consignments, and sales. According to these the committee will determine for the following months how much short time is to be run, so as to reduce the hours, if necessary, to balance production and consumption, after the reduction of stocks to a normal quantity. We consider that this scheme, based upon an absolutely economic principle, is an excellent one, and myself and the four gentlemen who are assisting me have been generally congratulated upon succeeding in forming a union of this nature. I think that in this manner we shall be contributing very seriously to the general curtailment of production required."

The *Corn Trade News* gives the following summary of the world's crops as on the 8th instant :—

United States of America—Reports of winter wheat vary greatly; some say damage only light, others claim severe injury, especially in Kansas. Receipts liberal. **Canada**—Recent severe weather hindered crop movement; much lighter than year ago. Nothing fresh about crop indications. **India**—Official and unofficial crop reports quite favourable for wheat and oilseeds. Crops now being harvested earlier regions. Some new crop selling, but transaction not large. **Argentina**—Low estimates of wheat surplus are still being circulated, and our agent indicates a reduction of his earlier estimate of 10,000,000 qrs. Offerings have been larger and weights somewhat better. Expect shipments well maintained this week. **Australia and New Zealand**—No change. **Chili**—Shipments commenced; indications of wheat crop no larger. **Russia**—Recent frost reported damaged winter crops, especially south-east. Receipts interior and ports increasing; stocks liberal. **Roumania**—Weather mild and favourable, crop conditions good. **Austria-Hungary**—Weather and crop reports very favourable. **France**—Weather improved; crop reports more hopeful. Markets firm on light supplies. **Germany**—Crops continue look well; fears late frost cause anxiety. Native supplies increasing. **Italy and North Africa**—Crop reports mostly favourable. **Spain**—Beneficial rains fallen in droughty region. **Belgium and Holland**—Weather improved. **United Kingdom**—Weather improved, spring sowing commenced.

The March report of the American Crop Estimating Board states that the amount of wheat left in farmers' hands on the 1st March is 173,844,000 bushels, or 12.35 per cent of last year's crop. This compares with about 143,692,000 bushels, or 21.6 per cent, of the crop of 1908 on hand on March 1st, 1909, and 143,721,000 bushels, or 23.5 per cent, of the crop of 1907 on hand on March 1st, 1908. The amount of maize on hand was about 1,050,865,000 bushels, or 23.79 per cent of the total crop. This compares with about 1,047,763,000 bushels, or 39.3 per cent, of the crop of 1908 left on hand on March 1st, 1909, and with 962,429,000 bushels, or 37.1 per cent, of the crop of 1907 on hand March 1st, 1908. The merchantable corn represents 82.6 per cent of the total crop grown in 1909, against 88.2 per cent for the crop grown in the previous year and 77.7 per cent for the crop grown in 1907. The oats on hand on March 1st of last year's crop amount of about 363,159,000 bushels, or 33.61 per cent of the crop. This compares with about 278,847,000 bushels, or 34.6 per cent, of the crop of 1908 on hand on March 1st, 1909, and with 267,476,000 bushels, or 35.5 per cent, of the crop of 1907 on hand March 1st, 1908.

The prices of British corn per quarter of 8 bushels, as received from the inspectors and officers

of Excise in the week ended 5th March, 1910, were as follows:—Wheat, 32s. 7d.; barley, 24s. 6d.; and oats, 18s. 1d.

The daily prices of opium per chest for the periods mentioned below were as follows:—

For the week ending 19th March, 1910—
In the Bombay market—

On the 13th and 14th instant (new 1909-10) Rs. 1,350 to 2,600; (new 1908-09) Rs. 1,375 to 2,660; (old 1907-08) Rs. 2,700 to 2,740. From the 15th to 19th instant (new 1908-09) Rs. 1,405 to 3,100; (old 1907-08) Rs. 3,150 to 3,200. The latest prices at Hongkong and Shanghai were (new) Rs. 2,849 and 2,618; (old) Rs. 2,953 to 2,687 respectively.

The *Manchester Guardian* of March 8th writes:—During the past week copper prices began to creep up again—very slowly but continuously up to Thursday (March 3rd) by which time a gain of £1 per ton had been made. On the following day there was a reaction of 5s. per ton, probably indicating that the slow, pendulum-like movement to which the market has been subject for so long a time was still in good working order. A swing between £58 as the lowest and £62 as the highest has been in evidence for nearly five months; and recently the extremes have been £59 and £61. What is going to happen? Is the pendulum coming slowly to perfect rest at £60? It is possible to argue from the lack of movement that prices are practically on a sound and solid bottom, and that whatever happens they cannot be forced down any lower; hence all that can be done is to wait for the signs of increase in consumption and reduction of stocks. The "Iron-monger" says that on the Continent there are signs of a "disposition to buy" on the part of the consuming trades; but on the other hand there are certainly no such signs at home. In spite of the apparent safety of the position, consumers here show no inclination to hold more than very moderate stocks. Perhaps they think that speculators may just as well hold it for them and pay the expenses. The visible supply of copper at the end of last month was about 2,500 tons greater than at the end of January, but slightly less than the mid-February figures.

The summary which has just been published in the Bulletin of the American Iron and Steel Association regarding the production of rails in the United States confirms in a striking manner the fact that rail manufacture is undergoing change both in respect to the composition of the steel and the method of refining it. In estimating the extent of the change it is necessary to observe that as the yearly output is itself a somewhat erratic quantity the distribution of the totals for successive years among the various processes requires to be expressed

not in gross weight, but as percentages. Thus the total production of all kinds of rails in the United States in 1906 reached nearly four million tons. In 1907 this fell to nearly three and a half million tons, and in 1908 to about two million tons. Last year it increased again to rather more than three million tons, and it is noteworthy that while this increase corresponds to a 33.4 per cent increment in the output of Bessemer rails, it represents 121 per cent increase in the output from open-hearth processes. This change is the more remarkable when it is remembered that the increase in 1908 over 1907 for the open-hearth process was 124 per cent. There is a complete disappearance this year of iron rails from the statistics, but rails alloyed with titanium, manganese, nickel and chromium are in evidence to the extent of more than 50,000 tons, and rails prepared by electric furnaces also contribute to the total. That the electric furnace will make history in this direction is certain, and it is probable that its greatest sphere of usefulness will be found in combination with rather than as a competitor to the older processes.

In their Report on the Mauritius sugar market, dated March 7th, Messrs. Blyth Brothers & Co. state:—Referring to our advices of 4th ultimo we have now to report a very active market, both Europeans and Natives buying freely @ Rs. 10.50 and Rs. 10.75. Owing to London again advancing, due, it is reported, to the outturn of the Cuban crop being less than anticipated, this market again jumped up and large sales have been made @ Rs. 11, 11.25 and Rs. 11.50. Natives are such very keen buyers and competition so active since there cannot be more than 20,000 bags of Vesous left in first hands, that the market is likely to advance still further, especially as an upward movement is reported from India. South Africa is also buying at increased rates, taking chiefly finest whites, but as this class of sugar is beginning to get scarce, they will have to fall back on fine whites. There has been more enquiry for white syrups and sales have been made @ Rs. 10 and Rs. 10.50. The weather has been favourable to the plantations and if no cyclone passes over the island, the next crop bids fair to be a large one.

It is officially announced, says the *Times Engineering Supplement*, that, notwithstanding the depression which characterized maritime undertakings throughout the world in 1908, the tonnage of Antwerp has increased, and the year 1909 established a record for the port both in regard to tonnage and shipping. Moreover, this unprecedented growth in 1909 is in great measure to be attributed to British shipping. This success is urging the port to further effort, and it seems probable that the scheme for constructing new entrance looks down the Scheldt, and ultimately connecting them with the docks now being built,

will be accelerated. It is further reported that work upon the subsidiary and canal docks to the north of the basin at Antwerp is steadily proceeding, and that they will probably be available within the next three years. This will increase the water area of the docks by about 136 acres, and it will augment the quay space by 5,796 yards. Antwerp will thus gain for itself a quay about six miles in length, with an available depth of water of from 30 ft. to 40 ft., and there is even now a fair prospect that at the present rate of increase of shipping the whole of the quays will, upon completion, be occupied with merchant ships. Simultaneously the railways are being organized for handling the expected increase in traffic, new shunting lines are under construction, and arrangements are on foot for linking them up with main lines.

The tonnage of vessels entered at ports in the United Kingdom from foreign countries and British possessions, with cargoes, during February, 1910, amounted to 2,726,721 tons, and the tonnage cleared to 3,938,039 tons, as against 2,787,291 tons entered, and 4,116,847 tons cleared during February, 1909. With regard to the coasting trade, the tonnage entered with cargoes during February, 1910, amounted to 2,445,043 tons, and the tonnage cleared to 2,411,162 tons, as against 2,460,063 tons entered, and 2,420,052 tons cleared in February, 1909. The tonnage of vessels entered at ports in the United Kingdom from foreign countries and British possessions, with cargoes, during the two months ended February, 1910, amounted to 5,812,623 tons, and the tonnage cleared to 8,042,889 tons, as against 5,691,031 tons entered and 8,323,608 tons cleared during the two months ended February, 1909. With regard to the coasting trade, the tonnage entered with cargoes during the two months ended February, 1910, amounted to 4,914,070 tons, and the tonnage cleared to 4,850,818 tons, as against 4,964,465 tons entered and 4,885,324 tons cleared during the corresponding period of 1909.

The *Oil and Colour Trade Journal* gives the following particulars as to the state of the oil market at Hull on March 3rd:—Rape oils have been a good market with Jamba at 25s. 4½d., but East Indian is not offered; Soy oil is quoted 26s. 10½d. spot; 26s. 9d. March-August and also September-December. The exports of Soy oil for the week totalled 388 tons, of which Antwerp took 151, Bremen 41, Venice 40, Gothenburg 36, Rotterdam 61 and Sweden 18. The market for cotton oil has been firm, prices having advanced 15s. to 30s., refined is now 28s. 3d. spot, 28s. 6d. March-April 28s. 9d. May-August, and crude cotton oil 27s. 3d. spot. The exports for the week totalled 269 tons, of which New York took 150, Rotterdam 78, and Hamburg 20. Linseed oil has been an advancing market, with spot at 32s. March-April, 31s.

7½d. and May-August 31s. The exports were only 58 tons against 250 in the corresponding week of last year, and Bombay took 30, Brisbane 17, Cuba 9, and Christiana 6. Lard oil has been a good market at about 57s. per cwt., and olive oil with not much offering has been firm for Levant and Candia at £48 10s. to £49 per ton. Palm oil has also been in demand. Lagos is quoted £31, and Bennis, March-April, £30. Petroleum is steady at 6d. per gal. for Russians, and turpentine has been a firm market at 42s. 1½d. per cwt. for spot, and 42s. 6d. March-June.

His Majesty's Commercial Attaché at Yokohama (Mr. E. F. Crowe) reports that there may be a promising future for the rape-seed oil and linseed oil industries in Otaru, Japan. There are two companies at present engaged in these industries, the Hokkaido Oil Refinery, with a capital of £5,000 which makes rape-seed oil, and the Otaru Oil Refinery, with a capital of £75,000 of which £27,000 is paid up, producing both rape-seed and linseed oil. The production of rape-seed in the Hokkaido, according to the latest reports, was as follows:—

	Area under cultivation.	Production.	Value.
	Acres.	Bushels.	£
1906	47,000	957,000	188,000
1907	52,000	958,000	198,000

The refining of linseed oil is a new development; formerly all the linseed was exported, but the Otaru company proposes to buy up the seed and refine the oil. The consumption of linseed oil in Japan is gradually increasing.

The *Manchester Guardian* of March 10th writes:—The soy bean has attracted a great deal of public notice during the last twelve months, and it was certainly the chief feature of the British oil seed crushing trade during 1909. Manchuria was able to send us large quantities of the bean at a time when prices were ruling high for linseed, cotton-seed, etc. Our seed crushers and their customers were not slow to realise the value of the new product. The oil was rapidly adopted by the soap manufacturers for making soft soap, but it was found that although soy bean oil is a very fair substitute for cotton oil in the manufacture of hard soaps it necessitates the employment of a larger proportion of hard fats than cotton oil requires. The feeding cakes manufactured from the bean have also met with success. They contain, on an average, 6 per cent of oil, 43 per cent of albuminoids, and 30 per cent of carbohydrates. Besides its uses in industry and stock feeding, the soy bean has found employment as a constituent in flour for bread and biscuit making, in milk substitutes, and in coffee mixtures. It has further been estimated that one-

third of the frying oil now used in London kitchens comes from this bean instead of from cotton seed, as formerly.

A gloomy account of the **petroleum industry in Russia** comes from the St. Petersburg correspondent of a German newspaper:—"The past year has brought retrogression rather than progress. Over-production is on the increase and the circle of customers is not being extended. The stocks of petroleum in 1909 show a considerable increase as compared with those of previous years; prices at the same time have displayed unusual fluctuations. This is a state of affairs that entirely contradicts the rumours current both in Russia and abroad as to a secret syndication of the Russian oil industry. On the contrary, embittered competition prevailed during the whole year in the Russian market. Exact statistics of the petroleum output up to the 1st December 1909 give a total of 449,580,000 poods (7,225,400 tons), as compared with 433,180,000 poods (6,961,800 tons). This increase of 16,400,000 poods of crude oil for the eleven months is to be attributed exclusively to developments in the Bibi Eybat district. In all the other districts the output has fallen off considerably, a circumstance which appears to confirm the view that the old areas of exploitation in Baku are petering out. As to the export, the estimated total for 1909 is 28,000,000 poods (450,000 tons), as against 90,000,000 poods (1,446,400 tons) in former years."

According to a statement published in Berlin a number of most valuable **Rubber plantations** in the Usambara district in **German East Africa** have passed into the hands of a British syndicate at very satisfactory prices for the vendors. The properties sold include the East African Rubber Company's great plantation at Lewa. The owners (says Reuter) intend to make a great outlay of capital for the development of the properties.

His Majesty's Consul at Para (Mr. G. A. Pogson) reports that the quantity of **rubber exported from Para, Manaos, Itacoatiara, and Iquitos** during the month of January, 1910, was as follows:—

	Fine.	Medium.	Coarse.	Caucho.	Total.
	Kilogs.	Kilogs.	Kilogs.	Kilogs.	Kilogs.
To United States	1,112,379	241,959	582,500	304,116	2,240,954
To Europe	1,122,370	96,215	329,856	567,842	2,116,283
Total	2,234,749	338,174	912,356	871,958	4,357,237

The weather conditions in India during the week ended March 26th were marked by the passage

of a deep and very extensive depression over Persia causing rain at most of the Persian stations and a few light thundershowers in Assam and South India. In north-west India the temperature has been normal except in Baluchistan where the weather is warmer than usual.

Applications in respect of the following **new inventions** were filed in the Patent Office, Calcutta, during the week ending 21st March 1910:—**A** Dondey and J. C. Testro, trading together as Dondey and Testro, coppersmiths and plumbers, 274 City Road, South Melbourne, Victoria, Australia—An improved high pressure filter. **Rau** Bahadur C. N. Rau, retired inspector of schools, Coimbatore, South India—A harmonium with twenty-two notes in each octave. **R. K. Stridsberger**, civil engineer, 172, Lower Circular Road, Calcutta—An improved search light for use with fire arms for night shooting. **The Antolock Safety Cock and Bolt Co., Ltd.**, 155, Salisbury House, London—Improvements in sliding bolts for doors, windows and the like. **C. A. B. P. Hawkins**, motor garage proprietor, and **B. Ogilvie**, engineer, both of Napier, New Zealand—Improvement in or relating to aeroplanes. **D. H. Young**, medical practitioner, Gisborne, New Zealand—Improved hygienic milk jug. **F. C. Yeo**, colliery proprietor, Dan-y-coed, near Swansea, South Wales, **W. M. Hall**, major, 47, Victoria Street, London, and **T. A. Goskar**, engineer, 47, Victoria Street, London—Improvements in or relating to the aeration of liquids or the manufacture of mineral waters and apparatus therefor. **O. S. Surgia**, merchant, Dockyard Road, Mazagaon, Bombay—Improvements in gin rollers. **A. W. C. Skelton**, Ag. District Manager, Western District, J. B. Railway, Jodhpur—An improved automatic coupling. **J. E. A. D'Cruz**, executive engineer, Mysore city, and **B. Siddappah**, contractor—An improved flush latrine. **M. Ruthenburg**, consulting engineer, Electrical Federation Offices, Kingsway, London—Improvements in or relating to the treatment of manganese and chromium ores containing iron. **W. M. Still & Sons, Ltd.**, manufacturers, and **E. H. Still**, engineer, both of 24, Charles Street Hatton Garden, London—Improvements in incandescent gas lamps. **Badische Anilin & Soda Fabrik**, of Ludwigshafen-on-Rhine, Germany—Improvements in, and means for, the production of long continuous electric arcs. **E. E. M. Payne**, chemist, 1, Gimson Road, Leicester, and **W. H. Staynes**, leather merchant, Balgrave Gate, Leicester, England—Improvements in or relating to the purification of water. **R. Wolle**, manufacturer, 17, Gottsched Street, Leipzig, Germany—Improved method of making beton or concrete sleepers with resilient rail supports. **E. A. Rumely**, doctor, La Porte, Indiana, United States—Improvement in carburetors. **Magdalen H. Porritt**, of Em-Ti Farm, Nagwas, Bhilad, B. B. & C. I. Railway—An improved brick for building and other purposes.

There has recently been inaugurated a **British Chamber of Commerce in Belgium** (to be incorporated under the Companies Act), with premises at Brussels, and including members of the commercial communities of both Antwerp and Brussels, as well as of other industrial centres. Hitherto there has been an Anglo-American Chamber in Brussels, but this was dissolved and an entirely British Chamber instituted to fill the generally recognised want of some organisation of British commercial men in Belgium. The Chamber will be in a position to lay the requirements of its members before the local authorities, and will naturally carry greater weight with its suggestions than would particular firms or individuals. The first of the objects for which the Chamber has been established is "to promote measures calculated to benefit and protect the mercantile and maritime interests of British subjects and firms in Belgium."

NOTICES.

Automatic Weighing Machines for Wheat.

The President of the Council of Administration of a Native State desires to communicate with firms who can supply two automatic weighing machines capable of weighing wheat continuously in maunds and seers on delivery into an elevator.

ENQUIRIES.

(For particulars address the Director-General of Commercial Intelligence, 5, Olive Street, Calcutta.

An asterisk (*) preceding an enquiry indicates that bank references are offered.)

Patent Jet Pump.

(621)—A Liverpool correspondent desires to appoint agents in India to handle a patented jet pump worked by steam pressure.

Wire Ropes.

(622)—A leading English firm desires to appoint agents in Calcutta, Bombay, Madras and Rangoon for the sale of wire ropes of their manufacture.

Aloe Fibre and Sisal Hemp.

(623)—A Faridpore correspondent requires quotations for aloe fibre and sisal hemp.

Gingelli Seed.

(624)—A firm in Trieste desires to be placed in communication with a wholesale exporter of gingelli seed with the object of starting business on a commission basis.

Indian Raw Produce.

(625)—A London firm of purchasers of every description of raw produce desires to be placed in communication with exporting firms.

British and Continental Goods.

(626)—A firm of London exporters of British and Continental goods desires to appoint agents throughout India.

Waste Rubber.

(627)—A Government Officer in Madras desires to be placed in communication with purchasers of waste rubber, such as ice-bags, rubber tubing, beds and pillows.

BOOKS OF REFERENCE.

The following publications have been received and may be consulted by any desirous of studying them at the Office of the Director-General of Commercial Intelligence, 5, Clive Street, where they will be displayed in the ante-room till Wednesday, the 6th April, 1910:—

Parliamentary Publications.

Accounts relating to Trade and Navigation of the United Kingdom for each month during the year 1910:—February, 1910. Treaty Series No. 3—Exchange of Notes between the United Kingdom and Ethiopia with regard to Import Duties in Ethiopia, 1910; No. 4—Convention and Supplementary Convention regulating the Commercial Regulations between Canada and France, 1910. Statistical Abstract for the Principal and other Foreign Countries in each year from 1897 to 1907-08. Local Taxation Licences, 1908-1909. Wages and Effects of Deceased Seamen. Report of the Proceedings of the Inspection Committee of Trustee Savings Banks for the year ended 20th November 1909, with Appendices. Woods, Forests, and Land Revenues—Abstract Accounts, 1908-09. East India Loans (Railways and Irrigation)—A Bill to empower the Secretary of State in Council of India to raise Money in the United Kingdom for Public Works purposes.

Foreign and Colonial Publications.

Canada—Weekly Report—No. 318—February 28th, 1910. France—Rapport au Ministre des Finances quatorzieme annee, 1909. Japan—Statistique des Causes de Deces de L'Empire du Japon pendant l'an XL de Meiji—1907. New South Wales—Monthly Statistical Bulletin, January, 1910. Spain—Estadistica del Impuesto de Transportes por Mar, 1909; Resumenes Mensuales de la Estadistica del Comercio Exterior de Espana, Enero de los anos 1908, 1909 and 1910.

Indian Publications.

Inventions and Designs in 1909. Forest Administration in Baluchistan—Progress Report of—for 1908-09. Agricultural Research Institute, Pusa—Second Report on the Fruit Experiments at Pusa. Bulletin No. 16. Annual Report of the Agricultural Stations in Eastern Bengal and Assam for year ending the 30th June 1909.

BUSINESS NOTICE.

All correspondence and remittances relating to the supply of the "INDIAN TRADE JOURNAL" should be forwarded to the Superintendent, Government Printing, India, Calcutta, to whom all bills are payable.

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The Indian Trade Journal.

THURSDAY, MARCH 31, 1910.

TRADE OF THE PERSIAN CASPIAN PROVINCES.

It appears from a Consular Report just issued on this subject and covering the period from March 21st, 1907, to March 20th, 1909, that the Consular district of Resht and Astarabad, to which the Report relates, comprises the provinces of Gilan, Mazandaran and Astarabad, or the whole Persian Caspian coast with the exception of Astara and a few miles to the south-east of it. A complete statement is given in the Report of the trade with Russia *via* the Caspian Sea, and it is explained that no complete returns of the trade of the Persian Caspian provinces have hitherto been published in a Consular Report. The

total trade of Persia *via* the Caspian is as follows:—

Province.	1906-07.	1907-08.	1908-09.
	£	£	£
Astara—			
Imports	704,197	501,925	528,775
Exports	576,806	304,656	322,682
Gilan—			
Imports	1,643,624	1,606,698	1,557,524
Exports	1,647,840	1,749,839	2,012,753
Mazandaran—			
Imports	355,290	377,706	529,705
Exports	349,757	436,695	451,449
Astarabad—			
Imports	330,687	280,047	271,786
Exports	296,691	276,648	295,161
Total imports	3,033,798	2,766,376	2,887,790
„ exports	2,871,094	2,767,838	3,082,045

It will be seen, from the above table, of what great use Gilan, Mazandaran and Astarabad are to Persian trade, as they practically balance by their exports the imports from Russia which reach Persia by the ports of the Caspian Sea.

As the trade conditions of these provinces and the area they supply are totally different, the consul considers it more convenient to divide his Report in four parts, namely, Astara, Gilan, Mazandaran and Astarabad.

The total trade of Persia with Russia *via* Astara (including Moghan and Talesh) for the year ended March 20th 1909, is given in the following tables:—

Imports.			
	Lbs.	£	
Matches	335,608	5,619	
Flour	990,395	4,341	
Salt	575,204	390	
Sugar—			
Loaf	17,989,705	187,870	
Moist	2,280,674	19,824	
Tea	322,406	18,389	
Naphtha	4,480,684	6,079	
Metal and metalware	1,706,159	13,481	
Silver (krans)	7,865	15,641	
Cotton thread	6,630	1,516	
„ tissues	2,252,627	201,472	
Woollen „	12,057	3,454	
Yarns of linen or hemp	277,439	8,661	
Mercery and hardware	180,706	6,180	
Paper and paperwares	152,145	4,403	
Pottery and chinaware	294,872	3,376	
Glassware	164,534	2,892	
Miscellaneous	2,057,087	25,207	
Total		528,775	

Exports.

	Lbs.	£
Camels (number)	96,380	55,794
Rice—		
Husked	4,409,681	23,003
Unhusked	1,792,313	7,730
Wheat and barley	2,057,425	5,838
Dried fruit	27,608,984	149,141
Fish	474,786	5,240
Caviare	131,898	10,680
Sugar	519,597	5,590
Tea	39,624	4,181
Gums	307,476	3,824
Silver coin (krans)	7,657	20,776
Cotton tissues	23,755	2,897
Carpets of wool	67,593	4,766
Skins and hides	131,540	10,500
Miscellaneous	3,679,825	12,722
Total	...	322,682

The tea and sugar exported are, says the Report, smuggled into Russia on account of the drawback granted on exports of these commodities from Russia to Persia. The profit is said to amount to about 50 per cent.

The total trade of Tunekabun, the main seaport of Gilan, for the year ended March 20th, 1907, amounted to—

Imports	£ 30,516
Exports	£ 107,177

The details of imports from Russia to Tunekabun during the year 1906-07 are as follows:—

	Lbs.	£
Provisions and alimentary preserves	20,085	220
„ flour	80,743	488
„ salt	201,110	37
„ sugar	877,279	11,472
Naphtha oil	107,835	235
Iron, cast iron, old iron, steel, tin plate in sheets	112,131	488
Manufacture of iron	7,501	117
Krans	5,148	9,960
Cotton tissues and velvets and plushes	19,851	2,116
Woollen tissues	403	114
Yarns of linen or hemp	190,273	2,883
Mercery and hardware	10,556	533

	Lbs.	£
Furniture	6,526	198
Soap	62,224	806
Glass, glassware, window glass	32,838	607
Miscellaneous	24,453	242
Total	...	30,516

Exports from Tunekabun to Russia during the year 1906-07:—

	Lbs.	£
Wood	21,442,525	41,061
Butter	559	38
Charcoal	102,414	151
Oranges, lemons, mandarins	89,674	565
Eggs (Number)	154,800	61
Rice—		
Husked	9,155,341	37,306
Unhusked	6,187,350	24,987
Silk in cocoons (for France)	20,345	3,000
Miscellaneous	604	8
Total	...	107,177

But the bulk of the import and export trade of Gilan passes through Resht and Enzeli; the total trade at the various ports of Gilan for the year 1905-06 being as follows:—

	Imports.	Exports.
	£	£
Talesh	9,407	24,207
Enzeli	1,399,231	924,821
Hassankiadeh	5,296	46,922
Langerud	9,236	9,119
Rudisar	31,886	102,569

The exports from Hassan Kiadeh were:—

Rice	40,000
Hemp	4,000
Wood	2,000

The exports from Langerud were mostly rice, those from Rudisar rice £44,000, and hemp and cocoons £58,000.

The imports of tea *via* the Caspian during the last eight years are given in the following table. Nearly all imports since 1905 are of Indian tea:—

Imports of Tea *via* Caspian Sea to Persia during years 1901-02 to 1908-09.

Province.	1901-02		1902-03		1903-04		1904-05	
	lbs.	£	lbs.	£	lbs.	£	lbs.	£
Astara*	...	...	...	...	...	...	...	...
Gilan	33,670	2,055	170,111	9,061	146,103	10,897	157,779	14,374
Mazandaran	7,787	476	8,424	393	27,909	1,485	89,592	8,074
Astarabad	28,567	1,258	42,796	1,855	45,838	2,259	82,758	5,437
Total	...	3,789	...	11,309	...	14,641	...	27,885

*The statistics of Astara from 1901-02 to 1904-05 cannot be traced in the archives of the Customs at Astara.

Province.	1905-06		1906-07		1907-08		1908-09	
	lbs.	£	lbs.	£	lbs.	£	lbs.	£
Astara	159,341	10,714	169,877	13,663	243,009	18,587	322,406	18,389
Gilan	439,989	35,636	157,046	13,433	711,678	46,134	633,516	46,735
Mazanderan . .	322,271	25,050	213,395	15,303	403,702	32,201	310,329	22,142
Astarabad . . .	242,932	14,727	612,352	42,027	984,620	70,371	968,110	61,374
Total	...	86,127	...	84,426	...	167,293	...	148,610

NOTE.—Rate of exchange per £1 in 1901-02, 52½ kranas; 1902-03, 55 kranas; 1903-04, 56 kranas; 1904-05, 55·40 kranas; 1905-06, 59 kranas; 1906-07, 50 kranas; 1907-08, 50 kranas; 1908-09, 50 kranas.

As regards Mazanderan the principal imports during the last two years were :—

	1907-08.	1908-09.
	£	£
Sugar	149,053	161,099
Tea	32,201	22,142
Naphtha oil . .	8,914	14,272
Metals and metalware .	12,356	13,474
Bar silver . . .	38,070	199,230
Cotton tissues and velvets .	77,638	70,452

All these imports are from Russia. The total imports from countries other than Russia to Mazanderan amounted to £387 for the year ended March 20th, 1908, and to £646 for the following year.

Some 11,029,674 lbs. of cotton, valued at £259,358, were exported from Mazanderan to Russia during the year 1908-09 as against 10,028,356 lbs., value £239,638, the previous year. But the staple produce of Mazanderan is rice. The quantity of rice exported to Russia was 16,864,440 lbs., value £62,809, in 1908-09, as against 16,222,036 lbs., value £60,358 in 1907-08.

As to Astarabad, the local inland trade is not very large and consists of the following imports and exports :—

Imported from—	
Shahrud	} Pistachios, almonds, raisins, plums, peas, onions, tobacco (tumbaku), lentils, belts, superior quality soap.
Damghan	
Bastam	
Mazanderan . . .	
Kashan (via Tehran)	Unecrystallised sugar.
Isfahan	Velvet.
Yezd	} Kalamkars and other native prints. Native cotton and silk fabrics; cloves, cinnamon, pepper and other spices from India; henna and some hardware.
Tehran	
Hamadan	
	European cloth.
	Leather.

The exports of local produce from Astarabad to the interior of Persia are :—

Exported to—	
Khorasan and Yezd.	Horse coverings, rice, soap.
Mazanderan . . .	Soap.
Shahrud	Horse coverings, nose bags, hides, rice.
Damghan, Bastam, Tehran.	Rice.

TARIFF CHANGES AND CUSTOMS NOTIFICATIONS.

THE Board of Trade Journal, published on the 10th instant, in the section relating to Tariff Changes and Customs Regulations, gives particulars about :—

- PERU.—Proposed Tariff Revision.
- DOMINION OF NEW ZEALAND.—Customs Decisions.
- ST. LUCIA.—“Plant Protection Ordinance, 1909.”
- RUSSIA (FINLAND).—Export Duty on Unseasoned Timber.
- SWEDEN.—Temporary Duty-Free Admission of Motor Cars for Touring.
- NETHERLANDS.—Duty-Free Admission of certain Varnish for use in Factories, etc.
- SWITZERLAND.—Customs Decisions.
- GREECE.—Date of Operation of Consumption Duty on Calcium Carbide.
- UNITED STATES OF AMERICA.—Application of the Minimum Tariff to Imports from India, Aden and Malta.
- VENEZUELA.—Tariff Modifications.

—The Conservator of Forests, Punjab, has sent to this Department samples of colophony (rosin) produced by the Forest Department, and these may be seen by persons who are purchasers of the article. The various qualities can be supplied in considerable quantities.

TRADE OF KARACHI. Expansion in 1909.

At the annual general meeting of the Karachi Chamber of Commerce, the Hon'ble Mr. Webb, C.I.E., Chairman, in presenting the report of the Managing Committee for the year ending December 31st last, delivered an interesting speech in which he said : The figures of our total trade, approximating 38 crores of rupees in value, are very close upon the high-water mark of 1907, and are, in fact, Rs. 5,87,00,000 above the average of the previous five years' totals. Coming as they do immediately after one of the most serious commercial crises the world has experienced of recent years, these figures can be considered satisfactory. They reflect splendid crops, large exports, substantial profits to agricultural classes and the quick recovery of importers from the heavy losses following the great slump of 1908. High prices account to some degree for the rapidity of the recovery, especially the extraordinarily high price of cotton which has not only brought fortunes to cotton growers and others, but has enabled dealers in piece-goods to dispose of their immense stocks at considerably better rates than at first seemed possible. Sugar has been flowing into Karachi in larger quantities than ever, and there seems every probability of this import trade still further expanding, notwithstanding the magnificent cane crop of the Punjab, the largest on record.

He then dealt at length with irrigation works in Sind, railway transport, the protection of the railway line from floods, the extension of the metre-gauge from Hyderabad (Sind) to Karachi, the management of Indian currency, and the new taxation. He defended the recent proposals for additional taxation, remarking that in no country in the world had the Government made more magnificent progress with its many public works than had the Government of India. In no country in the world had trade expanded with such great rapidity or in larger volume than in the case of India, and in no country in the world were the possibilities of further progress in every department of life more clearly manifest than in India. This being so they naturally expected to see the expenditure mounting up year by year. This increasing expenditure would assuredly go on, and they must be prepared to face it with cheerful good-will. The articles which the Finance Minister had this year selected for bearing extra customs dues appeared to them admirably chosen. The Karachi Chamber protested against the proposal to further tax sugar in place of petroleum or of any of the luxuries included in the Finance Minister's scheme, and the protest was duly noted. No doubt the turn of sugar would come before long, and provided only another four annas or so was at the same time clapped on to silver, he for one would not utter a word of complaint.

The following managing committee was elected for the ensuing year :—The Hon'ble Mr. De P. Webb, C. I. E., Chairman; Mr. H. T. Robson, Vice-

Chairman; and the following Committee :—T. Agelasto, R. H. Ireland, J. Kenyon, H. Sawyer, L. B. Stephens, A. T. Slope, Stewell, Athole and T. E. Weir.

INVENTIONS AND DESIGNS BILL.

At a meeting of the Imperial Legislative Council on the 23rd instant, the Hon'ble Mr. Robertson moved for leave to introduce a Bill to amend the law relating to the protection of Inventions and Designs.

In doing so, Mr. Robertson said the Act of 1888 was based in all material respects on the previous Act of 1859, from which it did not substantially differ except in the inclusion of provision for the registration of designs. The Act was passed five years after the English Statute of 1883, but in view of the fact that the volume of patent work in India was small, it was not at that time considered desirable to adopt in its entirety the procedure which the English Statute prescribed. Circumstances had since changed. The industrial development which had been a noticeable feature of the past few years in India had brought about a marked increase in the work of the Patent Office. The number of applications annually received was rising rapidly, as might be gathered from the fact that the receipts from fees had nearly doubled in ten years. At the same time attention had from time to time been drawn to a number of points in which the procedure under the existing Act was antiquated and cumbersome, and it was considered desirable to remove these defects and follow the example of most other British possessions by bringing the practice in this country into conformity, as far as circumstances permitted, with that followed in the United Kingdom. The Bill which was now to be introduced had therefore been drafted so as to follow the English Statute of 1907 as closely as possible, except in so far as material variations were necessitated by the different conditions prevailing in India. In any enactment for the protection of inventions and designs, two cardinal points must be kept in view. These were the encouragement of the inventor and the protection of the public. The first of these required that the method of obtaining patent rights should be made as simple as possible, the number of intermediate steps which had to be taken before a patent was granted should be reduced to a minimum, and at the same time the protection granted should be adequate. The second point was perhaps even more important. It was necessary to see that protection was not given where it was not due, and that the rights and abilities of other inventors and of the public were not infringed.

Under the procedure prescribed by the Bill it would no longer be necessary to file two separate documents explaining an invention. The application would be accompanied by a specification defining precisely the nature of the invention. If defective, the specification would be returned

for amendment, but up to the date on which it was either accepted or refused, the whole of the proceedings would be confidential and on publication could take place. As soon as the specification was accepted provisional protection would be granted, and the specification would then be printed and published for a period of three months during which objections to the grant of a patent might be lodged. At the end of three months, if there was no opposition, or if the objections were overruled, the patent would be sealed.

The Hon'ble Member then introduced the Bill and moved that it be published in the *Gazette of India* and the local *Gazettes*. This was agreed to.

EASTERN BENGAL AND ASSAM.

Crop Reports.

(By Telegram.)

Shillong, March 20th.

THE following is a summary of the weather and crop reports of Eastern Bengal and Assam for the week ending the 28th instant:—

Good rain has fallen over the greater part of Assam, Bogra and Mymensing, the maximum amount being five inches in Sibsagar. There have also been light scattered showers at a few other stations.

The sowing of *aus* rice and jute and ploughing for winter rice and *bhadoi* crops are going on. The harvesting of tobacco is progressing. The burning of *jhums* continues in the hills.

The prospects of tea, spring rice, sugarcane, linseed, potato and *til* are good; and of wheat and tobacco fair.

The average price of common rice has risen about one per cent.

Cattle disease is reported in Dacca and Kamrup.

BOMBAY MILL INDUSTRY.

A CORRESPONDENT contributes an article on this subject to the *Times of India* of March 22nd. In the course of his remarks he states:—The following statistics of about 55 joint stock companies who have their mills located in Bombay only will prove interesting. If such phenomenally successful concerns as the Nagpur and Sholapur Mills are taken into account, the results will work out more favourably.

A Balance Sheet 31st December, 1909.

Crores. Lakhs.		Crores. Lakhs.	
Capital Subscribed	6 25	Property and Assets Land Building, Machinery, etc.	13 ...
Liabilities Mortgage and Debentures.	1 ...	Liquid Assets Cotton, Yarn, Cloth, Fuel, etc.	4 ...

Crores. Lakhs.		Crores. Lakhs.	
Deposits	5 50	Cash and Investments with the Banks and in hand.	60
RESERVE FUNDS.			
Under different heads.	4 25		
Profits nett	... 60		
	17 60		17 60

The position of the industry is evidently sound. The outlay in the shape of property is double that of the subscribed capital. The 4 crores of reserve built up during prosperity have strengthened the position materially, leaving only a capital debt of rupees 2½ crores which can be wiped off at the next favourable turn.

Going into details we find that out of 55 companies 8 have a capital reserve of 25 lakhs; 12 have neither debt nor reserve; the remaining 35 show a capital debt of rupees 2½ crores. The depositors as mentioned above are amply secured by 17 crores worth of assets. It may be mentioned that the deposit figures vary according to the accumulation of stocks under the heading of liquid assets.

B. Annual turn-over of the industry including all private mills of Bombay, containing 27 lakhs of spindles, 35,000 looms employing over a lakh of hands consuming over 10 lakhs of cotton bales per year.

from which Bombay gains in the shape of commissions, brokerage, moneys advanced, labour establishments and profits inside industries.

Crores. Lakhs.		Lakhs.	
Cotton	10	Stores	50
Fuel	75	Mill hand wages	15
Mill supervisor wages	50	Office establishment	15
Insurance	5	Interest on loans	12
Sundry charges, directors' and auditors' fees, stationery, etc.	45	Municipal taxes	2
Government taxes (Income and Excise)	20	Agents' commission, etc.	20
Proceeds of yarn	9	Proceeds of cloth	40
Proceeds of waste	6	Proceeds of sundry transfer fees, tares, etc.	10
	1		1

The gigantic turn-over benefits Bombay by about 4 crores of rupees. This speaks for itself and needs no comment. This gain is not so much subject to fluctuation in times of depression as the dividends payable to the shareholders.

C. Resume of the past 5 years Working of 55 Joint Stock Companies.

Year.	Description of mills.	Capital subscribed Rs. crores lakhs.	Market value Rs. crores lakhs.	Premium or discount Rs. crores lakhs.	Nett profit Rs. crores lakhs.	Percentage of profit on capital.	Dividend paid to shareholders Rs. lakhs.	Percentage of dividend on capital.	Agents' commission Rs. lakhs.
1905	Spinning	2 25	2 80	25 p. c. P.	85	38 p. c.	30	13 p. c.	
	Weaving	3 25	5 60	70 p. c. P.	135	42 p. c.	50	16 p. c.	
	Total	5 50	8 40	55 p. c. P.	220	40 p. c.	80	16 p. c.	45
1906	Spinning	2 25	2 70	20 p. c. P.	65	25 p. c.	25	11 p. c.	
	Weaving	3 40	5 70	70 p. c. P.	135	39 p. c.	50	14 p. c.	
	Total	5 65	8 40	50 p. c. P.	200	35 p. c.	75	13 p. c.	40
1907	Spinning	2 25	2 20	2 45 p. c. P.	35	15 p. c.	15	6 p. c.	
	Weaving	3 60	5 20	28 p. c. P.	85	28 p. c.	40	11 p. c.	
	Total	5 85	7 40	7 p. c. P.	120	20 p. c.	55	9 p. c.	30
1908	Spinning	2 25	2	25 p. c. P.	5	2 p. c.	6	2½ p. c.	
	Weaving	3 80	5 20	35 p. c. P.	60	16 p. c.	36	9½ p. c.	
	Total	6 05	7 20	20 p. c. P.	65	11 p. c.	42	7 p. c.	5
1909	Spinning	2 25	1 70	20 p. c. P.	7 8	34 p. c.	6	2½ p. c.	
	Weaving	4	4 55	13 p. c. P.	52	13 p. c.	28	7 p. c.	
	Total	6 25	6 25	Par	60	9 p. c.	34	5½ p. c.	20

The figures reflect clearly the ups and downs of the industry. The weaving section has fared infinitely better than the spinning section. It is gratifying to find that the pressure on the latter section is being removed by the introduction of more looms.

Of the 55 companies, 20 are pure spinning companies and 6 have recently added looms, but the falling off in the profits is considerable. It is to be hoped that the industry is now on the lowest rung of the ladder and an upward move is likely.

EASTERN BENGAL RABI CROPS.

Official Forecast for 1909-10.

On the average of the five years ending 1907-08 the area under *boro* (Spring) rice in Eastern Bengal represents some 0·3 per cent of the total area under rice in British India. The rainfall was plentiful from August to December and has resulted in an increase in total acreage under *Rabi* crops. But since December the season has taken an unfavourable turn. Rain was almost entirely absent in January and was in defect in February and March also with the result that the outturn of the crops has not come up to expectations.

The most important of the cereals dealt with in this forecast are *boro* (Spring rice) and barley for which separate figures are received from the districts. Barley is most grown in the districts of Malda, Rajshahi and Pabna. According to the estimates of District Officers the total area under barley is 700 acres more than last year and the outturn 79 per cent of the normal.

The general term *boro* rice is meant to include all varieties harvested between the middle of February and the middle of June. District Officers estimate that the total area under this crop is 3,000 acres more than last year and the outturn 89 per cent. of the normal. The harvesting of this crop will not commence till the latter part of April and much, therefore, depends on the character of the remaining part of the season. The only other cereals in this province are a few varieties of millet, the sowing of which has scarcely commenced.

In the Rajshahi Division, where it is principally grown, there are some 50,000 acres under gram. The area is said to have increased by 2,400 acres this year, but the outturn is estimated to be only 73 per cent. of the normal. Separate estimates are not received for any other pulses though the area under each of the following, namely, masur, mung, khesari, peas, matikalai and arhar is considerable. The outturn for all these crops combined is estimated by District Officers to be 74 per cent of the normal.

The area under tobacco, the bulk of which is grown in Rangpur, is considerably smaller than last year. It fell from 337,100 acres in 1908-09 to 296,700 acres this year. The decrease which occurred mostly in Rangpur is attributed to heavy rains which damaged the seedlings. The defective rainfall in January and February has materially affected the outturn which is now estimated to be only 77 per cent of the normal.

Rajshahi is the only district in which ganja is grown. The area is the same as in last year and the outturn is expected to be 90 per cent of the normal.

As regards other crops the only one of these respecting which any definite information has been received is sunn-hemp. This is grown mainly in Pabna where the area, this year, is reported to be 29,000 acres and the outturn 90 per cent of the normal. The average outturn for all these crops taken together comes to 79 per cent of the normal according to District Officers' estimates.

—His Majesty's Vice-Consul at Guatemala (Mr. G. D. N. Haggard) has forwarded the following particulars relative to a cotton and jute mill at Cantel, Guatemala. The factory, which has been in existence a number of years, came, in 1907, under new management. A ten years' concession was obtained, which gave the privilege of free importation of all raw material and machinery, and exemption from taxation. The cotton machinery, which is worked by water power, was installed at a cost of about £90,000; there are 116 looms, as well as machinery for cleaning, drying, etc. The jute machinery was installed in November last. About 400 operatives, native Indians from the districts of Quezaltenango and Totonicapan, are employed. They earn from 2½d. to 3d. per day, besides clothes and rations to the value of about £5 5s. yearly. The principal article manufactured at Cantel is heavy grey domestics; light grey domestics, grey yarns, and a small amount of striped domestics are also made. The piece of heavy domestics of standard quality is 2½ yards long by 24 inches wide and weighs about 7 lbs.; the piece of light domestics, of the same dimensions, weighs some 4 lbs. The grey yarns made by the company are of somewhat better quality than the imported goods. They are largely sold to the native population for weaving, in bundles of 10 lbs. Mr. Haggard understands that in the future dyed yarns are to be produced. The jute manufactures will probably be limited to coffee and sugar bags. The heavy domestics sell, on an average, at about 8s. per piece, and the light domestics at from 5s. 6d. to 5s. 9d. The duties on imported textiles would represent respectively about 2s. 1½d. and 1s. 2½d. per piece of these weights, classes and dimensions. The grey yarns fetch a slightly higher price than the imported article, i. e., about 11s. 4d. per bundle, as against 11s. The duties on imported yarns are approximately as follows:—Grey yarns, 9d. per bundle, dyed yarns, 1s. 3d. and Turkey red yarns, 1s. 10d. per bundle.

VARIETIES OF RUBBER.

Crepe, Sheet, and Biscuit Rubber.

In the course of an article to the *Times* Financial and Commercial Supplement on this subject a correspondent says:—

Raw rubber varies in value from 10s. 6½d. per lb. for smoked sheet down to 1s. 2d. per lb. for Niger flake, and in between these two prices it would be possible to find a grade of rubber to answer to nearly every penny.

Rubber reaches the home market in almost every possible shape and colour. In most cases the queer names which one reads in the market reports are fairly descriptive. Thin pale crepe, for instance, arrives in long strips generally about 4 ft. long and 8 in. to 12 in. broad. It varies in thickness from one-sixteenth to half an inch, and has a roughish surface from which the name "crepe" is derived. This rubber is pale yellow in colour, and when held up to the light it is quite transparent, which proves its purity, and accounts for the very high price obtainable for this grade—viz., at present about 10s. 3d. per lb.

The so-called "sheet" rubber is similar to crepe, but slightly thicker and not so transparent. It is prepared in a different manner and, unlike crepe, must be put through the washing mills by the manufacturer before it can be used.

Hard cure fine Para is prepared by the native labourers on the Amazon by dipping a so-called "paddle" in the rubber, and then holding it in the smoke of a fire which hardens the coating of milk on the paddle. The paddle is then dipped again for a second coating, and again smoked, and so on until quite a large "biscuit"—generally weighing about ½ cwt.—has been built up. The labourer then takes his knife and splits the biscuit down one side, in order to remove his paddle, when he proceeds to make his next biscuit. Rubber thus prepared contains a large proportion of moisture, but is stronger than any of the plantation rubber, and is worth to-day about 10s. per lb.

African Products.

From the Congo we get large supplies of clean solid black rubber, coagulated originally in large blocks and then cut up into small cubes in order to allow it to dry and ripen. We also get from the Congo rubber in reddish sanages, collected directly from the tree, the reddish appearance being caused by small portions of the bark adhering. The value of this Congo rubber varies to-day from 5s. 6d. to 6s. 9d. per lb.

From the Gold Coast we get rubber prepared by the natives merely digging a trough in the earth and running in the latex, which in time coagulates from the outside and forms a hard skin and finally a fairly hard lump throughout; but this grade holds all the moisture which was originally in the latex, and as a result, when cut across, such lumps are found to contain 50 per cent. of their own weight in water. Notwithstanding this, however, such

rubber is to-day worth about 3s. 1d. per lb. This is the so-called "Gold Coast lump."

On the Ivory Coast, the French Sudan, and in the Sierra Leone neighbourhood the natives collect rubber from the same trees, but give much more pains to the preparation of it, the resulting produce being known as "Sierra Leone Niggers" or "Conakry." This rubber is in large balls, consisting of strips carefully wound together, varying in size from that of a good sized orange to that of a man's head. This rolling process is carried out when the strips of rubber are quite fresh, so that they become one compact solid ball. Rubber treated in this way is of a reddish colour, for which reason these balls are often known as "Red Niggers"; they are worth to-day approximately 6s. per lb.

From the Niger District we get rubber varying from small balls of fine white rubber of excellent quality, known as "White Niger Niggers," down to a soft pasty substance which looks like bad honey and smells abominably. This is known as "Niger Flake," and is worth about 1s. 2d. per lb.

Sources of Supply.

The world's present sources of supply for crude rubber are approximately as follows:—

	Tons.
The River Amazon with its tributaries	39,000
Other districts of Brazil	2,800
The Federated Malay States—Ceylon, Sumatra, etc. (plantation rubber)	4,600
The Congo Free State and the French Congo	5,600
Portuguese West Africa	2,900
The West Coast of Africa, excluding the Congo and Portuguese West Africa	9,500
Rangoon, Penang, Borneo, etc. (wild rubber)	1,200
East Coast Africa, Mozambique, Madagascar, etc.	800
Mexico, the East Indies, and Central America	1,500
Total	67,900

The figures given above are necessarily for the most part estimated, as with the exception of the exports from the Amazon, no exact records are obtainable of the production of the various districts, nor is it possible to obtain a complete record at the different ports of arrival, as statistics of some of the ports can only be obtained in an unclassified form, and from other ports no accurate statistics at all are obtainable.

Principal Uses.

The produce of the Amazon is divided approximately into three grades, which find totally different uses, these being:—Fine Para, about 24,000 tons; negroheads of various descriptions, about 8,000 tons; and Peruvian ball, about 8,000 tons.

Fine Para is the standard grade for the whole market. It is bought and sold on name only, without samples, being shown, and is the one grade of rubber which, generally speaking, can be used for the manufacture of any and every description of rubber goods. As its price to-day, however, is

about 10s. per lb., it stands to reason that manufacturers economize in the use of this grade as much as they can, particularly as in its crude state it contains about 15 per cent. of impurities—mostly water—so that by the time the manufacturer has washed and dried it, he has to work with raw material costing him nearly 12s. per lb. However, for the manufacture of really high-class goods, such as the inner tubes of motor tires, the manufacturer has no alternative but to use hard cure fine Para. No other rubber has the necessary strength and resiliency to stand the strain.

A small quantity of the very best plantation rubber—namely, the fine smoked sheet—produced by the Highlands and Vallambrosa companies, and to a smaller extent by a few other companies, will give the same test for strength, but the total arrivals per annum of this smoked sheet are only a little over 100 tons, so that as yet they hardly relieve the situation at all.

For the outer cover manufacturers are able to use, in conjunction with fine Para, a certain proportion of the other Amazon rubbers—negroheads and ball—as well as fine plantation rubber, and some of the very best medium rubbers. It is estimated that the present annual consumption of rubber for the manufacture of motor tires amounts to not less than 30,000 tons per annum, so that it will be seen that, apart altogether from the question of cost, it is impossible for manufacturers to use nothing but fine Para in their construction.

It will be seen from the above that motor tires alone account for a large part of the total output of the Amazon, and it will astonish many people to know that the article next in importance from the rubber consumption point of view, absorbing approximately 15,000 tons per annum, is rubber shoes, known in America simply as "rubbers" and in this country generally as goloshes.

High Prices at the Auctions.

Commenting on the high price of rubber the *Times* Financial and Commercial Supplement of March 11th says:—At the auction sales of plantation rubber held this week new records were made, both in the quantity offered and the prices realized. The catalogue showed a total of 206 tons for sale, and for this quantity there was an unusually keen competition, bidding being generally of an excited character, and prices were raised on an average from 8d. to 10d. per lb. over the auction sales of two weeks ago. Later, in private dealings, fine hard Para also reached a new high record price, business being reported to 10s. 1d. Plantation rubber at the auctions brought from 10s. 4d. to 10s. 6½d. for Stratis smoked sheet, and fair to good sheet qualities 9s. 11d. to 10s. 3d., with Crepe, fine pale, realizing 10s. 4d. to 10s. 6½d. At the close of the auction on Wednesday (March 9th) the tone was strong, with a tendency still against buyers.

Since then, we may add, rubber has touched the 11s. mark.

THE SILVER DUTY AND THE COTTON TRADE.

At the Imperial Legislative Council on Tuesday the Hon. Sir SASSOON DAVID said:—As a merchant the taxations embodied in the Budget suggest to me the term *chow-chow* or peddling. It will, I think, produce the minimum of revenue with the maximum of disturbance and anxiety in a number of directions. If there was any real necessity for enhanced taxation it would, I think, have been much better to increase the import duties generally by say 1 per cent, which would yield something like Re. 1.4 crores. The stamp duty as modified will bring in a small revenue, and I wish Government had seen their way to omit it entirely. The revenue to be derived from it will, I think, be found to be far from commensurate with the annoyance caused. If in the place of this duty the Government would make compulsory the registration of transfers of shares, the effect would be not only to acquire a substantial sum in revenue without friction, but to institute a system greatly neglected in several parts of India. The silver duty has awakened serious anxiety about India's trade with the silver-using countries. The tobacco duty, I admit, was justifiable, but I see it has evoked a singularly unfortunate suggestion as coming from England—that of an excise duty upon Indian tobacco. I earnestly hope that means will be found to close at once the discussion of a project that is sinister both in nature and origin, and is I believe, quite impracticable.

I must advert again to the silver duty because it is important to nail to the counter one or two arguments that are fallacious to a dangerous degree. One of these is the contention that the large extent of India's imports of silver proves that the business is very profitable. I assert, on the contrary, that it is precisely the enormous volume of India's imports of silver that satisfies the market and keeps profit on any single operation at a moderate level. It seems clear that if, as is argued, the effect of the enhanced duty is to raise the value of silver as a store of value, existent silver hoards must appreciate and further hoarding be for a time discouraged. By my reckoning India should, under such conditions, only take about 51 per cent of the world's silver instead of 58. I make no prognostication as to the decline likely to appear in the world's price, but I do not doubt the decline will be sufficient to be felt in our trade with silver-using countries.

I do not propose to recapitulate the burdens under which the Indian cotton industry is suffering at this time, but formerly Japan was amongst our best customers, and in 1888-89 she took from us more than 23 million pounds of yarn. Now she takes none, but takes instead large quantities of raw cotton, thereby raising the price of our raw material while lowering the price of our finished products in the Chinese market. The largest quantity of raw cotton shipped to Japan in a single year was 2,526,200 cwts. in 1901-02. But in the eleven months of the current year 1909-10 no less than 2,873,400 cwts. have been shipped. In the face of these facts and of

the increasing activity and efficiency in the Chinese spinning industry, it is vain to pretend that India's trade with the Further East is in a position to stand any superfluous handicap whatsoever, and I foresee injury to India's cotton industry from the duties that have now been imposed.

The Opium Revenue.

My practical knowledge of the opium trade may perhaps be accepted as atoning in some measure for the fact that I am personally interested in it. I have already asserted that the estimated price of Rs. 1,750 per chest for next year is too low. The first sale in the new financial year takes place in a week. I prophesy that it will bring in about Rs. 30,00,000 in excess of the Estimate for that month. At the end of the year, if no change be made in the programme, there will be an excess on this account amounting to not less than three and a half crores. This is more than double the Budget deficit, and I hope that this excess will not be presented to us as a windfall of an entirely unexpected kind and be expended in the manner commonly associated with windfalls.

Reply to Sir S. David.

The Hon. Mr. Meston, in reply to the remarks made by the Hon. Sir Sassoon David with reference to the Currency policy of the Government, said that the charges against the Government were (1) that the reserve was not big enough, (2) that it was not held in India, and (3) that it was not held in solid gold. On the first charge the Government was told that the reserve should be allowed to grow to a much more imposing figure than any that had yet been named. The Finance Member had explained that the Government had to accumulate 25 millions of gold, but this, too, had been thought by the critics of Government to be an altogether imperfect recognition of the liabilities. As a matter of fact, no substantial fraction of the total circulation was ever likely to be called upon. Rupees were not like bank notes, and they could not be collected in haste.

Continuing the Hon. Member said that the reserve was strong enough for practical purposes. In 1907-08 eight millions were enough to keep their system afloat. As regards holding the reserve in India, he said that in that case every sovereign in London would have to be realized and shipped out to India to be kept in the currency vaults in Calcutta. It had been said that the presence of gold would give people confidence in the reality of the Gold Standard. The Government did keep a supply of gold in India of about six millions, and were ready to hand it out in the support of exchange where the people were genuinely willing to take it into circulation as a substitute for silver.

Referring to the remark that the Reserve should be kept in solid gold, he said they were told that its investment was simply a device to gratify the city, which made a convenience of their gold, and to drive the interests of India to the wall. He would ask them to remember that it was in London they raised practically all the money for the Government; and

and it was from London their commerce and industry drew the funds necessary to their development. London was the clearing house of India's trade with the world. They had no wish to feed the speculator in Throgmorton Street, but they must walk carefully when there was any danger of disturbing the chief gold market of the world, and of creating or exaggerating any gold stringency which would react on Indian finance. No one would question the skill with which the Secretary of State and his advisers had handled their sterling loans and all the complicated problems of their remittances between England and India. They must give them credit for equal skill and an equally vigilant watch over India's interests in their custody of their gold reserves. In conclusion he said that the broad lines of the act of Government were clear, and there had been no fundamental sacrifice of consistency in the progress of the ideal. They had linked India with the gold countries of the world, and they had reached a gold exchange standard which they were steadily developing and improving. The next and the final step was a true gold currency.

Indian Life Assurance Law.

The Hon. Mr. ROBERTSON, replying to the Hon. Mr. Dadabhoi's question at the Imperial Legislative Council on Tuesday *re* the law relating to Life Assurance in India, said:—The Government of India have under consideration the question of amending the law relating to Life Assurance in India on the lines of the English Law. Local Governments and Administrations have already been consulted on the subject, and with their replies they have submitted the views of the Chambers of Commerce and other representative commercial bodies. The Government of India have considered these replies and have found that there are likely to be practical difficulties in applying certain of the provisions of the English Act to Indian conditions. The difficulties are for the most part of a technical nature and will require careful examination. Amongst others I may mention the question of obtaining from Indian Companies a statement of valuation of liabilities similar to that required by the provisions and schedules of the English Act. This can be properly prepared only by a qualified actuary, and, so far as the Government of India are aware, there is only one actuary in the whole of India. At the same time the Government of India have as yet at their disposal no organisation similar to that which the Board of Trade possess for scrutinising the statements and returns. There is further the question of distinguishing between companies which actually transact Life Assurance business and those which are in fact nothing more than Provident Societies, though they describe themselves as Life Assurance Companies. It is clear that the two classes cannot be brought under one common regulation. Any cautionary deposit, for example, which it might be deemed advisable to require from Companies doing Life Assurance proper would probably be excessive in the case of the smaller Provident Societies. Again, it may be necessary in the case of

the latter to limit the liability for which each society may engage itself in respect of any individual policy and to restrict the class of business undertaken by such societies. The above are not the only points that have been raised, but I mention them to show that the application to India of the English procedure is a matter which requires a good deal of consideration. The Government of India are at present in consultation with experts at Calcutta and Bombay as to the best method of dealing with the whole question. With regard to the second part of the Hon. Member's question, I may say that public bodies will have an opportunity of putting forward their views on any measures that may be finally proposed before they become law. The Government of India do not consider it desirable at this stage to lay the correspondence on the table.

Provident Funds.

The Hon. Mr. ROBERTSON, replying to the Hon. Mr. Subba Rao's question *re* Provident Funds, said:—The Government of India have recently received a communication from the Government of Madras urging the desirability of legislation to control the operations of Provident Societies which undertake Life Assurance business. No reports on the subject of such societies have of late been received from other Local Governments. But I may state that the question of undertaking legislation for their control was considered in consultation with all Local Governments in 1900, and the decision arrived at was that the necessity of such legislation had not at the time been established. So far as the Government of India are aware, the evil referred to by the Hon. Member does not prevail to the same extent in any other part of India as in Madras. The judgment of the Madras High Court alluded to by the Hon. Member has not been brought to the notice of the Government of India officially, but they have seen a report of the case in the public press. As it appears from the reply which I have just made to the Hon. Mr. Dadabhoi, the question of undertaking legislation to control the operations of these societies is closely connected with that relating to Life Assurance Companies. The whole subject is at the present time engaging the attention of the Government of India, and they do not consider it desirable at the present stage to lay the correspondence on the table.

NEW REFERENCE BOOKS.

THE INSURANCE BLUE-BOOK AND GUIDE, 1909-10. 8½ x 5½, 465 pp. 2s.

Dawbarn and Ward.

THE "SHIPPING WORLD" YEAR BOOK. A Desk Manual in Trade, Commerce, and Navigation. Edited by EVAN ROWLAND JONES. 7½ x 5, 1,606 pp. 7s. 6d. net.

"Shipping World" Office.

INSPECTOR'S HAND-BOOK OF REINFORCED CONCRETE.

By W. F. BALLINGER and EMILE G. PERROT. 7 x 4½, 66 pp. 4s. net. New York: The Engineering News Publishing Co. London: Constable.

FOREIGN SEA-BORNE TRADE OF INDIA IN
FEBRUARY 1910.

I. GENERAL.

The trade returns for February 1910, when compared with those for the corresponding month of 1909, show increases in the values of imports, exports, as well as re-exports. The following tables show the values of imports and exports of private merchandise in February and in the eleven months ending February together with the increase or decrease compared with the corresponding periods of

the preceding official year :—

February 1910.

	Rs.	Rs.	Per cent.
Imports	9,53,16,801	+1,32,82,603	+16.19
Exports	18,62,05,935	+4,36,25,806	+30.6
Re-exports	29,59,011	+5,65,517	+23.63

Eleven months ending February 1910.

	Rs.	Rs.	Percent.
Imports	107,70,81,295	+4,18,66,063	+3.74
Exports	162,32,49,660	+28,29,12,490	+21.11
Re-exports	3,04,03,802	+21,98,849	+7.8

II. IMPORTS.

The following table shows the value of the Imports for February 1910 as compared with the corresponding month of 1909 and 1908, according to the different divisions, and principal sub-divisions thereunder, of merchandise :—

	MONTH OF FEBRUARY			Increase (+) or Decrease (-) in 1910 as compared with 1909.	Increase (+) or Decrease (-) in 1910 as compared with 1908.
	1908	1909	1910		
	Rs.	Rs.	Rs.	Rs.	Rs.
I. Animals, living	5,25,258	3,29,607	35,555	-2,94,052	-4,89,703
II. Articles of food and drink—					
(i) Grain and pulse	6,68,915	10,51,302	1,23,109	-9,28,193	-5,45,806
(ii) Liquors	16,56,299	16,83,799	17,75,081	+91,282	+1,18,782
(iii) Provisions	20,62,726	20,38,197	21,01,588	+63,391	+38,862
(iv) Salt	2,33,372	6,25,952	5,47,025	-78,927	+3,13,653
(v) Spices	8,34,051	7,49,461	10,07,153	+2,57,692	+1,73,102
(vi) Sugar	56,85,651	67,54,264	66,79,971	-74,293	+9,94,320
(vii) Miscellaneous	2,39,096	2,13,870	1,75,341	-33,529	-63,755
Total Division II	1,13,80,110	1,31,16,845	1,24,09,268	-7,07,577	+10,29,153
III. Metals and manufactures of—					
A. Hardware and cutlery including plated ware	25,09,991	21,62,474	22,85,035	+1,22,561	-2,24,956
B. Metals (and manufactures of)—					
(i) Copper	31,66,197	14,28,158	25,41,960	+11,13,802	-6,24,237
(ii) Iron and steel	74,07,543	68,22,036	96,58,761	+28,36,725	+22,51,218
(iii) Tin	4,39,835	3,63,571	4,11,170	+47,599	-28,665
(iv) Miscellaneous	7,66,023	6,22,612	7,41,412	+1,18,800	-24,611
Total Sub-division B	1,17,79,598	92,36,377	1,33,53,303	+41,16,926	+15,73,705
C. Machinery and mill work	59,71,908	53,84,259	36,05,842	-17,78,417	-23,66,066
D. Railway plant and rolling stock	50,86,427	46,88,270	27,10,604	-19,77,666	-23,75,823
Total of Division III	2,53,47,924	2,14,71,380	2,19,54,784	+4,83,404	-33,93,140
IV. Chemicals, Drugs, medicines and narcotics, Dyeing and Tanning materials.					
(i) Chemicals	6,97,708	7,59,116	6,41,306	-1,17,810	-56,402
(ii) Drugs and medicines	6,35,114	6,05,653	6,62,815	+57,162	+27,701
(iii) Tobacco (manufactured and un-manufactured)	7,14,574	7,80,782	7,56,250	-24,532	+41,676
(iv) Dyeing and tanning materials	7,57,237	9,10,023	10,35,003	+1,24,980	+2,77,766
(v) Opium	403	357	293	-64	-110
Total of Division IV	28,05,036	30,55,931	30,95,667	+39,736	+2,90,631
V. Oils—					
(i) Mineral	34,01,074	37,26,628	35,43,827	-1,82,801	+1,42,753
(ii) Miscellaneous	2,91,140	1,26,894	1,23,707	-3,187	-1,67,433
Total Division V	36,92,214	38,53,522	36,67,534	-1,85,988	-24,680

II.—IMPORTS—contd.

	MONTH OF FEBRUARY			Increase (+) or Decrease (-) in 1910 as compared with 1909.	Increase (+) or Decrease (-) in 1910 as compared with 1908.
	1908.	1909.	1910.		
	Rs.	Rs.	Rs.	Rs.	Rs.
VI. Raw materials and unmanufactured articles—					
(i) Coal, coke and patent fuel	4,91,345	5,53,295	6,82,795	+1,29,500	+1,91,450
(ii) Cotton	9,31,114	3,63,434	28,342	-3,35,092	-9,02,772
(iii) Gums and Resins	1,74,905	1,56,879	1,98,530	+41,651	+23,625
(iv) Silk	7,49,998	5,62,149	5,41,370	-20,779	-2,08,628
(v) Wood	6,15,810	3,29,182	3,41,024	+11,862	-2,74,786
(vi) Miscellaneous	6,31,867	8,71,391	9,08,669	+37,278	+2,76,772
Total Division VI	35,95,069	28,36,310	27,00,730	-1,35,580	-8,94,339
VII. Articles manufactured and partly manufactured—					
A.—Yarns and textile fabrics—					
(i) Cotton	3,84,57,317	2,29,32,802	3,38,80,806	+1,09,48,004	-45,76,511
(ii) Silk	17,73,270	14,68,365	19,09,484	+4,41,119	+1,36,214
(iii) Wool	15,01,617	7,66,095	11,74,555	+4,08,460	-3,27,062
(iv) Others	3,52,969	2,85,504	2,48,192	-37,312	-1,04,777
Total Sub-Division A	4,20,85,173	2,54,52,766	3,72,13,037	+1,17,60,271	-48,72,136
B.—Apparel—					
(i) Apparel (including haberdashery and millinery and hats, caps, bonnets and hatter's ware	11,54,391	9,73,058	12,33,074	+2,55,016	+78,683
(ii) Boots and shoes	2,51,658	2,46,694	2,97,097	+50,403	+45,439
(iii) Gold and silver thread	2,33,172	4,49,285	2,85,844	-1,63,391	+52,672
Total Sub-Division B	16,39,221	16,73,987	18,16,015	+1,42,028	+1,76,794
C.—Other articles—					
(i) Building and engineering materials	4,60,745	5,61,128	5,54,274	-6,854	+93,529
(ii) Carriages and carts and cycles (including motor cars)	8,83,173	6,38,405	8,27,204	+1,88,799	-55,969
(iii) Glassware and earthenware	15,78,058	12,14,568	13,69,019	+1,54,451	-2,09,039
(iv) Leather and manufactures (less boots and shoes)	3,52,280	2,38,242	2,96,960	+58,718	-55,320
(v) Matches	5,38,479	5,42,073	5,92,805	+50,732	+54,326
(vi) Paints and colours (including painter's materials)	5,24,694	3,91,953	5,29,342	+1,37,389	+4,648
(vii) Paper and paste-board and stationery	11,72,512	10,37,314	11,87,333	+1,50,019	+14,821
(viii) Soap	3,97,883	3,58,862	3,87,956	+29,094	-9,927
(ix) Umbrellas and umbrella fittings	4,74,085	3,24,975	3,89,337	+64,362	-84,748
(x) Miscellaneous (including imports by post)	46,24,849	49,36,330	62,89,981	+13,53,651	+16,65,132
Total Sub-Division C	1,10,06,758	1,02,43,850	1,24,24,211	+21,80,361	+14,17,453
Total Division VII	5,47,31,152	3,73,70,603	5,14,53,263	+1,40,82,660	-32,77,889
Total Value	10,20,76,763	8,20,34,198	9,53,16,801	+1,32,82,603	-67,59,962

Comparing the values of the imports in February 1910 with those of February 1909 the chief increases and decreases are noticed in the following items :—

	Increases.		Decreases.	
		Rs.		Rs.
Division I	Cloves	+2,39,626	Horses	-2,74,190
Division II	Sugar 16 Dutch standard and above	+4,36,623	Pulse	-2,21,541
			Wheat	-6,02,028
			Sugar 15 Dutch standard and below	-6,18,936

II.—IMPORTS—*concl'd.*

Increase.		Decrease.		
	Rs.		Rs.	
Division III	Copper—unwrought	+ 2,33,464	Steam engines and parts	- 4,24,561
	Copper—wrought	+ 8,80,993	Textile machinery	- 13,75,953
	Iron—Sheets and plates (galva- nised)	+ 13,97,480	Railway carriages and trucks and parts thereof	- 17,03,874
	Steel—Bars	+ 3,06,450	Locomotive engines and tenders and parts thereof	- 8,26,770
	„ —Plates and sheets	+ 3,03,451	Sleepers and keys of steel and iron	- 2,88,885
Division VI	Rails and fishplates of steel and iron	+ 3,78,166	Cotton	- 3,35,092
	Cotton—Twist and Yarn	+ 9,09,449		
Division VII	„ —Piece goods	+ 96,53,031		
	Silk { Piece goods	..		
	{ Goods of silk mixed with other materials	+ 4,50,826		
	Yarn	..		
	Woollen piece goods	+ 3,20,081		
	Ten-chests	+ 5,18,714		
	Toys and requisites for games . .	+ 3,50,961		

III.—EXPORTS.

The following table shows the value of the exports of Indian merchandise for the month of February 1910, as compared with the corresponding month of 1909 and 1908, and the increase or decrease in each division and the principal sub-divisions :—

	MONTH OF FEBRUARY.			Increase (+) or decrease (-) in 1910 as compared with 1909.	Increase (+) or decrease (-) in 1910 as compared with 1908.
	1908.	1909.	1910.		
	Rs.	Rs.	Rs.	Rs.	Rs.
I. Animals, living	1,29,036	1,37,135	1,54,972	+ 17,837	+ 25,936
II. Articles of food and drink—					
(i) Coffee	23,33,937	23,23,696	26,34,187	+ 3,10,491	+ 3,00,250
(ii) Fruits and vegetables	2,80,059	7,53,305	3,63,179	- 3,90,126	+ 83,120
(iii) Grain and Pulse—					
(a) Rice both in the husk and not in the husk, including rice flour	3,30,91,183	2,33,00,863	2,49,46,021	+ 16,45,158	- 81,45,162
(b) Wheat, including wheat flour	4,11,191	4,07,189	25,14,786	+ 21,07,597	+ 21,03,595
(c) Miscellaneous	2,70,321	6,01,430	18,07,535	+ 12,06,105	+ 15,37,214
(iv) Provisions	6,67,356	6,43,992	9,02,988	+ 2,58,996	+ 2,35,632
(v) Spices	5,20,471	8,50,476	10,54,984	+ 2,04,508	+ 5,34,513
(vi) Tea	30,80,796	44,94,789	55,84,338	+ 10,89,549	+ 25,03,542
(vii) Miscellaneous	53,925	69,060	1,39,892	+ 70,832	+ 85,967
Total Division II	4,07,09,239	3,34,44,800	3,99,47,910	+ 65,03,110	- 7,61,329
III. Metals and Manufactures of—					
A. Hardware and Cutlery	46,056	21,312	23,388	+ 2,076	- 22,668
B. Metals—					
(i) Manganese ore	4,33,936	6,73,550	9,04,912	+ 2,31,362	+ 4,70,976
(ii) Others	82,596	51,950	2,15,885	+ 1,63,935	+ 1,33,289
C. Machinery and Millwork	1,900	1,954	2,762	+ 808	+ 862
D. Railway plant and rolling-stock	2,666	4,385	13,800	+ 9,415	+ 11,134
Total Division III	5,67,154	7,53,151	11,60,747	+ 4,07,596	+ 5,93,593

II.—EXPORTS—*contd.*

	MONTH OF FEBRUARY			Increase (+) or decrease (-) in 1910 as compared with 1909.	Increase (+) or decrease (-) in 1910 as compared with 1908.
	1908.	1909.	1910.		
	Rs.	Rs.	Rs.	Rs.	Rs.
IV. Chemicals, Drugs, Medicines and Narcotics, Dyeing and Tanning materials—					
(i) Chemicals—					
(a) Saltpetre	3,27,268	5,83,208	3,09,300	-2,73,908	-17,968
(b) Others	6,495	12,205	18,827	+6,622	+12,332
(ii) Drugs and Medicines	1,19,575	1,57,574	1,26,107	-3,1,467	+6,582
(iii) Narcotics—					
(a) Opium	60,85,205	53,56,675	1,25,02,750	+71,46,075	+55,17,545
(b) Tobacco	87,286	1,08,218	1,38,634	+30,416	+61,348
(iv) Dyeing and Tanning Materials—					
(a) Indigo	11,37,496	13,78,749	8,46,822	-5,31,927	-2,90,674
(b) Myrabolams	5,64,975	4,24,169	8,01,066	+3,76,897	+2,36,091
(c) Others	2,31,037	1,45,475	1,48,799	+3,324	-82,238
Total Division IV	94,59,337	81,66,273	1,48,92,305	+67,26,032	+54,32,968
V. Oils—					
(i) Mineral including paraffin wax	3,52,274	2,97,230	6,57,194	+3,59,964	+3,04,920
(ii) Vegetable non-essential	3,26,386	5,90,084	4,39,517	-1,50,567	+1,13,131
(iii) Others	57,501	78,258	46,264	-31,994	-11,237
Total Division V	7,36,161	9,65,572	11,42,975	+1,77,403	+4,06,814
VI. Raw Materials and unmanufactured articles—					
(i) Coal	3,32,557	2,00,346	11,09,251	+9,08,905	+7,76,694
(ii) Cotton	2,07,47,237	2,79,22,090	5,12,87,744	+2,33,45,654	+3,05,20,507
(iii) Fodder, bran and Cattle food including hay and straw—					
(a) Oilcake	3,66,404	4,05,390	4,55,668	+50,278	+89,264
(b) Ricebran	11,68,621	5,44,187	4,93,416	-50,771	-6,73,205
(c) Miscellaneous	82,647	56,905	56,377	-528	-26,270
(iv) Hemp	7,49,807	9,17,367	5,55,380	-3,61,987	-1,94,427
(v) Hides and Skins	57,49,521	89,63,458	1,16,72,803	+27,09,945	+59,23,282
(vi) Jute	91,25,731	1,23,67,070	1,12,01,642	-11,65,428	+20,75,911
(vii) Manures—					
(a) Animal bones	3,07,713	3,72,622	3,34,933	-37,689	+27,220
(b) Oil cakes	1,33,096	2,62,422	3,16,061	+53,639	+1,32,965
(c) Others	74,876	1,35,546	1,01,173	-34,373	+26,297
(viii) Seeds—					
(a) Castor	2,89,918	7,29,356	9,10,509	+1,81,153	+6,20,591
(b) Cotton	7,07,136	17,52,373	28,83,697	+11,31,324	+21,76,561
(c) Groundnut	14,19,994	30,00,375	40,13,812	+10,13,437	+25,93,818
(d) Linseed	10,50,601	4,68,734	3,94,712	-74,023	-6,55,869
(e) Rape	27,38,791	23,41,562	32,35,310	+8,93,748	+4,96,519
(f) Sesamum	8,31,002	30,53,812	53,45,562	+22,91,750	+45,14,560
(g) Others	3,50,787	5,91,743	8,04,487	+2,12,744	+4,53,700
(ix) Silk	2,65,610	7,40,916	5,00,678	-2,40,238	+2,35,068
(x) Wood and Timber	5,90,009	5,21,155	7,41,738	+2,20,583	+1,51,729
(xi) Wool	5,73,180	26,81,373	29,12,818	+2,31,445	+23,39,688
(xii) Miscellaneous	10,07,054	9,53,217	13,56,359	+4,03,142	+3,49,305
Total Division VI	4,86,60,242	6,89,82,019	10,06,64,130	+3,16,82,111	+5,20,03,888
II.—Articles manufactured and partly manufactured—					
A.—Yarns and textile fabrics—					
(i) Cotton—					
(a) Yarns and twist	68,79,296	93,51,318	68,77,375	-24,74,543	-1,921
(b) Other textile fabrics	9,27,874	14,15,966	18,83,570	+4,72,604	+9,60,696
(ii) Jute—					

III.—EXPORTS—*contd.*

	MONTH OF FEBRUARY,			Increase (+) or decrease (—) in 1910 as compared with 1909.	Increase (+) or decrease (—) in 1910 as compared with 1908.
	1908.	1909.	1910.		
C.—Other Articles—	Rs.	Rs.	Rs.	Rs.	Rs.
(i) Coir (excluding rope)	4,21,508	7,68,556	3,78,798	-3,89,758	42,710
(ii) Hides and Skins, dressed and tanned	26,95,679	33,72,116	32,35,243	-1,36,873	+5,39,564
(iii) Lac—					
(a) Button	2,62,643	1,70,456	2,59,167	+88,711	-3,476
(b) Shellac	18,73,172	24,93,430	20,60,294	-4,33,136	+1,87,122
(c) Others	25,669	23,033	33,998	+10,965	+8,329
(iv) Miscellaneous including exports by post	9,85,787	9,11,345	9,81,807	+70,462	-3,980
Total of Division VII	2,47,93,350	3,01,31,179	2,82,42,896	-18,88,283	+34,49,546
Total value of Exports	12,50,54,519	14,25,80,129	18,62,05,935	+4,36,25,806	+6,11,51,416

Comparing the values of the exports in February 1910 with those of February, 1909, the chief increases^s and decreases are noticed in the following items—

	Increases.		Decreases.	
Division II	Coffee	+3,10,491	Fruits and Vegetables	-3,90,126
	Grain and Pulse—			
	(a) Rice	+16,45,158		
	(b) Wheat including flour	+21,07,597		
	(c) Miscellaneous	+12,06,105		
	Provisions	+2,58,996		
	Spices	+2,04,508		
	Ten	+10,89,549		
Division III	Manganese ore	+2,31,362		
Division IV	Opium	+71,46,075	Saltpetre	-2,73,908
Division V	Myrabolams	+3,76,897	Indigo	-5,31,927
	Oils, mineral including paraffin wax	+3,59,964		
	Cotton	+2,33,45,654	Hemp	-3,61,987
	Hides and Skins	+27,09,346	Jute	-11,65,428
	Seeds—			
	Cotton	+11,31,324	Silk	-2,40,298
Division VI	Ground nut	+10,13,437		
	Rape	+8,93,748		
	Sesamum	+22,91,750		
	Others	+3,19,875		
	Wood and Timber	+2,20,583		
	Wool	+2,31,445		
	Miscellaneous	+12,92,603		
Division VII	Cotton—		Cotton—	
	Textile fabrics other than yarn	+4,72,604	Twist and yarn	-24,74,543
	Jute—		Coir excluding rope	-3,99,758
	Gunny bags and cloth	+9,53,539	Shellac	-4,39,196

Treasure.

The following tables show the imports and exports of Treasure on private account in February 1910 and in the eleven months ending February 1910 with the increase or decrease compared with the corresponding period of the preceding official year:—

	February 1910.	
Imports—	Rs.	Rs.
Gold	2,42,230	+ 1,55,62,836
Silver	60,25,434	10,91,814

Exports—

Gold	27,87,337	+ 11,24,753
Silver	19,32,222	+ 6,46,086

Eleven months ending February 1910.

Imports—	Rs.	Rs.
Gold	21,60,69,922	+13,94,93,808
Silver	11,51,27,156	- 2,10,74,783
Exports—		
Gold	3,08,32,418	- 24,71,848
Silver	2,83,01,466	+ 58,16,206

FOREIGN TRADE OF THE UNITED KINGDOM IN FEBRUARY, 1910.

I.—GENERAL.

The trade returns for February, 1910, when compared with those for the corresponding month of 1909, show increases in the values of the Imports into the United Kingdom, and of the Exports both of the Produce and Manufactures of the United Kingdom and of Foreign and Colonial Merchandise.

The value of the Imports in February was 51,158,357*l.*, an increase of 690,214*l.*, or 1·37 per cent. as compared with February, 1909; whilst the total Exports amounted to 41,876,430*l.*, an increase of 5,378,344*l.* The Exports of Produce and Manufactures of the United Kingdom show an increase of 3,667,418*l.* or 13·1 per cent, as compared with February, 1909; whilst there is an increase of 1,710,926*l.*, or 20·2 per cent. in the Exports of Foreign and Colonial Merchandise.

II.—IMPORTS.

The following table shows the value of the Imports for February, 1910, as compared with the corresponding month of 1909 and 1908, according to the different categories of merchandise:—

Imports of Foreign and Colonial Merchandise.*

	MONTH OF FEBRUARY			Increase (+) or Decrease (—) in 1910 as compared with 1909.	Increase (+) or Decrease (—) in 1910 as compared with 1908.
	1908.	1909.	1910.		
I.—FOOD, DRINK, AND TOBACCO—	£	£	£	£	£
A. Grain and flour	5,619,869	4,434,418	5,454,929	+ 1,020,511	- 164,940
B. Meat, including animals for food	3,930,149	3,945,904	3,355,488	- 584,416	- 574,661
C. Other food and drink—					
1. Non-dutiable	5,573,729	5,338,561	5,594,081	+ 255,520	+ 20,352
2. Dutiable	3,216,078	2,232,556	3,684,746	+ 452,190	+ 468,668
D. Tobacco	375,732	288,737	305,227	+ 17,490	- 69,565
Total, Class I	18,715,617	17,240,176	18,395,471	+ 1,155,295	- 320,146
II.—RAW MATERIALS AND ARTICLES MAINLY UNMANUFACTURED—					
A. Coal, coke and manufactured fuel	236	298	1,367	+ 1,069	+ 1,141
B. Iron ore, scrap iron and steel	354,902	336,681	476,452	+ 139,771	+ 121,550
C. Other metallic ores	814,171	641,024	605,174	- 35,850	- 208,997
D. Wood and timber	944,537	790,475	798,086	+ 7,611	- 146,151
E. Cotton	8,512,653	7,616,506	4,647,452	- 2,969,054	- 3,865,201
F. Wool	3,937,001	4,874,608	4,901,446	+ 26,838	+ 964,445
G. Other textile materials	1,129,037	1,391,546	1,452,382	+ 60,836	+ 323,345
H. Oil-seeds, nuts, oils, fats and gums	2,183,635	2,717,160	2,618,241	- 98,919	+ 434,606
I. Hides and undressed skins	854,074	865,477	1,170,202	+ 304,725	+ 316,128
J. Paper-making materials	302,763	247,641	261,565	+ 13,924	- 41,198
K. Miscellaneous	1,966,263	2,147,000	3,223,959	+ 1,076,959	+ 1,257,697
Total, Class II	20,999,261	21,628,416	20,156,326	- 1,472,090	- 842,985
III.—ARTICLES WHOLLY OR MAINLY MANUFACTURED—					
A. Iron and steel and manufactures thereof	504,125	587,379	646,848	+ 59,469	+ 82,723
B. Other metals and manufactures thereof	1,796,973	1,628,729	2,170,618	+ 541,889	+ 373,645
C. Cutlery, hardware, implements (except machine tools) and instruments	355,468	258,326	289,471	+ 31,145	- 65,997
D. Electrical goods and apparatus (other than machinery and telegraph and telephone wire)	127,225	102,272	112,511	+ 10,239	- 14,714
E. Machinery	423,300	373,691	315,139	- 58,552	- 108,161
F. Ships (new)	15	158	299	+ 141	+ 284
G. Manufactures of wood and timber (including furniture)	164,606	152,608	174,146	+ 21,538	+ 9,540
H. Yarns and textile fabrics—					
1. Cotton	952,504	861,079	882,848	+ 21,769	- 69,656
2. Wool	997,185	803,020	832,056	+ 29,036	- 165,129
3. Silk	1,227,637	1,115,112	1,133,076	+ 17,964	- 94,581
4. Other materials	642,810	612,524	745,256	+ 132,732	+ 102,446
I. Apparel	360,523	375,996	388,236	+ 9,240	+ 27,713
J. Chemicals, drugs, dyes and colours	834,511	777,560	822,943	+ 45,383	- 11,568
K. Leather and manufactures thereof (including gloves, but excluding boots and shoes)	937,760	993,351	872,027	- 91,324	- 65,738
L. Earthenware and glass	323,944	249,511	246,087	- 3,424	- 77,857
M. Paper	524,584	424,254	458,557	+ 34,303	- 66,027
N. Railway carriages and trucks (not of iron) motor cars, cycles, carts, &c.	401,640	359,483	376,153	+ 16,670	- 25,487
O. Miscellaneous	1,832,255	1,751,766	1,873,027	+ 121,261	+ 40,772
Total, Class III	12,467,085	11,399,819	12,339,298	+ 939,479	- 127,787
IV.—MISCELLANEOUS AND UNCLASSIFIED (INCLUDING PARCEL POST)	246,159	199,732	267,262	+ 67,530	+ 21,103
Total value	52,428,122	50,468,143	51,939,357	+ 690,214	- 1,269,765

* The values of the Imports represent the cost, insurance, and freight; or when goods are consigned for sale, the latest sale value of such goods.

III.—EXPORTS.

The following table shows the value of the Exports of produce and manufactures of the United Kingdom for the month of February, 1910, as compared with the corresponding month of 1909 and 1908 and the increase or decrease in each principal category :—

Exports of Produce and Manufactures of the United Kingdom.*

	MONTH OF FEBRUARY.			Increase (+) or Decrease (—) in 1910 as compared with 1909.	Increase (+) or Decrease (—) in 1910 as compared with 1908.
	1908.	1909.	1910.		
I.—FOOD, DRINK, AND TOBACCO—	£	£	£	£	£
A. Grain and flour	253,308	254,760	260,241	+ 5,484	+ 6,936
B. Meat, including animals for food	63,724	55,955	66,347	+ 10,392	+ 2,623
C. Other food and drink	1,023,761	1,087,080	1,176,594	+ 89,514	+ 152,833
D. Tobacco	100,140	117,956	171,269	+ 53,313	+ 71,129
Total, Class I	1,440,933	1,515,751	1,674,454	+ 158,703	+ 233,521
II.—RAW MATERIALS AND ARTICLES MAINLY UNMANUFACTURED—					
A. Coal, coke, and manufactured fuel	3,347,039	2,646,482	2,616,169	— 30,313	— 730,870
B. Iron ore, scrap iron and steel	28,609	40,955	36,455	— 4,500	+ 7,846
C. Other metallic ores	5,380	12,237	5,622	+ 6,615	+ 212
D. Wood and timber	8,834	5,396	7,001	+ 1,605	— 1,833
E. Cotton	—	—	—	—	—
F. Wool	222,349	304,423	351,640	+ 47,217	+ 129,291
G. Other textile materials	19,211	16,097	27,898	+ 11,801	+ 8,687
H. Oil-seeds, nuts, oils, fats and gums	234,006	223,218	356,996	+ 133,778	+ 122,996
I. Hides and undressed skins	126,188	166,661	209,348	+ 42,687	+ 83,160
J. Paper making materials	37,900	46,775	55,145	+ 8,370	+ 17,245
K. Miscellaneous	183,559	191,408	213,023	+ 21,615	+ 29,464
Total, Class II	4,213,069	3,653,652	3,879,297	+ 225,645	— 333,772
III.—ARTICLES WHOLLY OR MAINLY MANUFACTURED—					
A. Iron and steel and manufactures thereof	3,008,082	2,730,997	3,108,484	+ 377,487	+ 100,402
B. Other metals and manufactures thereof	727,998	699,024	786,773	+ 87,749	+ 59,675
C. Cutlery, hardware, implements (except machine tools) and instruments	453,484	387,078	440,692	+ 62,814	— 3,592
D. Electrical goods and apparatus (other than machinery and telegraph and telephone wire)	122,121	136,533	197,762	+ 61,229	+ 75,641
E. Machinery	2,337,887	2,080,745	1,919,815	— 160,930	— 418,072
F. Ships (new)	458,567	336,760	145,695	— 191,065	— 312,872
G. Manufactures of wood and timber (including furniture)	113,675	88,862	137,272	+ 48,410	+ 23,597
H. Yarns and textile fabrics—					
1. Cotton	9,122,570	7,149,944	8,252,411	+ 1,102,467	— 870,159
2. Wool	2,941,432	2,678,346	3,418,994	+ 740,648	+ 477,562
3. Silk	140,660	133,456	158,128	+ 24,642	+ 17,468
4. Other materials	915,647	906,862	1,044,936	+ 138,074	+ 129,289
I. Apparel	796,872	783,795	1,057,739	+ 273,944	+ 260,867
J. Chemicals, drugs, dyes and colours	1,466,629	1,242,708	1,490,693	+ 247,985	+ 24,064
K. Leather and manufactures thereof (including gloves, but excluding boots and shoes)	306,566	298,533	365,089	+ 66,556	+ 58,523
L. Earthenware and glass	309,682	253,039	297,868	+ 44,829	— 11,814
M. Paper	198,053	179,699	227,348	+ 48,249	+ 29,295
N. Railway Carriages and Trucks (not of iron) Motor Cars, Cycles, Carts, etc.	574,288	508,156	549,013	+ 40,857	— 25,275
O. Miscellaneous	1,841,577	1,798,348	2,059,331	+ 260,983	+ 217,754
Total, Class III	25,834,890	22,392,315	25,667,243	+ 3,274,928	— 167,647
IV.—MISCELLANEOUS AND UNCLASSIFIED (INCLUDING PARCEL POST)	460,622	462,734	470,876	+ 8,142	+ 10,254
Total value	31,949,514	28,024,452	31,691,870	+ 3,667,418	— 257,644

Exports of Foreign and Colonial Merchandise.*

	£	£	£	£	£
Total value	7,497,673	8,473,634	10,184,560	+ 1,710,926	+ 2,686,887

* The values of the Exports represent the cost and the charges of delivering the goods on board the ship, and are known as the "free on board" values.

IV.—TRADE DURING THE TWO MONTHS, JANUARY—FEBRUARY.

The following table shows the value of the Imports of foreign and colonial merchandise during the two months ended February, 1910, as compared with the corresponding period of 1909 and 1908 :—

Imports of Foreign and Colonial Merchandise.*

	TWO MONTHS ENDED FEBRUARY.			Increase (+) or Decrease (—) in 1910, as compared with 1909.	Increase (+) or Decrease (—) in 1910 as compared with 1908.
	1908.	1909.	1910.		
I.—FOOD, DRINK, AND TOBACCO—	£	£	£	£	£
A. Grain and flour	11,622,158	9,987,734	12,563,405	+ 2,575,671	+ 941,247
B. Meat, including animals for food	8,094,929	8,118,265	7,193,960	— 924,305	— 900,969
C. Other food and drink—					
1. Non-dutiable	10,832,378	10,694,311	11,455,146	+ 760,835	+ 622,768
2. Dutiable	7,224,107	6,946,246	8,127,390	+ 1,181,144	+ 903,283
D. Tobacco	890,600	654,949	665,625	+ 10,676	— 224,975
Total, Class I	38,664,172	36,401,505	40,005,526	+ 3,604,021	+ 1,341,354
II.—RAW MATERIALS AND ARTICLES MAINLY UNMANUFACTURED—					
A. Coal, coke, and manufactured fuel	873	848	2,100	+ 1,252	+ 1,227
B. Iron ore, scrap iron, and steel	791,885	681,729	937,996	+ 256,267	+ 146,111
C. Other metallic ores	1,603,075	1,374,887	1,346,094	— 228,793	— 256,981
D. Wood and timber	2,151,216	1,620,529	1,811,219	+ 190,690	— 339,997
E. Cotton	19,016,766	16,907,373	10,487,628	— 6,419,745	— 8,529,138
F. Wool	8,549,667	9,516,574	9,752,095	+ 235,521	+ 1,202,428
G. Other textile materials	2,870,812	3,105,677	3,087,161	— 18,516	+ 216,349
H. Oil-seeds, nuts, oils, fats, and gums	4,732,997	5,104,232	5,538,605	+ 434,373	+ 805,608
I. Hides and undressed skins	1,689,964	1,785,627	2,316,890	+ 531,263	+ 626,926
J. Paper making materials	628,779	593,789	672,843	+ 139,054	+ 44,064
K. Miscellaneous	3,932,709	4,057,687	5,911,992	+ 1,854,305	+ 1,979,283
Total, Class II	45,968,743	44,688,952	41,864,623	— 2,324,329	— 4,104,120
III.—ARTICLES WHOLLY OR MAINLY MANUFACTURED—					
A. Iron and steel and manufactures thereof	1,087,649	1,198,226	1,361,464	+ 163,238	+ 273,815
B. Other metals and manufactures thereof	3,656,293	3,499,136	4,101,717	+ 902,581	+ 745,424
C. Cutlery, hardware, implements (except machine tools) and instruments	669,948	504,597	559,828	+ 55,231	— 110,120
D. Electrical goods and apparatus (other than machinery and telegraph and telephone wire)	204,210	223,180	221,982	— 1,198	+ 17,772
E. Machinery	774,704	683,159	648,955	— 34,204	— 125,749
F. Ships (new)	143	238	402	+ 164	+ 259
G. Manufactures of wood and timber (including furniture)	301,829	295,043	340,131	+ 45,088	+ 38,302
H. Yarns and textile fabrics—					
1. Cotton	1,765,094	1,713,501	1,727,188	+ 13,687	— 37,956
2. Wool	1,924,260	1,595,425	1,688,382	+ 92,907	— 285,928
3. Silk	2,301,374	2,042,695	2,148,117	+ 105,422	— 158,257
4. Other materials	1,211,448	1,188,560	1,483,986	+ 245,426	+ 222,538
I. Apparel	651,991	689,274	708,192	+ 18,918	+ 56,201
J. Chemicals, drugs, dyes, and colours	1,656,230	1,518,387	1,704,213	+ 185,826	+ 47,983
K. Leather and manufactures thereof (including gloves, but excluding boots and shoes)	1,764,435	1,910,440	1,830,195	— 80,245	+ 65,760
L. Earthenware and glass	602,779	500,812	523,598	+ 22,786	— 79,181
M. Paper	986,972	834,242	974,805	+ 140,563	— 12,167
N. Railway carriages and trucks (not of iron), motor cars, cycles, carts, &c.	682,331	613,731	749,987	+ 136,256	+ 67,556
O. Miscellaneous	3,499,063	3,403,392	3,690,777	+ 287,385	+ 191,714
Total, Class III	23,740,753	22,414,088	24,713,819	+ 2,299,731	+ 973,066
IV.—MISCELLANEOUS AND UNCLASSIFIED (INCLUDING PARCEL POST)	417,883	464,012	495,543	+ 31,531	+ 77,710
Total value	108,791,501	103,968,507	107,079,511	+ 3,111,004	— 1,711,990

* The values of the Imports represent the cost, insurance, and freight; or when the goods are sold for sale, the latest sale value of such goods.

V.—EXPORTS.

The value of the Exports of home produce, and of foreign and colonial produce, during the two months ended February, 1910, as compared with the corresponding period of 1909 and 1908, is as shown in the following table:—

Exports of Produce and Manufactures of the United Kingdom.*

	Two months ended February			Increase (+) or Decrease (—) in 1910 as compared with 1909.	Increase (+) or Decrease (—) in 1910 as compared with 1908.
	1908.	1909.	1910.		
I.—FOOD, DRINK, AND TOBACCO—	£	£	£	£	£
A. Grain and flour	498,593	476,066	520,764	+ 44,698	+ 22,171
B. Meat, including animals for food	133,132	118,261	140,772	+ 22,511	+ 7,640
C. Other food and drink	2,088,901	2,120,849	2,305,762	+ 184,913	+ 216,861
D. Tobacco	217,131	247,102	331,734	+ 84,632	+ 114,603
Total, Class I	2,937,757	2,962,278	3,299,032	+ 336,754	+ 361,275
II.—RAW MATERIALS AND ARTICLES MAINLY UNMANUFACTURED—					
A. Coal, coke and manufactured fuel	6,728,946	5,323,842	5,247,859	— 75,983	— 1,481,087
B. Iron ore, scrap iron and steel	65,784	74,118	131,192	+ 57,074	+ 65,408
C. Other metallic ores	13,404	15,812	9,354	— 6,458	— 4,050
D. Wood and timber	16,499	13,862	15,593	+ 1,731	+ 906
E. Cotton	436,581	6,3597	757,803	+ 134,206	+ 321,222
F. Wool	34,413	30,603	62,741	+ 32,138	+ 28,328
G. Other textile materials	493,140	440,245	669,040	+ 228,795	+ 175,600
H. Oil-seeds, nuts, oils, fats and gums	235,239	342,510	416,052	+ 73,542	+ 180,813
I. Hides and undressed skins	83,297	97,191	115,067	+ 17,876	+ 31,770
J. Paper making materials	389,018	407,924	436,684	+ 28,760	+ 56,666
K. Miscellaneous					
Total, Class II	8,187,621	7,369,704	7,861,385	+ 491,681	+ 626,236
III.—ARTICLES WHOLLY OR MAINLY MANUFACTURED—					
A. Iron and steel and manufactures thereof	6,239,893	5,753,067	6,587,356	+ 1,034,289	+ 347,463
B. Other metals and manufactures thereof	1,404,316	1,299,456	1,612,186	+ 312,730	+ 147,870
C. Cutlery, hardware, implements (except machine tools) and instruments	982,874	787,872	918,414	+ 130,542	+ 64,460
D. Electrical goods and apparatus (other than machinery and telegraph and telephone wire)	317,018	292,840	352,836	+ 89,996	+ 35,818
F. Machinery	5,022,074	4,362,668	4,030,568	— 342,100	— 1,001,506
F. Ships (new)	1,123,443	740,853	2,285,981	+ 1,545,128	+ 1,160,538
G. Manufactures of wood and timber (including furniture)	223,993	179,300	278,196	+ 98,896	+ 54,203
H. Yarns and textile fabrics—					
1. Cotton	19,066,841	14,363,208	16,797,770	+ 2,434,562	+ 2,209,071
2. Wool	6,136,979	5,510,257	6,885,512	+ 1,375,255	+ 748,533
3. Silk	289,782	274,217	326,599	+ 52,652	+ 37,117
4. Other materials	1,992,206	1,901,235	2,220,003	+ 318,768	+ 227,797
I. Apparel	1,602,952	1,558,672	2,005,801	+ 447,129	+ 402,849
J. Chemicals, drugs, dyes and colours	2,929,157	2,560,040	2,857,798	+ 297,758	+ 71,359
K. Leather and manufactures thereof (including gloves, but excluding boots and shoes)	614,262	589,682	737,632	+ 147,950	+ 123,370
L. Earthenware and glass	633,280	519,042	604,237	+ 85,195	+ 29,043
M. Paper	404,161	357,431	455,384	+ 97,953	+ 51,223
N. Railway carriages and trucks (not of iron), motor cars, cycles, carts, &c.	1,276,204	999,831	1,082,004	+ 82,173	+ 124,200
O. Miscellaneous	3,757,878	3,489,595	4,247,719	+ 758,124	+ 489,841
Total, Class III	53,949,313	45,309,296	54,276,200	+ 8,967,000	+ 326,983
IV.—MISCELLANEOUS AND UNCLASSIFIED (INCLUDING PARCEL POST)	982,590	1,186,220	1,058,272	— 127,948	+ 75,682
Total value	66,357,281	56,827,498	66,494,985	+ 9,667,487	+ 187,704

Exports of Foreign and Colonial Merchandise.*

	£	£	£	£	£
Total value	14,096,882	15,161,185	18,331,724	+ 3,170,539	+ 4,234,842

* The values of the Exports are at the cost and the charges of delivering the goods on board the ship, and are known as the "free on board" values.

LAND TRADE OF BRITISH INDIA.

Total Value of Imports from, and Exports to, each country in the nine months, April to December of each year.

NAME OF COUNTRY	IMPORTS			EXPORTS			TOTAL		
	1907	1908	1909	1907	1908	1909	1907	1908	1909
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
LUS BELA— Sind and British Baluchistan	6,02,326	4,76,568	4,58,721	1,31,420	1,91,595	2,03,477	7,33,755	6,68,163	6,62,198
KHELAT— Sind and British Baluchistan	7,80,659	7,28,491	3,43,483	3,78,404	4,78,686	4,42,383	11,59,063	12,07,177	7,85,866
PERSHIA— Sind and British Baluchistan	3,59,274	1,72,711	2,98,536	3,33,705	3,36,843	4,66,138	6,92,979	5,09,554	7,64,674
AFGHANISTAN— Northern and Eastern (including Kabul and Ghazni)— North-West Frontier Province	27,77,631	29,63,833	29,02,527	68,69,975	60,12,296	58,26,094	96,47,606	89,76,129	87,28,621
Southern and Western (including Kandahar and Herat)— Sind and British Baluchistan	53,00,489	41,68,815	50,18,894	42,74,466	44,38,979	42,57,695	95,74,955	86,07,794	92,76,589
North-West Frontier Province	4,49,068	1,82,456	2,58,959	1,68,685	3,03,300	3,30,306	6,17,753	4,85,756	5,89,265
Panjab	11,674	12,660	19,522	1,096	17,597	26,437	12,770	30,257	45,959
TOTAL	85,38,862	73,27,764	81,99,902	1,13,14,222	1,07,72,172	1,04,40,532	1,98,53,084	1,80,99,936	1,86,40,434
TIRAH— North-West Frontier Province	4,46,871	4,01,621	3,75,526	4,41,419	4,11,492	3,69,761	8,88,290	8,13,113	7,45,287
DIR, SWAT, AND BAJAUR— North-West Frontier Province	42,16,721	35,33,184	39,50,273	54,07,220	49,34,977	49,12,091	96,23,941	84,68,161	88,62,364
BUNZER— North-West Frontier Province	91,496	1,16,255	1,50,343	1,00,983	1,74,670	2,05,788	1,92,481	2,90,925	3,56,131
WAZIRISTAN (a)— North-West Frontier Province	...	2,99,005	2,06,320	...	69,852	1,97,822	...	3,68,857	4,04,142
KURRAM VALLEY (b)— North-West Frontier Province	...	1,52,041	2,15,231	...	6,74,436	7,07,580	...	8,26,477	9,22,811
LADAKH— Panjab	3,08,255	1,36,458	1,32,559	1,58,587	1,43,697	81,382	4,66,842	2,80,155	2,13,941
TIBET— Panjab United Provinces of Agra and Oudh	1,98,569	2,70,528	2,53,765	30,064	28,897	60,232	2,26,633	2,99,365	3,13,997
Bengal	7,51,600	7,32,610	7,73,882	4,82,227	4,37,457	3,43,342	12,33,827	11,70,067	11,22,224
TOTAL	22,94,151	21,86,784	16,00,183	14,68,116	15,07,130	9,08,222	37,82,267	36,98,914	25,08,405
NEPAL— United Provinces of Agra and Oudh	60,25,793	56,47,970	68,08,820	92,19,336	83,31,107	30,35,311	92,45,129	89,79,077	98,44,131
Bengal	1,47,71,244	1,72,82,759	1,12,95,510	65,04,178	80,48,337	74,30,062	2,13,75,422	2,63,31,096	1,87,25,572
TOTAL	2,07,97,037	2,29,30,729	1,81,04,390	97,23,514	1,13,79,444	1,04,65,373	2,05,20,551	3,43,10,173	2,85,69,703

(a) Registration commenced from April 1908

(b) Registration commenced from May 1908

LAND TRADE OF BRITISH INDIA—continued.

Total Value of Imports from, and Exports to, each country in the nine months, April to December of each year—continued.

NAME OF COUNTRY	IMPORTS			EXPORTS			TOTAL		
	1907	1908	1909	1907	1908	1909	1907	1908	1909
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
SIKKIM—									
Bengal	5,67,736	6,62,376	6,30,128	6,19,935	5,98,129	7,30,072	11,87,671	12,60,505	13,60,200
BHUTAN—									
Bengal	8,903	8,188	5,557	15,966	12,682	3,539	24,869	20,870	9,096
Eastern Bengal and Assam	1,15,742	1,06,124	83,620	98,358	1,02,737	69,700	2,14,100	2,08,861	1,53,320
TOTAL	1,24,645	1,14,312	89,177	1,14,324	1,15,419	73,239	2,38,969	2,29,731	1,62,416
TOWANG—									
Eastern Bengal and Assam	5,046	1,104	52	...	...	...	5,046	1,104	52
NAGA AND MISHMI HILLS—									
Eastern Bengal and Assam	61,428	48,712	27,797	3,287	1,856	2,652	64,715	50,568	30,449
DUFFLA AND AKA HILLS—									
Eastern Bengal and Assam	39,634	5,058	7,181	...	...	213	39,634	5,058	7,394
WESTERN CHINA—									
Burma	24,68,642	22,78,049	19,36,511	31,16,381	31,52,635	26,58,664	55,85,023	54,30,684	45,95,175
NORTH SIAM—									
Burma	22,07,011	18,93,498	25,13,594	14,64,473	16,30,398	20,73,531	36,71,484	35,23,896	45,87,125
SOUTH SIAM—									
Burma	4,16,819	5,05,279	6,08,633	3,91,774	4,54,924	5,43,607	8,08,593	9,60,203	11,52,240
N. SHAN STATES—									
Burma	52,74,694	55,38,482	79,63,331	63,19,184	59,76,420	55,05,402	1,15,93,878	1,15,14,902	1,34,68,738
S. SHAN STATES—									
Burma	42,88,450	43,55,154	51,45,672	63,39,774	65,04,734	65,25,060	1,06,28,224	1,08,59,888	1,16,70,732
KARENNEE—									
Burma	18,51,996	12,73,607	18,75,462	13,31,880	6,37,492	9,54,601	31,83,876	19,11,099	28,30,063
GRAND TOTAL	5,57,41,755	5,31,37,242	5,48,32,945	4,91,78,611	5,01,47,001	4,84,67,590	10,49,20,366	10,52,84,243	10,33,00,535
Share of each Province in the total trade—									
Sind and British Baluchistan	70,42,748	55,46,585	61,19,634	51,18,004	54,46,103	53,69,693	1,21,60,752	1,09,92,688	1,14,89,327
North-West Frontier Province	79,81,789	76,48,395	80,59,179	1,29,88,282	1,25,81,023	1,25,49,442	2,09,70,071	2,02,29,418	2,06,08,621
Punjab	5,16,498	4,19,646	4,05,846	1,89,747	1,90,131	1,68,051	7,06,245	6,09,777	5,73,897
United Provinces of Agra and Oudh	67,77,393	63,80,580	75,82,702	37,01,563	37,68,564	33,83,653	1,04,78,956	1,01,49,144	1,09,66,355
Bengal	1,66,93,365	1,91,36,969	1,25,03,731	81,15,904	96,99,984	86,63,321	2,48,09,769	2,88,36,953	2,11,67,052
Eastern Bengal and Assam	2,21,850	1,60,998	1,18,650	1,01,645	1,04,593	72,565	3,23,495	2,65,591	1,91,215
Burma	1,65,07,612	1,58,44,069	2,00,43,203	1,89,63,466	1,83,56,603	1,82,60,865	3,54,71,078	3,42,00,672	3,83,04,068
GRAND TOTAL	5,57,41,755	5,31,37,242	5,48,32,945	4,91,78,611	5,01,47,001	4,84,67,590	10,49,20,366	10,52,84,243	10,33,00,535

WEEKLY TRADE MOVEMENTS.

For the week ending 26th March, 1910.

COTTON GOODS.

Twist and Yarn.

Foreign—	Calcutta lbs.	73,760
Imports by sea into	Bombay "	68,798
	Madras "	2,500
Indian—	Calcutta "	327,600
Exports by sea from	Bombay "	7,941,400
	Madras "	14,400

Grey Piece Goods.

Imports by sea from	Calcutta yds.	10,619,484
Foreign ports into	Bombay "	1,842,471
	Karachi "	573,535
	Madras "	20,832
	Rangoon "	183,268

White Piece Goods.

Imports by sea from	Calcutta yds.	4,279,986
Foreign ports into	Bombay "	237,679
	Karachi "	8,323,500
	Madras "	33,602
	Rangoon "	138,427

Other Piece Goods.

Imports by sea from	Calcutta yds.	2,606,320
Foreign ports into	Bombay "	2,248,309
	Karachi "	3,669,768
	Madras "	122,365
	Rangoon "	530,377

Piece Goods.

(Indian and Foreign.)

Despatches by rail from	Calcutta owt.	* 17,177
	Bombay "	4,312
	Karachi "	14,977
	Madras "	5,036

Raw Cotton.

Imports into Bombay	By sea owt.	381
	Coastwise "	49,188
	by rail "	278,268
Imports into Karachi by rail	"	37,374
" " Calcutta by rail and river	"	* 11,258

JUTE.

Arrivals by all routes in	Calcutta owt.	* 190,594
Exports by	Calcutta { Gunny bags No.	13,371,660
sea from	{ " cloth yds.	34,731,500
	Chittagong—Jute "	67,716

COTTON SEEDS.

Exports by sea from Bombay	owt.	567,769
----------------------------	--------------	---------

OIL SEEDS.

Linseed.

Imports into	Calcutta by rail and river owt.	* 118,675
	Bombay { By sea "	5,856
	{ Coastwise "	95,078
	Karachi by rail "	40,037
Exports by sea from	Calcutta "	87,247
	Bombay "	...
	Karachi "	...

Rape and Mustard Seed.

Imports into	Calcutta by rail and river owt.	* 153,355
	Bombay { By sea "	177
	{ Coastwise "	48,615
	Karachi by rail "	19,000
Exports by sea from	Calcutta "	16,003
	Bombay "	19,888
	Karachi "	100,554

RICE.

Arrivals by all routes in	Calcutta owt.	* 330,189
	Calcutta "	276,508
	Chittagong "	...
Exports by sea from	Bombay "	17,948
	Karachi "	2,290
	Madras "	...
	Rangoon "	1,163,158

TEA.

Arrivals by all routes in	Calcutta lbs.	* 63,936
Exports by sea from	Calcutta "	72,254
	Chittagong "	...

WHEAT.

Imports into	Calcutta by rail and river owt.	* 81,088
	Karachi by rail "	291,120
	Bombay { By sea "	26,503
	{ Coastwise "	34,031
	by rail "	52,894
Exports by sea from	Calcutta "	387
	Bombay "	158,498
	Karachi "	...

* B.-N. Ry. figures not included.

EXPORTS—RUNNING TOTALS INCLUDING FIGURES RECORDED ABOVE.

	FROM APRIL		FROM JANUARY					
	1908.	1909.	1909.	1910.	1909.	1910.	1909.	1910.
	Wheat.		Linseed.		Rape and mustard Seed.		Cotton Seed.	
Calcutta . . . Cwt.	55,799	3,459,282	201,768	186,694	42,898	179,912	Not reported.	
Bombay . . . "	102,391	2,654,416	270,771	406,283	88,837	272,796	2,178,280	5,771,830
Karachi . . . "	3,898,285	17,773,333	...	...	1,213,588	2,838,037	Not reported.	

KEROSENE OIL, WEEK ENDING 26th MARCH, 1910.

Imports by sea into—	FROM			
	Russia.	America.	All other foreign countries.	TOTAL.
	galls.	galls.	galls.	galls.
Calcutta	...	...	...	...
Bombay	...	...	...	...
Karachi	...	...	...	...
Madras	...	...	...	...
			287,583	287,583
			Bengal	535,644
			E. B. & Assam	...
			Bombay	...
			Sind	...
			Madras	...
			Indian Ports, Non-Br.	268,585
			Foreign Ports	...

Exports by sea from Burma to

IMPORTS OF SUGAR, WEEK ENDING 26th MARCH, 1910.

Country of Shipment.	REFINED SUGAR IMPORTED INTO						TOTAL.
	Calcutta.	Chittagong.	Bombay.	Karachi.	Madras.	Rangoon.	
	owl.	owl.	owl.	owl.	ow.	owl.	owl.
United Kingdom	1	...	2	7	22	4	36
Germany	...	...	1,250	...	...	...	1,250
Austria-Hungary	...	...	1,002	9,300	2,900	...	13,202
Other European Countries	...	...	...	...	...	...	...
Java	103,394	...	...	...	...	...	103,398
Mauritius	...	...	27,237	45,187	...	4	72,424
Other Non-European Countries	...	...	4,493	...	1	8,204	12,698
					Total refined		203,008
					Total unrefined		12,003
					Grand Total		215,011

RESULTS OF AUCTION TEA SALES IN CALCUTTA.

DISTRICTS.	SEASON 1909-10.				SEASON 1908-09.			
	Sold in sale of 23rd March.		Sold to 23rd March		Sold in sale of 17th March.		Sold to 17th March.	
	Packages.	Average price per lb. A. P.	Packages.	Average price per lb. A. P.	Packages.	Average price per lb. A. P.	Packages.	Average price per lb. A. P.
Assam	...	...	176,262	7 4.2	83	5 10.9	184,161	6 7.6
Cachar	99	5 9	161,618	5 10.2	435	4 10.6	141,409	4 11.4
Sylhet	...	...	115,074	5 9.7	616	4 2.7	112,686	4 11.3
Darjeeling	...	...	61,747	10 0.5	...	...	62,919	8 7.8
Dooars	...	...	192,305	6 10.8	...	...	185,766	6 0.3
Tera	...	...	17,980	6 3.3	...	...	25,006	5 1.6
Chittagong	...	...	7,964	5 10.4	...	...	7,878	4 11
Chota-Nagpore	...	...	1,901	6 4.4	...	...	1,904	5 1.2
Kumaon and Kangra	...	...	3,318	5 8.1	130	5 2	2,396	5 7.4
Madras	...	...	110	5 11.7	...	...	185	5 2.3
Dehra Dun	...	...	356	5 11.2	...	...	...	...
Nepal	...	...	928	5 7.8	...	...	1,003	4 8.1
All other places	...	...	76	5 5	...	...	...	...
TOTAL	99	5 9	729,639	6 10	1,264	4 7.9	725,313	5 11.7

(The above do not include second-hand Tea, damaged Tea and Dust from those concerns which sell only that grade on this market.)

Season 1909-10 Average price of 47,551 packages Dust* sold to 23rd March As. P. 5 4.6
 " 1908-09 " 43,000 " " 17th " " 4 11.1
 *On account of gardens which sell only that grade on this market.

Xm 2.006

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In India—One copy despatched in batches once a week	5 0
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H. F. HOWARD,

Collector of Customs, Calcutta.

23rd September, 1909.

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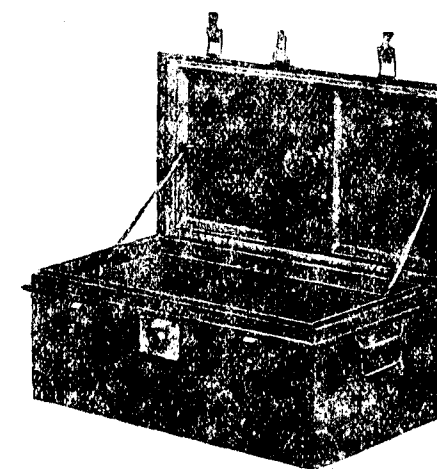
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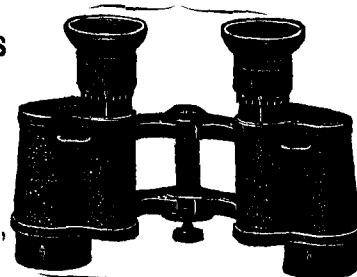
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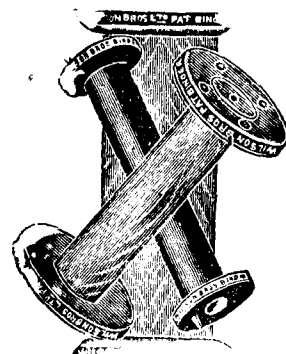
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