PAPERS

ON

INDIAN WHEAT

1879-1883.

Presented to both, HOUSES OF PARLIAMENT, *by Command of Her Majesty.*

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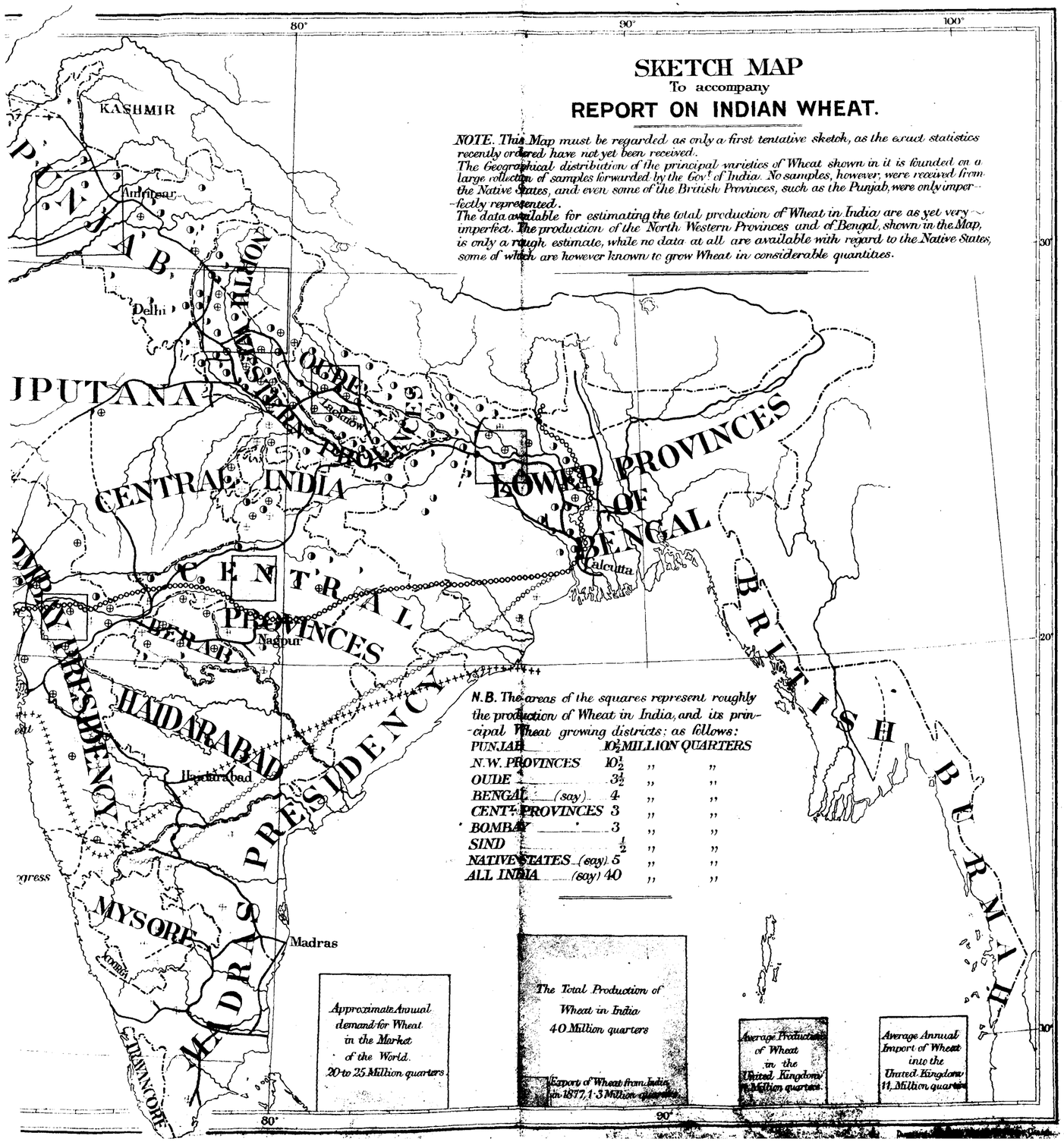

REPORT ON INDIAN WHEAT

BY

DR. FORBES WATSON.

INTRODUCTION.

In submitting the subjoined Report on the samples of Indian wheat forwarded to this Office in accordance with the Resolution of the Government of India of the 14th March 1877, I would take the opportunity of pointing out a few of the principal results of the examination, together with their bearing upon the question of the supply of Indian wheat for the European market. The Resolution referred to directs the collection of detailed statistics and other local information on the subject of the cultivation of wheat, but the results have not yet been received, and the Report has accordingly been restricted to the examination of the question, mainly, by the light of the evidence afforded by the samples themselves. The subject derives at the present time an unusual importance from the obvious consideration that the depreciation of silver, which affects so injuriously the finances of India, can be best counteracted by a development of the Indian export trade. Until, however, the information now in course of collection has been received, the question of the production and export of wheat from India cannot be treated with the amount of statistical detail which it deserves, as the materials available in the usual administration reports are of a fragmentary and incomplete description. At the same time it will be found that the examination of the large collection of samples under report has of itself led to some conclusions which may have an important bearing on the future of the Indian wheat trade.

Bearing of the wheat export on the silver question.

2. The number of samples amounted to more than 1,000, and together they form by far the most complete collection of Indian wheat ever brought to this country. The valuations of the individual samples are given in the tabular statements at pp. 26 *et seq.*, whilst the section commencing at p. 11 will be found to contain a number of special observations referring to them. For the present purpose it will be sufficient to refer to the summary Table at p. 9, which presents a synopsis of all the chief results, and indicates the number of samples of each variety of wheat received from the different provinces of India, as well as their quality, range of price, and average value. A map is also appended, showing the geographical distribution of the chief varieties, and the Report is accompanied by a collection of samples, illustrative of the more important kinds of wheat grown in India.

Report, ma synoptical table of results, an typical col lection of specimens.

3. By arranging all the samples, according to price, in classes corresponding to the usual classification of soft white wheats, the following result is obtained:—

Principal results of t valuations

	Number of Samples.				
	Soft white.	Hard white.	Soft red.	Hard red.	Total.
Superior samples, 44*s.* to 48*s.* per quarter of 496 lbs.	101	—	—	—	101
Grade No. 1., 41*s.* 6*d.* to 43*s.* 6*d.* " -	123	13	10	—	146
Grade No. 2., 39*s.* 6*d.* to 41*s.* " -	73	83	56	—	212
Ordinary, 37*s.* to 39*s.* " -	51	61	74	68	254
Inferior, below 37*s.* " -	9	10	20	75	114
Total No. of samples - - -	357	167	160	143	827
	s. d.	*s. d.*	*s. d.*	*s. d.*	*s. d.*
Average price per quarter - - -	41 9	39 5	38 5	36 1	39 8

It will be seen that wheats equal or superior in value to grades numbers 1 and 2 of white wheat form the greater portion of the collection, numbering in fact 459

samples, against 368 ordinary and inferior samples; moreover, out of a total of 827 samples, 101 must be described as being of a very superior quality, whilst only 114 samples are decidedly inferior.

Comparison of the prices realised by the Indian samples with the current quotations of foreign wheats.

4. The surprisingly favourable character of these results will be clearly perceived on comparing the prices assigned to the Indian samples with the quotations current at the time of valuation for the different kinds of wheat in the London market, viz.:—

	per quarter of	
Danzig	496 lbs.	42*s*. to 46*s*.
Australian	„	47*s*. to 48*s*.
Californian and Oregon	„	44*s*. to 45*s*.
White American and Canadian	„	42*s*. to 46*s*.
No. 1 Milwaukee	„	42*s*. to 43*s*.
No. 2 „	„	40*s*. to 41*s*.
No. 2 Spring	„	38*s*. to 40*s*.
No. 3 „	„	36*s*. to 37*s*.

No higher quotations than those realized by numbers of Indian samples appear in this list, the highest being the quotation for Australian wheat at 47*s*. to 48*s*. per quarter, a price which has been realized by a certain number of the best Indian samples. It will be likewise seen that the most numerous classes in the Indian collection are those which correspond in value with the better kinds of American wheat quoted in the list.

Comparison with current quotations of English wheat.

5. The valuations of the Indian wheats compare even more favourably with the prices of English wheat. At the time of valuation the quotations for new English white were from 30*s*. to 45*s*. per quarter (of 480 lbs.), and for new English red from 30*s*. to 41*s*. per quarter, while the average weekly rate throughout the United Kingdom was only 38*s*. per quarter. It will be seen that the Indian collection contains numbers of samples exceeding in value the highest of these quotations, while the average for the whole collection amounts to 39*s*. 8*d*. per quarter, or to nearly 2*s*. above the average of the United Kingdom. It must, however, be explained that the last English crop was one of exceptionally poor quality, as shown by the fact that at the date of the valuations (beginning of February 1879), the bulk of the English wheats were almost unsaleable at Mark Lane in consequence of their poor condition.

India admirably suited for the growth of the finest qualities of both soft and hard wheat.

6. The above facts conclusively show that India is well adapted for the growth of wheat of the finest quality. It must be, however, kept in mind that a considerable number of the samples sent from India were far superior to any Indian wheat usually seen in the London market, and that without more local information than we now possess it is not possible to decide whether these fine varieties could at present be forthcoming in quantities sufficient for the development of an important trade. In fact, Messrs. Finlay, Scott, & Co. state, in a letter printed among the enclosures to the despatch from the Government of India on the subject, that on the Bombay side the supply of the best qualities is very limited, as compared with the common qualities, and that the prices of the fine wheats are so well kept up in India itself that more profit is to be obtained on the shipment of inferior than of fine wheat. Be this, however, as it may, one result is clearly apparent from the mere inspection of the samples, and that is that the cultivation of the finest wheat cannot be considered as anything exceptional, but that it is spread over a considerable portion of the country. If samples like those mentioned in the valuations as being equal to the finest Australian or Californian had only been sent from a few places their occurrence might have been explained as due to unusually favourable conditions which do not apply to the country at large. But samples of equal or only slightly inferior value were sent from district after district. It is not from one nor half-a-dozen places that the best samples were received, but probably from more than 100 different localities. More than 60 districts sent one or more samples of soft white wheat reported as superior to No. 1, and valued at from 44*s*. to 48*s*. These 60 districts include the greater portion of Behar, the North-West Provinces, Oude, and the Central Provinces; and it is probable that but for the weevilled condition in which most of their samples were received, the same might have been said of the Punjab and Sind. In addition, perhaps a dozen more districts in Bengal, Bombay, and Berar may be counted, which though not producing soft white of a similarly high character, yet grow a hard white wheat equal to the finest wheat of the same kind grown anywhere. The provinces above mentioned include the whole of the wheat-growing area proper in India; Madras, Mysore, and

Burma are evidently but little adapted for the cultivation of wheat, the few samples received from them being mostly very inferior in quality. We thus arrive at the important conclusion that throughout the wheat-growing part of India the cultivation of the finest varieties is well understood and extensively practised. This is a most important fact, bearing not only on the development of the wheat trade, but also on agricultural progress in India generally, for it indicates the existence of a much higher agricultural skill than India has usually been credited with. We often hear of the ignorance of the Indian ryots, and of their careless and shiftless modes of cultivation. But a glance at the collection of Indian wheats under report proves that there must exist all over India a numerous class of agriculturalists to whom such a reproach cannot apply. It is impossible to avoid the conclusion that the ryots who grew those samples of soft wheat equal to the finest Australian, or of hard wheat equal to the finest Kubanka, must be as keenly alive to the advantages of selection of seed and of careful cultivation as the most intelligent English farmer; and our samples prove that such ryots are to be found in almost every wheat-growing district.

Observation on the present low level of prices.

7. With regard to the prices assigned to the Indian samples, it is necessary to remark that although they compare very favourably with the quotations of the various English and foreign wheats in the market, yet they afford a much smaller margin, as compared with the prices current in India, than has been the case in former years. It must be observed, however, that the exceedingly low range of prices for wheat and other grains now ruling in European markets seems quite exceptional, whilst the prices in India are unusually high. As pointed out in the "Economist" of the 1st of March of the current year, the price of wheat in England has only twice within the last 100 years fallen to the present level, viz., in 1835 and in 1851. Two causes have mainly contributed to bring about the present state of the market. The crops produced in America for two years in succession have been exceptionally heavy, while the existing financial depression and distrust combine to restrict the scale of commercial operations; so that, notwithstanding the cheapness of wheat, the stocks in England continue low, as the grain merchants cannot obtain from the banks the usual advances. In India, on the contrary, the prices ruling in the chief producing districts are higher than in normal years, partly on account of the exhaustion of stocks by the recent famines, partly on account of the apprehensions excited by the unfavourable season in the North-West Provinces and in the Punjab. So far these causes have undoubtedly resulted in a very considerable diminution in the arrivals of Indian wheat in this market.

Comparison of India with other wheat-producing countries.

8. But whatever may be the case, under such exceptional conditions as those now prevailing, all the facts point to the conclusion that, as regards wheat, India may shortly become one of the chief sources of supply for the United Kingdom. It must be borne in mind that India is one of the largest wheat-producing countries in the world. The production of the United Kingdom amounts to only about 10,000,000 to 13,000,000 quarters per annum. Austro-Hungary, Italy, and Spain each produce about the same quantity. Germany produces from 15,000,000 to 18,000,000 quarters, and the two countries which produce the largest amounts are France and Russia, each producing from 30,000,000 to 35,000,000 quarters per annum. Both are surpassed by the United States, which produced during each of the past two years upwards of 45,000,000 quarters. No complete statistics exist for India, but we know that the Punjab alone produces about as much as the United Kingdom, Oude about 3,500,000 quarters, the Central Provinces about 3,000,000, and Bombay not much less. The production in the North-West Provinces proper has never been estimated, but must be fully equal to that of the Punjab, and that of Behar is also known to be considerable. Thus the yearly production of the provinces under direct British rule will amount to from 30,000,000 to 35,000,000 quarters, or to the same quantity as that produced by Russia or France. But if the native States in the Punjab, Rajpootana, Malwa, Bundelkund, and Guzerat be added, in all of which wheat is largely cultivated, it will be found that India must be considered as being, next to the United States, the largest wheat-producing country in the world.

The true policy for India in the matter of wheat is to encourage the cultiva-

9. The prospect appears even more encouraging when viewed in connexion with the results already mentioned of the examination of the samples under report. Whilst as regards cotton and some other produce the soil and climate of India are rather at a disadvantage with those of other competing countries, as regards wheat India is proved to be admirably adapted for the production of the finest qualities of both soft and hard wheat. This is a circumstance of great importance, because the supply of

tion of the finest varieties.

the fine varieties is much more restricted than that of the commoner kinds. In considering the competition in the market of the world, France, although producing as much as Russia, may be left out of account, as its production, large though it be, barely suffices for its own consumption. Thus, practically, Russia and the United States are the chief competing countries to be considered. But in both countries the area for the production of fine full grown winter wheat is comparatively restricted. Spring wheat forms a very large proportion of the Russian supply, as the greater part of the country is too cold for the growth of winter wheat; in the United States likewise, the climate of Minnesota, Iowa, and the other States on the Canadian border, in which the cultivation of wheat has been recently so rapidly extending, is only adapted for the growth of spring wheat. This wheat, which is mostly red, is not only inferior in quality to a good winter wheat, but it produces also a much lighter crop, not more than 12 to 15 bushels per acre. Thus, however much the cultivation may extend in these parts, it is not likely to affect the supply of the finest varieties, such as are grown in some of the older States or in California.

The true policy for India, therefore, appears to consist in taking advantage of her climatic position, and cultivating for export only the finest varieties, in which the competition of Russia and the Far West in America is not likely to be as severe as in the case of the common varieties. Such a policy receives additional recommendation from the fact that the price of the finer varieties is always better kept up, and suffers less in a falling market than that of the common wheat. The higher priced wheat will likewise support better the necessarily high charges of transport and freight.

Causes of the inferior quality of the bulk of Indian shipments of wheat.

10. The bulk of the Indian wheat as actually shipped to this country is, however, by no means of a high quality, as the good average Indian wheat chiefly known in this market only classes with grade No. 2. There is room for considerable improvement both in the quality of the grain itself, and as regards the condition in which it is sent to this market. The three principal causes which at present tend to depreciate Indian wheat are,—(*a*) the mixture of different varieties of wheat, white and red, hard and soft in the same sample; (*b*) the admixture of other grain, such as barley, gram, rape, or linseed; and (*c*) the presence of foreign matters, such as chaff, earth, lumps of clay, and dirt of every description.

(*a*.) With regard to the mixture of different varieties of wheat, that of hard with soft wheat is the most objectionable, as also the most frequent. The mixture of soft red with soft white wheat depreciates the price to a certain extent, though many samples of such mixed wheat were highly reported on, but the presence of a considerable proportion of hard grain reduces the value materially.

(*b*.) The admixture of foreign grains reduces even more the value of the wheat. Many samples from the Punjab, Sind, and also occasionally from Bengal and the North-west Provinces, are so mixed with barley as to be quite unfit for milling, and the presence of smaller quantities of gram or oilseeds is frequently met with in samples coming from every province.

(*c*.) The third cause of depreciation—the presence of chaff, earth, and other extraneous matters—is likewise more noticeable than would be the case if the wheat trade were properly organised.

The existing causes of depreciation of Indian wheat easily removable.

Excellent seed may be found in almost every wheat-growing district.

Cheap winnowing and screening appliances.

11. Fortunately no serious difficulties seem to stand in the way of effecting a great and rapid change in the character of the wheat exported from India. The quality of the grain itself depends mainly upon the care exercised in the selection of seed. The collection of samples here reported on proves, however, that in almost every district excellent qualities of wheat may be already found. There is therefore no question of acclimatising seed imported from England or other countries, but simply of extending the area of the fine varieties already cultivated, and if a regular demand for the better qualities should spring up, there is every probability that the mere extension of the cultivation already existing would be able to meet it. As regards the condition of the wheat, the considerable quantities of chaff and dirt of all kinds, the presence of which depreciates the Indian wheat on the average by at least 2*s*. 6*d*. per quarter, could be easily removed by the introduction of comparatively simple screening and winnowing machinery.

Advantages which would result from the introduction of threshing machines.

12. The measures so far suggested are all capable of easy execution, and attention to the points mentioned would contribute to improve materially the position of Indian wheat in the English market. But, in addition, the introduction of steam threshing machinery has recently been strongly recommended. No doubt, if such machinery

came to be extensively adopted in India, the benefit derived from its use would be considerable. In view, however, of the great cost and general unsuitability of such machines to the Indian system of farming, it is impossible to entertain the hope that they could ever be adopted for general use in India. But it cannot be doubted that in some of the principal exporting districts such machines might be used with the greatest advantage. In addition to the clean condition of the grain, a great saving would be effected in the time required for the preparation of the crop for the market and its shipment to this country. In this manner the ravages of the weevil, one of the greatest obstacles to the development of the Indian wheat trade, would be reduced to a minimum, and Indian wheat could be delivered in this country just at that period before the gathering of the English harvest when stocks are lowest, and prices at their highest. It may be mentioned that the introduction of steam threshing machinery into Russia, and quite recently into Egypt has resulted in a considerable improvement in the quality in the wheat sent from these two countries.

Opening up of new markets for Indian wheat. The hard white wheat most suitable for Italy.

13. The suggestions contained in the preceding paragraphs bear upon the measures required for developing in India the production of a better quality of wheat than that now principally exported. But of equal importance to the increase of the supply of good wheat in India are any measures which might lead to an increased demand for the Indian wheats by the opening up of new markets. I may remark on this point, that in the opinion of the valuer to whom the samples were submitted, the Mediterranean would afford for some of the varieties a much better market than England. This applies particularly to a fine, hard, white wheat grown in many parts of India. Many of the samples of this kind sent from Bengal, the North-west Provinces, but especially from Bombay, were equal to if not better than the finest Kubanka wheat, which is usually accepted as the type of the best wheat of this class. This kind of wheat is specially suited to the manufacture of macaroni, which is so important an industry in Genoa, Naples, and other places in Italy. Hard white wheat is on this account in great request there, and may be frequently disposed of at prices much in advance of the London quotations. The difference in favour of Italy may sometimes amount to as much as 5*s*. per quarter. As, moreover, the shipping charges from India to Italy will be lower than those to England, that country seems to be the natural outlet for this description of Indian wheat, which up to the present has not been sufficiently appreciated in England.

Increased adaptability of the Indian wheat for the purposes of the English miller.

14. There is another point which has an important bearing on the demand for Indian wheat. Its consumption in this country depends mainly upon its adaptability for the purposes of the miller. It must be kept in mind that the recent remarkable development of the export trade in Indian wheat was to a considerable extent influenced by the improvements effected in this country in the mode of grinding it. This development was of course favoured by the opening of the Suez Canal, and by other circumstances; but the principal cause was the discovery that by previous wetting Indian wheat is rendered perfectly suitable for grinding in the usual way, and also that an admixture of the dry Indian wheat with the English grain is very advantageous, especially after a wet harvest.

Recent improvements in milling machinery.

15. There is every reason to suppose that just as in the past changes or improvements in the milling process have affected the demand for Indian wheat, so in the future further improvements may result in increasing the demand. The improvements which have been effected during the last few years in milling machinery are very considerable. In addition to the usual system of grinding the grain by means of millstones, two new methods have been prominently brought into notice. The one consists in crushing the wheat by passing it repeatedly between chilled iron rollers. This is the method now universally used in Hungary, and it produces the finest flour in the market. The superiority of the flour prepared in this way to that produced by the ordinary method is shown by the quotations, which, for instance, on the 10th of February last ranged between 41*s*. and 55*s*. per sack of 280 lbs. of Hungarian flour, whilst the highest price for town-made flour was only 40*s*. The third and most recent system consists in a combination of the grindstones with crushing cylinders. The grain is first broken up between grindstones so as to convert it into a kind of semolina or soojee, which is subsequently crushed between smooth porcelain cylinders.

Suggested experiments in order to

16. I had occasion to inspect the two new systems here referred to at the recent Paris Exhibition, and I concur with the opinion which has been expressed in the

ascertain capabilities of Indian wheat for the manufacture of the finest flour.

accompanying letter by Mr. Alexander Smith, of Cornhill, to whom I am indebted for the laborious series of valuations on which this Report is founded, as to the expediency of ascertaining by direct experiment the suitability of the Indian wheat for the production of the finest flour, with the aid of the new milling apparatus here referred to. Mr. Smith expresses his surprise at seeing so many specimens of really very fine wheats among the samples submitted to him. He says these extra fine wheats are unknown here, and that it would be of the utmost importance to get some of them converted into flour, and even into bread. He was particularly struck with the fine hard wheat, which he thinks is not sufficiently appreciated in this market, and he refers to some experiments undertaken some time ago, at his instance, with flour produced from the hard St. Petersburgh wheat, which yielded per sack of 280 lbs. 110 four-pound loaves of fine bread, whereas the best English wheat yields only 90 to 92 loaves. Some of the Indian samples of hard wheat are even finer than the best hard St. Petersburg or Kubanka wheat; and Mr. Smith is of opinion that the methods of milling recently introduced, in which the grindstones are replaced by crushing cylinders, will do away with the objection formerly entertained to the hard wheat on account of its being injurious to the grindstone.

For each milling experiment a quantity of about 20 quarters would be required; so that to test the three systems of milling now in use, 60 quarters, or about 350 maunds, of each variety of wheat would have to be procured. Mr. Smith suggests that the following sorts should be tried:—

1st. Fine hard white.
2nd. Fine soft red.
3rd. Fine soft white.
4th. Good average soft white, No. 2.

Of these, the three sorts first mentioned are not obtainable in the London market. The quality last mentioned as "good average white, about No. 2," may, indeed, be purchased here, but it is often so much mixed and dirty that it would be preferable to have it likewise imported directly from India.

It may be pointed out that the greater portion of the expenditure on account of such experiments would be recovered from the sale of the resulting flour.

Districts from which samples suitable for the experiments could be most readily obtained.

17. It should not be difficult to procure the quantities required of the wheats named for the proposed experiments. The lists of the best samples of each of the different varieties, and their place of production, at pp. 19 to 23 of the Report, supply an indication of the places in which these varieties are obtainable. Although generally the best specimens of soft wheat are all produced north, and the best specimens of hard wheat south, of the Nerbudda, there are many districts in the North-West Provinces or in the Central Provinces in which all the four varieties required may be found together. The finest specimens of hard white wheat comes from the Khandesh district in the Bombay Presidency, but wheat almost equal to it is found in many parts of the North-West Provinces, and even as close to Calcutta as the Maldah district. The simplest way would be to entrust Mr. Buck, the Director of Agriculture of the North-West Provinces, with the duty of purchasing the necessary quantities, approaching as nearly as possible the quality of the samples Nos. 1 or 2, Nos. 4, 6, and 7, of the set of samples which accompany this Report, and the description of which is given in Appendix B., p. 10. The districts of Cawnpore, Bulundshahr, or Meerut appear the most suitable for such a purpose, as from each of them excellent samples of all four varieties have been received.

Request for a collection of fresh samples from the Punjab.

18. I would take the same opportunity for suggesting that a fresh collection of samples should be forwarded from the Punjab. As pointed out on page 13 of the Report, the collection sent from that province would, in all probability, have scarcely done justice to it, even had it arrived uninjured. But by far the greater proportion of samples were either totally destroyed, or at least partially damaged by weevil. A number of most important wheat-growing districts are, in consequence, left unrepresented even by a single sample, and the whole province, containing 30 districts, and producing annually more than 10,000,000 quarters of wheat, or about as much as the whole United Kingdom, is only represented by 19 sound samples. From such scanty materials it is of course impossible to draw any reliable conclusions with regard to the character of the cultivation of wheat in the Punjab. Examples of the two extremes of Indian agriculture may be found there side by side. On the one hand, the specimen of soft white wheat sent from Delhi is the best sample in the whole collection, and several other samples are of equal excellence; on the other hand, there are a number

of samples, among the red wheats especially, which could only have been grown from seed apparently degenerated through a long course of neglect. As observed in the Report, the samples in question, in addition to foreign substances, contain a large proportion of grains of wheat of so stunted a growth and shrivelled appearance as to resemble rather grass-seed than a cultivated grain. The cultivation of such a degenerate wheat is the more astonishing, as, to judge by our samples, seed of first-rate quality seems to be produced in the same or adjoining districts, so that the remedy for the evil is close at hand. One remark may be made on this subject. If the collection presents a fair picture of the varieties cultivated in the Punjab, then it must be inferred that the cultivation of wheat in the Punjab proper, that is, the districts between the Indus and the Sutlej, is conducted with considerably less skill and care than in the neighbouring North-West Provinces. By far the greater number of the samples sent from the Punjab districts consist of red wheat, frequently of a very inferior quality; in fact, the proportion of inferior samples is greater in the Punjab collection than in that from any other province, Madras, Mysore, and Burma alone excepted, which can hardly be classed among the wheat-producing provinces. But on account of the incompleteness of the collection, it would be hazardous to draw any definite conclusions.

Punjab probably destined to become the chief wheat exporting province of India.

19. The uncertainty in which the question of the quality of the Punjab wheats is left is the more a matter of regret as that province seems capable of becoming the chief wheat exporting district of India. As I had occasion recently to point out, there is no part of India in which, in proportion to the population, wheat is grown to the same extent as in the Punjab, the acreage now under wheat amounting to more than 6,000,000 acres, and being capable of rapid extension.

Hitherto the only railway available for the wheat coming from the Punjab has been the Punjab and Delhi and the East Indian line, so that the producing districts were at a distance of from 1,100 to 1,500 miles from the port (Calcutta).

By the Indus Valley Railway the distance to the port (Kurrachee) will only amount to from 600 to 1,000 miles. The reduction in the railway carriage will thus be considerable, amounting on the average to about 6*s*. per quarter. There will be a further saving of 2*s*. per quarter on the freight from Kurrachee to London as compared with the freight from Calcutta to London. The total saving effected by the Kurrachee route will thus amount to about 8*s*. per quarter, and the total expense of carriage and freight to London will be from 15*s*. to 20*s*. per quarter.* Considering that the price of wheat in London may be taken at the present time at from 40*s*. to 45*s*. per quarter, and that in the Punjab in normal years the prices range from 9 to 14 rupees for the same quantity, a saving of 8*s*. will often make the whole difference between a profitable

* The saving on the inland carriage has been made on the basis of the special reduced rate for long distances now charged on the East Indian Railway, viz., 18·7 pies per 100 maunds. The rates on the Sind, Punjab, and Delhi line, parts of which would have to be used both in exporting viâ Calcutta, as well as viâ Kurrachee, are a little higher, viz., 25 pies per 100 maunds. For the purpose of a rough calculation, however, it will be sufficient to adopt the East Indian Railway rate of 18·7 pies for the whole distance, especially as it may be presumed that with an increased wheat traffic the Sind, Punjab, and Delhi Railway would bring down its rates to the lower level.

—	Punjab to London, viâ Kurrachee.		Punjab to London, viâ Calcutta.	
	Minimum Distance, 600 miles (Multan).	Maximum Distance, 1,000 miles (Umballa or Rawulpindi).	Minimum Distance, 1,100 miles (Umballa).	Maximum Distance, 1,500 miles (Multan or Rawulpindi).
	s. d.	*s. d.*	*s. d.*	*s. d.*
Carriage by rail to the port, per quarter.	6 10	11 5	12 6	17 2
Freight by sea to London, per quarter.	8 0	8 0	10 0	10 0

This shows an advantage of 5*s*. 8*d*. on the railway carriage and 2*s*. on the sea freight, or nearly 8*s*. per quarter in favour of the Kurrachee route.

As the Indus Valley Railway is almost finished, with the exception of the bridge at Sukkur, experience will shortly show whether the line will be able to convey as large quantities of merchandise at rates as low as those now charged on the East Indian line, and it is only the inability of the Indus Valley Railway to accomplish this which would affect the above forecast.

and a losing trade, that is between a trade of the largest dimensions and no trade at all.

The completion of the Indus Valley Railway is thus calculated to bring about a complete revolution in the wheat trade of India, which is likely to assume in the Punjab a magnitude considerably greater than that which it is likely to attain in the districts from which the wheat is at present exported.

These few observations on the special interest attaching to the exact knowledge of the varieties of wheat cultivated in the Punjab will, I trust, be considered to justify the adoption of the suggestion made above for the collection of a new set of samples in that province.

Suggested chemical analysis of the principal varieties of Indian wheat.

20. I beg likewise to suggest that it is very desirable to obtain a detailed chemical analysis of the chief varieties of wheat referred to in the accompanying Report. An opinion has been recently expressed that a proof is afforded of the exhaustion of Indian soils by the very low per-centages of phosphoric acid contained in the ash of the Indian wheats. It would be desirable to test the correctness of this opinion. A detailed analysis would further show whether the difference in quality between hard and soft wheat is due to a difference in chemical composition, the hard wheat appearing to be much richer in nitrogenous matter than the soft wheat. All these various points could be satisfactorily settled by analysing samples of the four different varieties, soft white, soft red, hard white, and hard red. For the sake of comparison samples of English wheats and of Australian and Californian should be analysed at the same time.

Request for the statistical information collected in India with regard to wheat.

21. In conclusion, I beg to refer again to the great importance of obtaining from India the detailed statistical information which has been collected under the orders of the Government of India mentioned at the beginning of this Memorandum. This information is urgently required to complete that which is afforded by the direct examination of the samples, and only after its receipt will it be possible to compile a complete and reliable account of the cultivation of wheat in India, an account which under the present circumstances would be exceedingly useful both to the Government and to the mercantile community.

J. F. W.

APPENDIX A.

TABLE showing for each Province, as also for all India, the number of samples forwarded by the Government of India of wheat of each of the several varieties, together with their range in price, taken at the beginning of February 1879.

Note.—The classification, according to price, adopted in this Table applies, strictly speaking, only to the soft white wheats. It has been extended to the three other varieties in order to give a general idea of the number of samples of all varieties comprised within the same range of prices.

Description of Wheat.	Number of Samples from the under-mentioned Provinces.											
	Bengal.	N.W. Provinces and Oude.	Ajmere and Mhairwara.	Punjab.	Sind.	Bombay.	Central Provinces.	Berar.	Madras.	Mysore.	Burma.	All India.
A. *Soft and semi-hard white wheat, or mixed with predominance of soft white.*												
Superior samples 44*s.* to 48*s.* per quarter	6	81	—	7	—	—	7	—	—	—	—	101
Grade No. I. 41*s.* 6*d.* to 43*s.* 6*d.* ,,	9	96	—	4	8	3	3	—	—	—	—	123
,, No. II. 39*s.* 6*d.* to 41*s.* ,,	5	44	—	4	14	2	4	—	—	—	—	73
Ordinary 37*s.* to 39*s.* ,,	5	26	—	1	17	—	2	—	—	—	—	51
Inferior below 37*s.* ,,	2	4	—	1	2	—	—	—	—	—	—	9
Total soft white samples -	27	251	—	17	41	5	16	—	—	—	—	357
Average price per quarter -	s. d. 41 4	s. d. 42 0	s. d. —	s. d. 42 8	s. d. 39 8	s. d. 42 1	s. d. 43 3	s. d. —	s. d. —	s. d. —	s. d. —	s. d. 41 9
B. *Hard white wheat.*												
Grade No. I. 41*s.* 6*d.* to 43*s.* 6*d.* per quarter	3	5	—	—	—	3	—	2	-	—	—	13
,, No. II. 39*s.* 6*d.* to 41*s.* ,,	4	23	1	2	—	29	5	19	—	—	—	83
Ordinary 37*s.* to 39*s.* ,,	5	8	—	—	8	27	3	10	—	—	—	61
Inferior below 37*s.* ,,	—	1	—	1	7	1	—	—	—	—	—	10
Total hard white samples -	12	37	1	3	15	60	8	31	—	—	—	167
Average price per quarter -	s. d. 39 10	s. d. 40 1	s. d. 40 0	s. d. 38 0	s. d. 37 2	s. d. 39 5	s. d. 39 6	s. d. 39 8	s. d. —	s. d. —	s. d. —	s. d. 39 5
C. *Soft and semi-hard red wheat, or mixed with predominance of soft red.*												
Grade No. I. 41*s.* 6*d.* to 43*s.* 6*d.* per quarter	3	2	2	2	—	—	1	—	—	—	—	10
,, No. II. 39*s.* 6*d.* to 41*s.* ,,	11	23	1	7	1	8	2	3	—	—	—	56
Ordinary 37*s.* to 39*s.* ,,	6	38	—	11	—	5	10	4	—	—	—	74
Inferior below 37*s.* ,,	1	8	—	10	1	—	—	—	—	—	—	20
Total soft red samples -	21	71	3	30	2	13	13	7	—	—	—	160
Average price per quarter -	s. d. 39 7	s. d. 38 4	s. d. 41 8	s. d. 36 8	s. d. 37 9	s. d. 39 8	s. d. 39 1	s. d. 39 3	s. d. —	s. d. —	s. d. —	s. d. 38 5
D. *Hard red wheat.*												
Ordinary 37*s.* to 39*s.* per quarter -	2	4	1	—	—	31	11	13	5	1	—	68
Inferior below 37*s.* ,, -	6	11	—	4	—	30	1	3	13	5	2	75
Total hard red samples -	8	15	1	4	—	61	12	16	18	6	2	143
Average price per quarter -	s. d. 35 10	s. d. 33 10	s. d. 37 6	s. d. 33 0	s. d. —	s. d. 36 9	s. d. 37 4	s. d. 37 0	s. d. 36 1	s. d. 32 4	s. d. 34 3	s. d. 36 1
All varieties.												
Superior samples 44*s.* to 48*s.* per quarter	6	81	—	7	—	—	7	—	—	—	—	101
Grade No. I. 41*s.* 6*d.* to 43*s.* 6*d.* ,,	15	103	2	6	8	6	4	2	—	—	—	146
,, No. II. 39*s.* 6*d.* to 41*s.* ,,	20	90	2	13	15	39	11	22	—	—	—	212
Ordinary 37*s.* to 39*s.* ,,	18	76	1	12	25	63	26	27	5	1	—	254
Inferior below 37*s.* ,,	9	24	—	16	10	31	1	3	13	5	2	114
Total number of samples -	68	374	5	54	58	139	49	54	18	6	2	827
Average price per quarter of 496 lbs.	s. d. 39 10	s. d. 40 9	s. d. 40 6	s. d. 38 5	s. d. 39 0	s. d. 38 3	s. d. 40 1	s. d. 38 10	s. d. 36 1	s. d. 32 4	s. d. 34 3	s. d. 39 8

Appendix B.

*Typical Collection of Samples illustrating the principal varieties of Wheat grown in India.**

Nos. 1 and 2.—Samples of the finest kind of soft white wheat, equal to the best Australian. No. 1 is a sample of wheat grown near Delhi ("Safed," No. 273), and is the best of all as regards colour and shape of grain, but as regards softness it is excelled by the second sample, grown in the Meerut district ("Safed," No. 397). Both were valued at the highest figure of any wheat at the time (February 1879) in the London market, viz., 48*s.* per quarter, and the weight per bushel is high, 65 lbs. in the case of the first, and 62 lbs. in that of the second sample. Samples approaching these two in quality were received from about 60 districts, comprising the greater part of Behar, the North-West Provinces, and Oude, the Central Provinces, the Punjab, and Sind.

No. 3.—Sample of good wheat, grade No. I., grown in the Sultanpur district of Oude ("Samdhara," No. 711), and valued at 43*s.* 6*d.* per quarter.

No. 4.—Sample of good average wheat, grade No. II. or rather better, grown in the Chumparun district of Behar ("Hada," No. 154), valued at 40*s.* 6*d.* per quarter, and weighing 61 lbs. per bushel. This sample, like the previous one, differs from the two samples placed first by being mixed with a certain proportion of red and hard wheat, and is less uniform in appearance and colour than the best soft wheats placed first. These two specimens represent the two most numerous classes of the samples of soft white wheats in the present collection.

No. 5.—Sample of a peculiar wheat, resembling pearl barley in appearance, grown in the Meerut district ("Chunia," No. 401), valued at 43*s.* 6*d.* per quarter; weight 63½ lbs. per bushel. This specimen is included rather as a curiosity, the variety it represents being cultivated only locally in some parts of the North-West Provinces, Oude, the Punjab, and Sind.

No. 6.—Sample of fine hard white wheat, equal to the best St. Petersburg or Kubanka, grown in the Khandesh district ("Bansi," No. 605), valued at 42*s.* 6*d.* per quarter, and weighing 62½ lbs. per bushel. Wheat of similar quality is cultivated throughout the Deccan and Berar. Excellent samples were also sent from the North-West Provinces, Oude, and Bengal. This kind is most in request in Italy for the manufacture of macaroni, where it would fetch a considerably higher price than in this market.

No. 7.—Sample of fine soft red, grown in Ajmere ("Baja maigee," No. 588), valued at 41*s.* 6*d.* per quarter, and weighing 61 lbs. per bushel. Wheat of similar quality may be found almost throughout the whole of Northern India, and as far south as Berar.

No. 8.—Sample of hard red wheat, grown in Guzerat (No. 1a), valued at 37*s.* 6*d.* per quarter. This variety is very unsuitable for the European market, and its growth should not be encouraged. It is found mainly in the Peninsula, or south of the Nerbudda, as far as Mysore and Tinnevelly, and its prevalence usually indicates the unsuitability of that part of the country for the production of the better kinds of wheat.

No. 9.—A specimen of degenerate red wheat, from the Kurnool district in the Punjab ("Gehun lal," No. 260), valued at 31*s.* 6*d.*, is included in this collection as an example, and by no means the worst example, in the present collection, of a grain the cultivation of which should be discouraged. It weighs only 53½ lbs. per bushel.

* A certain number of duplicates of the Collection here referred to have been forwarded to India with the copies of this Report.

REPORT ON THE SAMPLES.

1. The samples of wheat which the Government of India, in their Resolution of 14th March 1877, directed to be forwarded to the Secretary of State for India for valuation and report, were received at various dates during the years 1877 and 1878 as enclosures to the Despatches noted in the margin,* the final consignment of samples having been received only in December last. The total number of samples forwarded amounted to 1,152, and these were contributed by the different provinces in the following proportion:—

*No. 32 of 6th Aug. 1877.
„ 35 , 27th „ „
„ 37 , 27th Sept. „
„ 39 , 8th Nov. „
„ 40 , 7th Dec. „
„ 2 , 18th Jan. 1878.
„ 8 , 22nd Mar. „
„ 13 , 15th July „
„ 17 , 29th „ „
„ 23 , 31st Oct. „

Bengal	117	samples.
North-West Provinces and Oude	448	„
Ajmere and Mhairwarra	8	„
Punjab	101	„
Sind	122	„
Bombay	172	„
Central Provinces	69	„
Berar	58	„
Madras	29	„
Mysore	26	„
Burma	2	„
Total	1,152	„

In addition to the collection of samples, the Government of India in the Resolution above referred to directed the collection of statistical details on the subject of wheat. Until that information arrives, it would be useless to undertake the elaboration of the very imperfect materials at present available. No attempt therefore has been made to give a statistical account of the cultivation of wheat in India, and the present Report will contain solely the results of the examination of the samples sent to this country.

Condition of the Samples.

2. The condition in which the samples arrived here illustrates one of the principal difficulties of the Indian wheat trade. As will be seen from the figures noted below,

Name of Province.	Total No. of Samples.	No. of Samples destroyed by weevil, lost, or otherwise unfit for valuation.	No. of Samples valued.	
			In a more or less weeviled condition.	In a sound or nearly sound condition.
Bengal	117	49	21	47
North-West Provinces and Oude	448	74	134	240
Ajmere and Mhairwarra	8	3	2	3
Punjab	101	47	35	19
Sind	122	64	58	—
Bombay	172	33	34	105
Central Provinces	69	20	9	40
Berar	58	4	23	31
Madras	29	11*	13	5
Mysore	26	20*	1	5
Burma	2	—	—	2
Total	1,152	325	330	497

* Three of the Madras and fifteen of the Mysore samples were evidently of the nature of spelt, with the husk adhering to the grain. They were all reported on as unmarketable in this country, and would require to be husked in the same way as paddy.

more than one half of all the samples were found on arrival to be more or less damaged by weevil. Of the 325 samples entered as lost or otherwise unfit for valua-

tion, a few were sent in quantities insufficient for examination, others (from Madras and Mysore) were forwarded unhusked, some were lost owing to injury in transit to the bag or case containing the samples, but the great majority were found to be unfit for valuation on account of excessive weevilling. Thus, only 827 samples were left for valuation, and even of these, 330 samples were more or less damaged by weevil, though not to such an extent as to render a valuation entirely misleading. Only 497 samples out of a total of 1,152 were in a perfectly sound, or at any rate nearly sound, condition.

Some provinces are much worse off in this respect than others. Thus in the case of Sind, out of 122 samples, there was not one perfectly sound, although 58 were still in a tolerably fit condition for valuation. Out of the 101 samples sent from the Punjab, almost one half, viz., 47, were unfit for valuation, and of the remainder only 19 were perfectly sound, whilst 35 were more or less weevilled. It is clear that from this reason the valuation of the Sind and Punjab series of samples will show a rather lower range of prices than would have been obtained if all the samples had been sound. The samples from Bombay and the Central Provinces are those which on the whole were received in the best condition, considerably more than one half of all the samples having remained perfectly sound.

The causes of this excessive damage by weevil are not far to seek. The best way of preventing this damage would have been to have collected the samples as soon as possible after harvest, and to have forwarded them to London by the quickest route. It appears, however, from an examination of the dates, that most of the samples were collected a considerable time after harvest, and that their arrival in London was still further delayed by their being forwarded in the first instance to Calcutta. It is probable indeed that many of the samples were already weevilled before they left India. The Bengal samples, for instance, were packed each in a hermetically sealed tin case, so that no weevil could have found access to them during the voyage, and yet out of 117 samples 70 arrived more or less weevilled. It should be suggested that in future any samples of wheat or other grain to be forwarded to this country for valuation should be collected immediately after the harvest, and despatched direct to London. The parcel post will be found on the whole to supply the quickest, most convenient, and most economical mode of forwarding them.

It may be further remarked that, in order to obtain a fair valuation, it is necessary to have a sufficient quantity of the material for ascertaining the weight per bushel, a very important determination. Many of the samples forwarded, especially in the second consignment from the North-West Provinces, were quite insufficient for this purpose, in some cases not exceeding two ounces, whereas at least one pound is required.

Extent of wheat cultivation in India.

3. Taken as they stand, the collection of samples here reported on still affords the most complete representation of the cultivation of wheat in India which has been brought together up to the present time. As will be seen from the numbers already given in the previous paragraphs, every province of India is represented in the collection. Samples appear from every district which is known to produce wheat in any considerable quantity. If any wheat is cultivated at all in the districts which are not represented, all the information at our disposal leads to the inference that such cultivation is quite exceptional and insignificant in amount. The districts therefore from which samples have been sent may be assumed, without any important error, to represent the area within which wheat is cultivated in India. This area comprises by far the greater part of the country. It extends throughout every district of the North-West Provinces, Oude, the Punjab, Sind, the Central Provinces, and Berar. In the Bombay Presidency samples were received from every part, with the exception of some of the coast districts. Similarly, the few examples received from the Madras Presidency were sent mainly from some of the interior districts, scarcely any coming from the districts near the coast. In the Lower Provinces of Bengal, all the districts comprised within the limits of Behar are represented by samples, but in Bengal proper hardly any are sent from the districts within the Gangetic delta, or those adjoining the Brahmaputra, and the cultivation of wheat seems to be restricted to the more or less hilly parts south and west of the Ganges, the Maldah district being the only one on the other side of the river from which any fair samples of wheat were forwarded. The area of wheat cultivation in India may be thus defined as the whole of Northern India up to the Gangetic delta, and in Southern India the whole of the

table-land above the Ghâts. From British Burma only two samples were sent, and its cultivation there is evidently quite exceptional.

The collection of samples is less complete in the case of some of the provinces than of others, and is still further diminished by the loss or damage from weevil, which has already been referred to. The most complete collection of samples were sent from the North-West Provinces and Oude, from which 448 samples were received, so that, notwithstanding the usual loss of some of the samples from weevil, there is from almost every district an ample supply of sound samples representing the varieties of wheat usually cultivated in it. But in the case of almost every other province repeated instances occur in which all the samples from a particular district have been destroyed. Such is the case, for instance, with the Purneah district and the Sonthal pergunnahs in Bengal, the Umritsur, Rawul Pindee, Montgomery, and other districts of the Punjab, the Surat and Ahmednagar districts of the Bombay Presidency, the Jubbulpore district of the Central Provinces, and some others. Again, many districts are represented only by samples more or less weevilled, others by only inferior specimens of wheat, all the softer and therefore more valuable samples having been rendered unfit for valuation by excessive weevilling. But in most cases enough samples remain from the surrounding districts to enable one to infer with tolerable certainty the nature of the wheat cultivated in the districts from which a deficient supply was obtained. The most notable exception occurs in the Punjab. Even if the whole collection had arrived uninjured, it would have hardly done justice to that province, which, in proportion to its area and population, possesses the largest cultivation of wheat in India, and which, as shown at page 7 of this paper, there are grounds for thinking may before long become one of the most important centres of the export of wheat from that country. From the districts of the Punjab proper, beyond the Sutlej, in one half of the instances only one sample was sent per district, although there is no reason to suppose that the wheats grown in the Punjab present a smaller range of varieties than those cultivated in other parts of India. The Punjab collection must therefore have been far from complete, even as sent from India, but as in addition it has suffered more from weevil than that of any other province, Sind alone excepted, it affords only a very imperfect idea of the cultivation of wheat in the Punjab. A collection of 19 sound samples can hardly be considered to adequately represent a province containing 30 districts, and producing annually more than 10 million quarters of wheat, or about as much as the United Kingdom.

Native names of the different varieties.

4. Considerable confusion exists with regard to the native names of the different varieties of wheat. Many samples from Bombay and the Punjab had no names at all attached to them. Others are only distinguished as red or white wheat, or by similar generic designations in native languages, such as "safed" (white), "lal" (red), "surkh" (brick colour), "safed gehoon" (white wheat), "lal gehoon" (red wheat). The other Hindi, Persian, or Sanskrit synonyms for wheat, "kunuk," "gundum," or "saman," are also frequently employed, either alone or in connexion with the adjectives designating white or red. Whether by mistake or otherwise, the names appear sometimes to be misapplied. Thus, for instance, two samples called "lalia" (valuation Nos. 349 and 696), from Sitapur, consist of fine, soft, white wheat. In the same manner "lal disi" (No. 146), from Muzaffarpur, "kathia lalia" (No. 329), from Fyzabad, "lalia" (No. 478) from Lucknow, "lal pissia" (No. 504), from Etawah, and some other samples similarly described, are all white, notwithstanding the use of the adjective "lal" or red. On the other hand, a "white pissi" (No. 565), from Bilaspur, is described by the valuer as a good, soft, dingy red.

In addition to these generic designations, many specific names occur, which at first one would be inclined to consider as applying each to some well known variety of wheat with well defined characteristics. To a certain extent this seems to be the case. For instance, spread over all India from the Punjab to Bengal, and south as far as the Deccan, appear names like the following,—Daudi, Doodhia, Dawoodi, Daudkhani, Dudhia, which all seem to be derived from the same original name, "Dawood Khani" (Prince David's wheat). Throughout the Gangetic valley the samples sent under these names are of a nearly uniform character, almost invariably white and soft, and frequently of a very superior quality; but occasionally, and especially in the Deccan, a very inferior hard white wheat will go under this name. Another widespread series of names which appear to apply to the same description of wheat are the names Mundi, Mundia, Mundwa, Mandwa, Mondha, Mendha, which appear to be

equivalent with Muria, Marua, Marwa, Muria ratua, and Ratta, Ratwa, Ratua, as also with Ujra. These names occur throughout the North-West Provinces and Oude, as also in the adjoining portion of the Central Provinces, such as "Pissi mundi." They apply almost invariably to a beautiful, soft, white wheat, as a rule of a very high quality. The same holds good of Seta, Sitia, Setwa, and Satwa, as also of Saman bargehuna, Sambhari, Sambharia, or Samaria, names which are frequently met with in the same districts as the above. The name "pissi," frequently used in the Central Provinces, and occasionally in the North-West Provinces, seems invariably to imply a softness of grain, whether in white or red wheat.

But in the case of almost every other name samples of the most different character may be found. Thus, for instance, the names Gajar, Gajra, Gaja, designate, as a rule, in the Agra and Rohilkund divisions and adjoining parts of Oude, rather an inferior sort of white wheat. Very frequently the wheat is mixed, white and red, sometimes altogether red; but occasionally samples are to be found under the same name, consisting of the finest soft white wheat, equal in value to the best specimens produced in India. The same applies to the names Kathia, Katteh, Kuttya, and other variations, which in most parts of India designate rather a poor sort of wheat, white or red, but mostly hard, and yet occasionally have been applied to the most beautiful samples of soft white. The names Jamali and Gangajali so frequently met are indiscriminately applied to wheat of the most different characteristics.

It may indeed frequently happen that, even in cases in which the grain is of a different hardness or colour, the plant known under the same name may be distinguished by a certain similarity in outward appearance, and that only the character of the seed has become changed or degenerated. It is impossible to decide this point without possessing specimens of the whole plant. But sufficient evidence has been shown of the uncertain meaning of the Native names as applied to the grain itself to make it unsafe to adopt them as a basis of a commercial grouping of the samples sent from India. This has been therefore effected entirely on the basis of the appearance of the samples themselves, without regard to the names under which they were sent.

Description of the principal varieties of wheat grown in India.

5. The whole of the 827 samples submitted for valuation may be arranged in four principal groups, embracing the white soft, the white hard, the red soft, and the red hard wheat. The differences between these varieties when pure are very striking.

The pure soft white wheat has a grain usually of a bright straw colour, is opaque in appearance, and the fracture is white and floury, the inner portion of the grain being friable. This is the most valuable variety for the London market, as it yields the finest flour. The Indian wheat of this description is in special request on account of its dryness, which renders it useful for admixture with home-grown wheat containing too much moisture when harvested in wet seasons. It is also liked by millers, on account of the considerable increase in weight which it experiences in grinding in consequence of its power of absorbing moisture.

The pure hard white wheat has a grain of a translucent, flinty, or "ricey" appearance, varying in colour from a greyish or yellowish white to the lighter shades of brown, the fracture smooth and glass-like, and the grain hard and brittle. This kind of wheat is not much in favour in the London market, as the usual appliances of English millers do not seem to be so well adapted for dealing with it as with the soft white. It is, however, in considerable request in the Mediterranean, and especially in Italy, where it is used in the manufacture of macaroni. This is the reason why the quotation in Italy for wheat of this description is frequently as much as 5*s.* per quarter higher than that of the London market.

The pure soft red wheat is only distinguished from the soft white by the different colour of the skin, which varies in different varieties from an amber colour to a reddish brown. The fracture is as white and mealy as in the soft white wheat, and the grain as friable. It is eminently suitable for the English market. The Indian red varieties are, however, frequently rather smaller berried than the white varieties, and are usually much deteriorated by being mixed with barley, gram, and different oilseeds.

The hard red wheat is the darkest of any, being frequently of a dark brown colour. It is translucent in appearance, and the fracture is smooth and glass-like. It occupies the lowest position in the London market, as it is generally disliked by the millers.

Only a certain number of the samples, however, present these characteristics with distinctness. A considerable number consist of mixtures of the primary varieties in all possible proportions, white and red, soft and hard, from which the grains of each kind may be picked out. A considerable number too, though consisting of grain of uniform quality, exhibit in the character of the individual grain a transition between some of the four varieties above mentioned. For instance, in certain samples of the Bansi wheat, from the Central Provinces, some portions of the same individual grain may be opaque and soft, others translucent and hard. In the same way, many of the samples of wheat from the Punjab and from Bengal, although in general approaching in appearance the soft white wheat, are yet considerably harder than the pure soft wheat, and yet not hard enough to be classed with the hard wheat. These were usually described as semi-hard, and are in general classed with the soft white wheats. The same may be remarked even more frequently of red wheat, in which, perhaps, the greater number of samples is neither completely soft nor yet decidedly hard. In colour, again, the hard white passes by imperceptible transitions into the hard red, as there are many specimens of a light brown translucent grain which might be arbitrarily classed with either the hard red or with the hard white variety.

For the purpose of a simple classification, however, all the samples have been arranged in four groups, corresponding to the four distinctive varieties, the mixed or transitional samples being added to the group with the character of which they most nearly corresponded. Thus, all the semi-hard white wheats, or mixed wheats in which the soft white variety predominated, have been included in the same group with soft white. A peculiar description of short round berried wheat, in appearance like pearl barley, with a hardness considerably in excess of the usual soft wheat, has been likewise included with it. In the same manner, most of the semi-hard red and brown wheats are included in the same group with soft red. The number of samples contained in each group appears from the following enumeration; the average price assigned to each group has been added in order to show in this way the relative estimation in which the different descriptions stand in the London market:—

	Number of Samples.	Average price per Quarter of 496 lbs.	
		s.	*d.*
1. White, soft and semi-hard, and pure or mixed, with a predominance of soft white	357	41	9
2. Hard white - - - - - - - - - - -	167	39	5
3. Red, soft and semi-hard; pure or mixed, with a predominance of soft red -	161	38	5
4. Hard red - - - - - - - - - - -	142	36	1
Total - - - - - - - - - -	827	39	8

The number of samples classed with soft white and soft red amounts to 518, against 309 of hard white and hard red samples, showing a considerable predominance of soft samples, even when taking into account that, among the inferior varieties of the samples grouped with the soft wheat, there are many semi-hard samples or samples of soft wheat largely mixed with hard grain. The great number of soft samples is an important fact, as it is the soft wheat which is most suitable for export to this country, as appears from the higher price realized by it.

Geographical distribution of the different varieties of Indian wheat.

6. To a certain extent, the four distinctive varieties, the soft and hard white, and the soft and hard red, are cultivated side by side in the same districts, but, on the whole, a distinct geographical distribution of the several varieties may be perceived. In the accompanying map * the leading varieties of wheat produced by each district have been separately marked, and it clearly appears that, while Northern India produces mainly soft wheats, the samples produced in Southern India and part of Bengal are chiefly hard. The cultivation of the soft white wheat appears to be comprised within the basins of the three great rivers, the Ganges, the Indus, the Nerbudda, and their tributaries. In fact, from the whole territory south of the Nerbudda basin only two samples of soft white wheat were sent, one from Khandesh on the

* This map does not pretend to do more than give a general idea of the production of wheat in India, and of the manner in which information on this subject can be represented after the receipt of the complete statistics now in process of being collected.

Tapti, only a little south of the Nerbudda, and a sample of mixed soft red and white from the Belgaum district. Whilst the North-West Provinces and Oude sent mainly soft white samples, the majority of the samples from the Punjab are soft red. The soft red wheat also extends farther south than the soft white. Several fine samples were sent from Berar, from which not a single sample of soft white wheat arrived, and a sample (all but destroyed by weevil) came from as far south as Bellary. The hard white wheat occurs occasionally wherever the soft white is cultivated, but it is predominant in the Deccan, Berar, and parts of Bengal. The least valuable variety, the hard red wheat, extends the farthest to the south of all, and is, moreover, the only kind cultivated in the moist climate of the Gangetic delta, Orissa, and Burma. In the extreme south of the Madras Presidency, and in Mysore, the wheat appears to belong to a variety similar to the spelt, in which the husk adheres so strongly to the grain that mere threshing is insufficient to separate them, so that it requires to be husked in the same way as paddy. The grain appears to be of an inferior hard red description.

In the following table, the predominant character of the wheat culture in each province is shown by the number of samples of each of the four kinds of wheat sent from them, whilst the average price for each province illustrates the influence which the cultivation of the more valuable soft and white varieties exercises on the value of the whole provincial produce.

Name of Province.	Number of Samples of				Total Number of Samples.	Average price per Quarter of 496 lbs.
	Soft White.	Soft Red.	Hard White.	Hard Red.		s. d.
Bengal - - - -	27	21	12	8	68	39 10
North-West Provinces and Oude -	251	71	37	15	374	40 9
Ajmere and Mhairwarra - -	—	3	1	1	5	40 6
Punjab - - - -	17	30	3	4	54	38 5
Sind - - - - -	41	2	15	—	58	39 0
Bombay - - - -	5	13	60	61	139	38 3
Central Provinces - - -	16	13	8	12	49	40 1
Berar - - - -	—	7	31	16	54	38 10
Madras - - - -	—	—	—	18	18	36 1
Mysore - - - -	—	—	—	6	6	32 4
Burma - - - -	—	—	—	2	2	34 3
All India - -	357	160	167	143	827	39 8

It appears from this table that the greatest preponderance of soft white samples occurs in the North-West Provinces and Oude, 251 samples out of 374 belonging to this class. The average value of the samples from this province is therefore the highest of any in India, amounting to 40*s.* 9*d.* per quarter of 496 lbs. The two provinces in which the soft white likewise constitutes an important fraction of the samples, viz., the Central Provinces and Bengal, realize also the next highest average values, viz., about 40*s.* per quarter. The Punjab would almost certainly have shown an equal, if not a higher value, if the collection from it had been more complete, and the same would probably have applied to Sind, if the samples from there had not been weevilled throughout, in addition to being mixed frequently with barley and other grains. All the other provinces have a lower average, the lowest occurring in the case of Madras, Mysore, and Burma, all the samples coming from which belong to the hard red description.

The detailed description and valuation of the samples is contained in the accompanying valuation list, pp. 26 *et seq.*, in which the samples are arranged according to the districts from which they were forwarded. The provinces are arranged in sequence, starting from Calcutta. First come the Lower Provinces of Bengal, followed by the North-West Provinces and Oude, by Ajmere and Mhairwara, and the Punjab. Then follows Sind, in the Bombay Presidency, and the Bombay districts proper. Next follow the Central Provinces, Berar, Madras, Mysore, and at last Burma. Within each province the divisions follow in their geographical, and the sub-divisions or districts in alphabetical order. The samples within each district are grouped according to the four varieties, soft white, hard white, soft red, and hard red, the best samples of each description coming first, and then the others in the order of their value. In order to facilitate reference, and to be able to estimate at a glance the comparative frequency of the samples of each description of wheat, each entry is prominently distinguished by a

mark consisting of one or more of the four letters A, B, C, D. The letter A stands for soft white, B for hard white, C for soft red, and D for hard red, whilst combinations of the letters indicate mixtures, in which the letter placed first points to the predominant variety. For instance, A D designates a mixture of soft white with hard red wheat, the soft white preponderating. The valuations of all the samples are strictly comparable with each other, although they were originally made at different periods, in the order of the arrival of the samples from India. At the time of the valuation of the last consignment, in February of this year, a certain number of samples of the first consignment were revalued, and rules were agreed upon for reducing the prices of the previous valuations to the level of the last quotations, and these reduced prices only were finally entered. It must be remarked that in the course of the arrangement of all the samples district by district, and in the order of their quality, the running numbers of the original valuation lists, which followed each other in the order of the arrival of the samples, were considerably disarranged, because samples from the same district may have arrived in several batches at very different times, and were placed at very different places in the original valuation list, whilst they are all placed together in the list now submitted. Whenever possible, the local number of the sample has been likewise entered. Most of the consignments, however, arrived without any list or local numbers whatever, and can only be identified by their name and the place they were sent from.

Soft white wheat.

Observations on the samples of soft white wheat.

7. The quality of the samples of white wheat forwarded to this country is on the whole surprisingly high, and Mr. Alexander Smith to whom they were submitted reports that a considerable number amongst them are far superior to any Indian wheat ever seen in the London market. The better qualities of wheat coming from Calcutta are usually comprised under the classes No. 1 and No. 2 Club, the quotations for which at the time of the last valuations, in the beginning of February of this year, were 42*s.* to 43*s.* for No. 1, and 40*s.* to 41*s.* for No. 2. By adding the samples which depart only a little from these values to the numbers contained within the above classes, and by distinguishing those either above or below them in value, the samples of soft white wheat may be arranged in the following five classes :—

		Price per Quarter of 496 lbs.
a.	Samples of superior quality -	44*s.* to 48*s.*
b.	,, grade No. 1 -	43*s.* 6*d.* to 41*s.* 6*d.*
c.	,, ,, No. 2 -	39*s.* 6*d.* to 41*s.*
d.	,, ordinary quality -	37*s.* to 39*s.*
e.	Inferior samples - - -	below 37*s.*

The number of samples belonging to each class will appear from the following statement:—

Name of Province.	Number of Samples of Soft White Wheat (including mixed and semi-hard with predominance of soft white) of each of the Classes under mentioned.					
	Superior quality, 44*s.* to 48*s.* per quarter of 496 lbs.	No. I. Club 43*s.* 6*d.* to 41*s.* 6*d.* per quarter of 496 lbs.	No. II. Club 39*s.* 6*d.* to 41*s.* per quarter of 496 lbs.	Ordinary quality, 37*s.* to 39*s.* per quarter of 496 lbs.	Inferior quality, below 37*s.* per quarter of 496 lbs.	Total.
Bengal - - -	6	9	5	5	2	27
North-West Provinces and Oude	81	96	44	26	4	251
Ajmere and Mhairwarra -	—	—	—	—	—	—
Punjab - - -	7	4	4	1	1	17
Sind - - - -	—	8	14	17	2	41
Bombay - - -	—	3	2	—	—	5
Central Provinces - -	7	3	4	2	—	16
Berar - - - -	—	—	—	—	—	—
Madras - - -	—	—	—	—	—	—
Mysore - - -	—	—	—	—	—	—
Burma - - -	—	—	—	—	—	—
All India - -	101	123	73	51	9	357

Thus, out of a total of 357 samples, more than 100 samples are better than Grade No. 1, and more than 120 samples come up to that grade. The result would have been even more favourable if a certain proportion of the samples had not been to some extent damaged by weevil.

Four different types of grain may be distinguished among the samples of soft white wheat. These are:—

a. Wheat similar to Australian or Californian, stout regular grains of a brilliant colour, mostly very soft, and usually very uniform in quality and in clean condition.

b. Small berried wheat, more dull in colour than the foregoing, and less uniform in quality, hardly any sample being quite free from admixture with red or hard white wheat. Frequently the admixture of red grains is so considerable that the wheat must be called mixed rather than white, and there may be such a preponderance of hard or almost hard grains, as to give to the sample the character of a semi-hard rather than of a soft wheat.

c. A large berried wheat, thick in the middle, pointed at the ends, rarely uniform in colour, some grains as bright as the first variety just mentioned, others more dull and grey, occasionally passing into red, but more frequently mixed with hard grain, or passing into it by imperceptible degrees, the individual grains being often partly soft and partly hard. In fact, the greater portion of the samples of this description must be described as semi-hard.

d. Wheat with a peculiar, short, roundish grain, in appearance like pearl barley. It is the wheat known under the names of *paighumbree*, *gilghit*, *giljit*, or *nikka* in the Punjab, and of *chunia*, *munia*, or *rae muneer* in Oude and the North-West Provinces. It occurs locally in Oude, the North-West Provinces, the Punjab, and Sind, but it does not possess any great importance, as it does not appear to be very prolific. Although it is mostly semi-hard or even almost hard, the samples were very favourably reported on.

The sample sent from the Delhi district under the name "Gundun safed" (No. 273, page 46 in valuation list) may be accepted as the finest type of wheat grown in India. It is a soft white stout grain, remarkably uniform in quality, and in clean condition. The weight is very high, amounting to 65 lbs. per bushel. It is equal to the finest wheat grown in South Australia or California, the countries from which of all others the finest qualities of wheat are imported. It has been valued at 48*s.* per quarter of 496 lbs., this being the quotation for best Australian wheat at the time, and it has been declared equal in quality to the finest sample of wheat shown in the late Paris Exhibition. Nor is this an exceptional sample. Wheat of equal value and of equal excellence has been sent from Gya in Behar ("Dawoodie," Val. No. 150, page 29), from Unao in Oude ("Saman," No. 359, page 37), from Bulandshahr and Meerut in the North-West Provinces ("Safed," No. 397, page 45, "Safed," No. 629, page 45, and "Safed," No. 459, page 44), from Dera Ismail Khan, in the Punjab (No. 411, page 51), as also from Hoshungabad, in the Central Provinces ("White Pissi," No. 575, page 61). These places indicate the limits of the area within which the finest wheat is cultivated, and within which may be found a considerable number of samples ranging in value from 46*s.* to 48*s.* which are but little inferior to the eight samples selected as types of the best wheat, and which are mostly described by the valuer as being similar to Australian or Californian wheat. Not only most of the 45 samples ranging in value from 46*s.* to 48*s.*, but also many of the 48 samples valued from 44*s.* to 46*s.*, consist substantially of wheat of the same quality; all, more or less, like Australian or Californian, and only slightly depreciated in value by weevil, by slight admixture with red or hard grains, with barley, gram, or oilseeds, or impurities of other description. The local names vary from province to province, but no corresponding difference appears in the grain. The samples belonging to this class under the various names of Pissi in the Central Provinces; Shori in Sind; Zurd kanak in the Punjab; Daudia, Safeda, Setwa, Muria, Mundia, or Gajar in the North-West Provinces and Oude; Dawoodia in Behar, are almost indistinguishable in appearance, and all of equal excellence, though under the same names many other samples may be found which are perfectly different in appearance, and often really inferior in quality.

The varieties previously described as the small berried and the large berried respectively constitute the greater portion of the wheats of Grades Nos. 1 and 2, and of those of lower quality. But in the comparatively rare instances in which they are characterized by considerable uniformity and softness of grain they range as high in value as the samples resembling the Australian wheat, whilst the value of even this latter variety may be reduced by the admixture of impurities to the lowest level observed in any of the other varieties.

It has been already explained that both the small-berried and the large berried variety of soft white wheat are usually of less uniform appearance than the Australian-like wheat, and that they frequently contain a considerable admixture of red and of hard white wheat, so as to render it often difficult to decide whether a given sample should be classed as a red or a white, a hard or a soft wheat. This seems to afford an explanation why the same name so often serves to designate varieties of grain which appear to be very different from each other. Thus under the name of Jamali a number of small berried varieties were sent from Bengal, some of which were soft and white, others perfectly hard, white, or red, others again a beautiful soft red, while most were rather mixed in character. In the same way the large berried soft variety occurs frequently under names like Burghona, Anokha, Kathia, Jalalia, and Bansi, usually applied to hard white wheats, or even under the name of Desi, usually applied to red wheats, and, in fact, it is rarely free from a considerable admixture of hard grains, even if the individual grain does not, as is often the case with the Bansi variety in the Central Provinces, possess a mixed character, partly soft, partly hard.

Every defect in the way of colour, uniformity, and softness of the grain diminishes in a corresponding manner the value of the sample, but the quality is even more seriously deteriorated by the admixture of foreign substances, especially of barley, gram, linseed, and rapeseed or other grains. Other impurities, such as lumps of earth and clay, and chaff, likewise occur, and often reduce the value of the wheat considerably. In many of the samples mere screening would suffice to separate the fine grain from the impurities, and to improve the value by as much as 5*s.* per quarter. For instance, a sample from the Etawah district (Mundia, No. 498) has been valued at only 37*s.* on account of the considerable admixture of barley and gram, and impure condition generally, but the valuer reported that by cleaning the value could be raised to 42*s.* It may be noticed that the Sind samples especially suffer from the presence of barley, and that the wheat, which is often of the finest quality, is thereby rendered often quite unsaleable, as being in its actual condition quite unfit for milling.

The following list of some of the finest samples of soft white wheat will serve to give some idea of the names under which some of the finest samples were sent, as also of the places in which they were produced:—

District.	No.	Name.	Weight per Bushel.	Price per Quarter.		Remarks.
		Lower Provinces of Bengal.		*s.*	*d.*	
Chumparun -	157	Dawoodia - -	63	47	0	Small berried.
Gya - -	150	Dawoodia -	62½	48	0	Like Californian.
Patna - -	141	Maghie - -	64½	45	6	
Shahabad - -	144	Doodhia - -	62	47	0	Like Californian.
		North-West Provinces and Oude.				
Azimgarh - -	713	Daudi - -	61	46	0	
Benares - -	703	Daudia - -	—	46	0	
Basti - -	715	Gangajali - -	—	45	0	
Banda - -	704	Pisi gangajali -	—	47	0	
Cawnpore - -	642	Muria - -	—	48	0	
Ditto - -	621	Anokha - -	—	47	0	
Ditto - -	637	Desi - -	—	46	0	Large berry.
Ditto - -	514	Mudia - -	—	44	6	Fine drop wheat, probably 64 lbs.
Futtehpore -	639	Pisi awwal -	—	46	0	
Ditto - -	670	Muria - -	—	45	0	
Pertabghar -	466	Mundwa -	62½	47	0	Like Californian.
Ditto - -	630	Setwa - -	60	46	6	
Ditto - -	614	Mundia - -	—	46	0	
Bharaich - -	489	Daudi - -	61	46	6	Like Californian.
Ditto - -	488	Sambodhwa -	—	46	0	
Ditto - -	702	Sandhua - -	—	46	0	
Gonda - -	767	Daudi - -	—	45	6	
Unao - -	359	Saman - -	—	48	0	
Ditto - -	361	Marua - -	—	46	0	Like Californian.
Ditto - -	633	Ditto - -	—	46	0	Ditto.
Ditto - -	672	Safeda - -	—	45	0	
Kheri - -	386	Sitia - -	60½	45	0	Like Danzig, but dirty.
Sitapur - -	350	Mundia - -	61	46	0	Like Californian.
Ditto - -	665	Muria - -	—	46	0	
Lalitpur - -	636	Pisi duem -	—	45	0	
Etah - -	430	Mundia - -	62	47	0	Like Australian.

District.	No.	Name.	Weight per Bushel.	Price per Quarter.		Remarks.
				s.	d.	
Etah - -	632	Sambharia -	—	46	0	Like Californian.
Ditto - -	671	Ratta -	—	46	0	Ditto.
Muttra - -	631	Safeda - -	—	46	6	Ditto.
Mainpuri - -	635	Sambharia -	—	47	0	Ditto.
Ditto - -	634	- - -	—	46	6	Ditto.
Bulandshahr -	459	Safed - -	63	48	0	Like Australian.
Ditto - -	463	Gajar - -	63½	47	0	Like Californian.
Ditto - -	640	Safed - -	—	46	6	Ditto.
Ditto - -	465	Mendha - -	62½	46	0	Ditto.
Ditto - -	638	Gajar - -	—	46	0	
Ditto - -	626	Rutta - -	62	45	6	
Ditto - -	462	Ruta - -	63	45	0	
Ditto - -	657	Munia - -	—	45	0	Like pearl barley.
Dehra Doon -	681	Mihirta - -	—	45	0	
Meerut - -	397	Safed - -	62	48	0	Like Californian.
Ditto - -	629	Ditto - -	—	48	0	Ditto.
Ditto - -	403	Monda - -	62	47	0	Ditto.
Ditto - -	641	Muria - -	—	45	6	
Muzaffarnagar -	699	Safeda - -	—	46	0	
Saharanpur -	310	Monda - -	62½	46	6	
Ditto - -	663	Muria - -	—	45	0	
Bareilly - -	625	Sambharia -	—	46	0	
Ditto - -	677	Pisia - -	60	46	0	
Ditto - -	692	Khatia - -	—	45	0	
Budaon - -	697	Bhambria - -	—	46	6	
Ditto - -	698	Muria - -	61	46	6	
Ditto - -	617	Ratua - -	61	46	0	
Ditto - -	656	Rai munea -	—	45	0	Like pearl barley.
Moradabad - -	714	Muria awwal -	62	47	0	Ditto.
Ditto - -	613	Mundia - -	—	46	0	Small berry.
Ditto - -	728	Mandwa kada -	—	46	0	
Ditto - -	727	Ditto - -	—	45	6	
Ditto - -	726	Muria safed -	—	45	0	
Punjab.						
Delhi - -	273	Gundun safed -	65	48	0	Like Australian.
Sarsa - -	292	- - -	61	45	0	
Dera Ismail Khan	411	- - -	63	48	0	Like best Californian.
Central Provinces.						
Baitul - -	181	Pissi - -	63	46	0	Like Californian.
Hoshungabad -	575	Pissi white -	62	48	0	Like Australian.
Ditto - -	579	Sohareea - -	—	48	0	Ditto.
Mandla - -	171	Pissi sookrawali -	60½	46	6	Like Californian.
Saugor - -	165	Pissi - -	62½	46	0	Long berried.
Seoni - -	189	Mundi - -	64	47	0	Like Californian.
Ditto - -	188	Pissi - -	59½	45	6	

It will be seen that the majority of the finest specimens, ranging from 45*s.* to 48*s.* per quarter, come from the North-West Provinces and Oude. The Central Provinces come next, and there are likewise some specimens from Behar, and from the Punjab. No samples equal to the foregoing appear from Bengal proper, although soft white wheat of a tolerably good quality, mostly of the small-berried kind, is grown as low down as the Hooghly district, and a sample from Beerbhoom was fully equal to Grade No. 1. As regards the Punjab again, the best samples all come either from the Delhi and Hissar divisions immediately adjoining the North-West Provinces, or else from the Trans-Indus districts, in which the wheat resembles the fine variety cultivated in Upper Sind. But from the Punjab proper, between the Indus and the Sutlej, no perfect samples of pure soft white were available for report, even the best being rather semi-hard than soft, and the grain less uniform than in the samples included in the foregoing list. Nevertheless it would not be fair to conclude on this account alone that the cultivation of wheat is conducted less carefully and skilfully in the Punjab than in the North-West Provinces, because the fragmentary nature of the Punjab collection already commented on, and especially the highly weevilled condition in which most of the samples arrived, make it impossible to accept the Punjab series of valuations as a fair representation of the cultivation of wheat in that province. It must be also remarked that the softest, that is, the finest specimens,

are those most exposed to destruction by weevil, and it is likely that but for their weevilled condition some of the samples from the parts of the Punjab referred to would have been as favourably reported on as the finest samples from the North-West Provinces. The same applies to Sind, from which a number of samples were sent equal to the finest grown in India, but their weevilled condition prevented their being valued at anything like the prices assigned to the best samples. The districts under Bombay sent no samples which could be compared with the finest wheat of the Central Provinces, but a few samples were sent from Broach and from Khandesh which come up to Grade No. 1.

The weights per bushel given in the above list of samples are very high, notwithstanding that some of the samples were touched by the weevil. None weigh less than 60 lbs. per bushel, whilst in some cases the weight goes up to as high as from 63 to 65 lbs.

Hard white wheat.

Observations on the samples of hard white wheat.

8. There is much less variety among the different samples of hard white wheat than among those of soft white wheat already noticed. A great number of samples resemble in appearance the large berried soft or semi-hard wheat already described, only that they are completely hard and translucent. Others, with the same difference, resemble the small berried soft or semi-hard variety. There is in addition a considerable number of samples with a long thin ricey grain, resembling some of the inferior varieties of hard red wheat. These latter samples, frequently known under the name of Khattya, Kathe, Kuthya, are really an inferior grain in every respect, and the samples are rarely in a good condition, most of them containing chaff, dirt, and foreign substances in considerable quantity. But among the large berried samples there are many of a very high quality, with clear uniform grains in good condition and free from impurities. In fact, many of these samples are equal, if not superior, to the best hard St. Petersburgh or Kubanka, which is usually considered as the type of wheats of this kind. The highest prices realized by the hard white wheats are, however, much below those ranging in the London market for the soft wheats, and, as already remarked, the Mediterranean, and especially Italy, seems to afford the best market for wheat of this description, which is in demand there for the manufacture of macaroni, and frequently fetches prices as much as 5*s.* per quarter in excess of the quotations of the London market.

No classification in any way resembling that of the soft white exists for the hard white wheat; but in order to obtain a view similar to that given for the samples of the former variety, the hard white wheats have been arranged in groups corresponding to the same ranges of price as those of the different classes of the soft white. The following table shows the result of this classification :—

Name of Province.	Number of Samples of Hard White Wheat of a value per quarter equal to that of the under-mentioned Classes of Soft White Wheat.				
	Class I., 43*s.* 6*d.* to 47*s.* 6*d.*	Class II., 39*s.* 6*d.* to 41*s.*	Ordinary quality, 37*s.* to 39*s.*	Inferior quality, below 37*s.*	Total.
Bengal - - -	3	4	5	—	12
N.-W. Provinces and Oude -	5	23	8	1	37
Ajmere and Mhairwarra -	—	1	—	—	1
Punjab - - - -	—	2	—	1	3
Sind - - - -	—	—	8	7	15
Bombay - - - -	3	29	27	1	60
Central Provinces - -	—	5	3	—	8
Berar - - - -	2	19	10	—	31
Madras - - -	—	—	—	—	—
Mysore - - - -	—	—	—	—	—
Burma - - -	—	—	—	—	—
Total - -	13	83	61	10	167

It will be seen that a considerable proportion of the samples is supplied by Bombay and Berar, from which hardly any samples of the soft wheat were sent. These two provinces supply by themselves more than one half of the samples of hard white wheat. The number of samples (37) sent from the North-West Provinces and Oude

is large in itself, but it appears small when compared with the number of soft white samples from the same parts, which was almost seven times larger. The following list enumerates some of the best samples of the wheat now under consideration :—

District.	No.	Name.	Weight per Bushel.	Value per Quarter.		Remarks.
				s.	d.	
Lower Provinces of Bengal.						
Moorshedabad -	109	Jamali - -	62½	41	6	Short berried.
Monghyr -	57	Bogra - - -	62	41	0	Long berried, flinty.
Maldah - -	77	Gangajali - -	63½	42	0	Very fine, long berried.
Tirhoot - -	145	Jamalkhani - -	64	41	6	Small berried.
North-West Provinces and Oude.						
Gonda - -	394	Daudi - -	63	41	0	Mostly hard.
Barabanki -	367	Murua -	62	41	0	Mixed, hard.
Lucknow -	475	Tamla - -	64½	42	6	
Unao - - -	650	Samanbargehuna -	—	41	0	Long berried.
Etah - -	435	Bhidia - -	61	40	6	Long berried, like Kubanca.
Mainpuri -	379	Anokha - -	60½	42	0	Long berried.
Ditto - -	656	Ditto - -	—	40	6	Ditto.
Aligarh - -	643	Kathia - -	58	41	0	Ditto.
Bulundshahr -	651	Barha - -	—	42	0	Ditto.
Ditto - -	461	Ditto - - -	—	40	6	Large berried.
Meerut - -	402	Ditto - -	61	41	0	Long berried.
Ditto - -	654	Ditto - - -	—	40	6	Ditto.
Budaon - -	655	Ratua - -	—	40	6	Ditto.
Shahjehanpur -	481	Sambhari - -	60	40	6	
The Punjab.						
Sarsa - -	291	Brown wheat -	60½	41	0	Small berried.
Bombay.						
Bhownuggur -	25	Hasia - -	60½	40	6	Long berried.
Khandesh - -	580	Kalee kusal - -	61	42	6	Ditto.
Ditto - -	605	Bansi - -	62½	42	6	Very fine.
Nassick - -	999	Yellow Banshi -	57	40	0	Finest of all, but weevilled.
Punch Mehals -	1,011	Daudkhani -	62	42	0	Large berried.
Ditto - -	1,013	Kathee malvi -	61	40	6	
Dharwar - -	581	- -	58	40	6	
Poona - -	965	Bakshi gahu -	62	41	0	Large berried, finest kind grown.
Satara - -	994	Buxi - -	60	40	6	Very fine.
Central Provinces.						
Saugor - -	164	Hansia - -	62½	40	6	Long berried.
Berar.						
Nagpore - -	197	Botka - -	61	40	6	Long, thin.
Oomraotti - -	879	Bansi - -	61	41	6	Long berried.
Ellichpur - -	923	Ditto - - -	60½	41	0	Ditto.
Ditto - -	918	Ditto - -	60	40	6	Ditto.
Akola - -	894	Bansi - - -	61	41	6	Long berried.
Ditto - -	891	Ditto - -	60	41	0	Ditto.
Buldana - -	908	Ditto - - -	61	41	0	
Ditto - -	914	Ditto - -	60	41	0	
Ditto - -	912	Ditto - -	61	40	6	

The finest of these samples is (No. 605) "Bansi," from Khandesh, valued at 42*s.* 6*d.*, though even this sample would have been probably surpassed by a sample of "yellow Banshi" (No. 999) sent from Nassick, had not the latter arrived very much damaged by weevil. All parts of the Bombay Presidency south of the Nerbudda supply fine samples under the names of Banshi, Bansi, Bukshi, Buxi, Jalalia, and others. But some of the samples from the North-West Provinces and Oude, sent under the names of Barha, Tamla, Anokha, and others, are equally good. One of the best samples, "Gangajali" (No. 77), valued at 42*s.*, comes from the Maldah district in Lower Bengal, and altogether the cultivation of hard white wheats, if restricted to a smaller area than that of the soft varieties, results in the production of many samples equal to the finest grown in any country, which sent to a suitable market would be

likely to realize prices almost as high as those obtainable for the best descriptions of soft white wheat. It may likewise be noted that the hard wheat appears to be on the whole less liable to suffer from weevil than the soft variety. The weights per bushel are almost as high as in the soft white; all but a few are above 60 lbs. per bushel, some as high as 64½ lbs. Of the few samples below 60 lbs. most are so much weevilled that the loss of weight is accounted for.

Soft red wheat.

Observations on the samples of soft red wheat.

9. The condition of most of the samples of soft red wheat affords evidence that its cultivation is conducted with much less care than that of the fine white varieties. They are, as a rule, much mixed with barley, gram, or oilseeds, and foreign substances of all descriptions, and the grain is rarely so uniform in its quality as in the good white samples. The striking uniformity in the Native names for the red wheat is in itself a proof of the smaller estimation in which it is held by the Native agriculturist. In the greater number of districts, in which half a dozen or more different varieties of white wheat will be cultivated under as many different names, the red wheat will be known only under the generic denomination of "lal" or "surkh," indicating that the process of selection of seed and cultivation of special varieties has been applied to red wheat in a much smaller degree than to the white wheat. The red wheat is, however, deserving of more attention than it now receives, for the soft red varieties are exceedingly suitable for the English market, and very readily saleable. The following table shows the number of samples and their range of prices for each province of India, the classes being those adopted for the soft white wheat, as there is no corresponding classification for the red variety :—

Name of Province.	Number of Samples of Soft Red Wheat of a value per quarter equal to that of the under-mentioned Classes of Soft White Wheat.				
	Class I., 41*s.* 6*d.* to 43*s.* 6*d.* per quarter of 496 lbs.	Class II., 39*s.* 6*d.* to 41*s.*	Ordinary quality, 37*s.* to 39*s.*	Inferior quality, below 37*s.*	Total.
Bengal - - -	3	11	6	1	21
N.-W. Provinces and Oude -	2	23	38	8	71
Ajmere and Mhairwarra -	2	1	—	—	3
Punjab - - - -	2	7	11	10	30
Sind - - - -	—	1	—	1	2
Bombay - - -	—	8	5	—	13
Central Provinces - -	1	2	10	—	13
Berar - - - -	—	3	4	—	7
Madras - - -	—	—	—	—	—
Mysore - - -	—	—	—	—	—
Burma - - -	—	—	—	—	—
Total - -	10	56	74	21	161

As may be seen from the foregoing table, the provinces in which the soft red wheat is chiefly grown are the same as those in which the soft white is cultivated, but the limit of cultivation of the former, as previously remarked, extends rather further to the south than that of the soft white variety. The following is the list of the finest samples of soft red wheat obtained :—

District.	No.	Name.	Weight per Bushel.	Price per Quarter.		Remarks.
				s.	d.	
Lower Provinces of Bengal.						
Beerbhoom -	89	Jamali - -	61½	41	0	
Burdwan - -	99	Desi - - -	61	41	0	Small berried.
Bhagulpore -	66	Jamali - -	62½	41	0	Ditto.
Hazareebagh -	162	Gour - - -	63	41	6	Small berried, yellowish.
Lohardugga -	158	Jogra - -	63½	42	0	Stout.
Gya - -	149	Lall - -	64	41	6	Stout, short berried.
Tirhoot - -	127	Sarhal - -	62	40	6	Fine, clean, semi-hard.

District.	No.	Name.	Weight per Bushel.	Value per Quarter.	Remarks.
		North-West Provinces.			
Azimgarh -	148	Hurrah - -	63½	41 0	Small berried, semi-hard.
Allahabad -	777	Raksa - -	—	41 0	
Cawnpore -	789	Pisia - - -	—	41 0	
Jalaun - -	473	Pisia, red - -	61½	41 6	Large berried.
Muttra - -	790	Lal - -	—	40 6	
Bulandshahr -	464	Gehun lal -	62½	42 0	
Meerut - -	398	Surkh - -	61½	41 0	Long berried.
		Ajmere and Mhairwarra.			
	588	Baja maigee -	61	41 6	
	592	Kharcha baja -	64½	42 6	
	590	Ditto - -	62	41 0	
		Punjab.			
Gurgaon - -	259	- - -	64	41 6	
Rohtak - -	427	Red wheat -	62	41 0	
Jhelum - -	272	Lal -	61½	41 0	
Shahpur - -	410	Rati - -	61	41 0	Large berried, mixed with barley.
Dera Ismail Khan	413	Rutti kanak -	60½	41 6	Long berried.
		Bombay Presidency.			
Bhownuggur -	15	Vajia - -	58	40 6	Semi-hard.
	22	Patalia - -	58	40 6	Ditto.
	9	Ditto - - -	59½	40 6	Ditto.
		Central Provinces.			
Nimar - -	194	Dhunya - -	—	40 6	Fine specimen.
Bilaspur - -	567	Khathia - -	60	41 6	Small berried.
	566	Red pissi - -	63	41 0	
		Berar.			
Bassim - -	906	Casdee - -	61	41 0	

All these samples represent wheat which is very suitable for the English market. The finest sample is one from Ajmere, "Kharcha baja" (No. 592); but, as will be seen from the list, there are numerous samples almost equal to it from Bengal, the North-West Provinces, the Punjab, and the Central Provinces. The samples from the provinces just named are, as a rule, comparatively light in colour, and quite as soft as the softest white wheat. But from Bombay a good many samples of a large berried wheat were sent which deserve rather the name of brown than of red wheat, on account of the darkness of their colour. They are also much harder than the usual soft wheat, in fact almost hard. Still some of the samples grown in the State of Bhownagar are favourably reported on, with values up to 40*s.* 6*d.* per quarter. It may be likewise remarked that in the Punjab, from which several of the best samples were obtained, there appears to be grown in many districts a very degenerate kind of red wheat, in which a large proportion of the grains are so thin and shrivelled that they resemble rather grass seeds than the berries of a cultivated grain.

The prevalence of inferior varieties in the Punjab may be gathered from the fact that out of 30 samples of soft red wheat 10 are classed as inferior, being in value below 37*s.* the quarter, whereas out of 131 samples sent from the other parts of India only 11 are inferior. The weights per bushel given in the list are as high as in the preceding group, rising to 64½ lbs., and only in three instances is the weight below 60 lbs.

Hard red wheat.

10. The following table shows the number of samples and their range of prices :—

Observations on the samples of hard red wheat.

Name of Province.	Number of Samples of Hard Red Wheat.		
	Ordinary quality, 37*s.* to 39*s.*	Inferior quality, below 37*s.*	Total.
Bengal - - -	2	6	8
North-West Provinces and Oude.	4	11	15
Punjab - - -	—	4	4
Sind - - -	—	—	—
Bombay - - -	31	29	60
Central Provinces - -	11	1	12
Berar - - -	13	3	16
Madras - - -	5	13	18
Mysore - - -	1	5	6
Burma - - -	—	2	2
Total - -	68	74	142

Most of these samples come from the Deccan and Southern India, and a very large proportion are inferior in quality, very thin, hard, and very dark. Wheat of this description is not in good demand in the London market.

India Office,
29th March 1879.

J. FORBES WATSON.

VALUATION of the Samples of Wheat forwarded in accordance with the Orders of the Government of India of 14th March 1877.

The values given are based upon the quotations ruling in the London Market in the beginning of February 1879.

Key to letters showing colour and hardness,—A, soft white; B, hard white; C, soft red; D, hard red.

Valuation Number of Sample.	Number on Sample as received.	Locality.	Description of Sample.		Valuation and Report.				
			Colour and Hardness.	Name.	Condition.	Weight.	Value. s.	Value. d.	Remarks.
		BENGAL.							
		PRESIDENCY DIVISION.							
		Nuddea District.							
124	2	Krishnagar - - -	D	Jamali - -	Weevilled - -	60	38	0	Good, mixed, hard red, some barley.
123	1	- - - -	—	Dhoodia - -	Destroyed by weevil.				
		BURDWAN DIVISION.							
		Beerbhoom District.							
90	2	- - - -	A	Dudhia - -	- - - -	62	43	0	Fine, soft, white.
89	1	- - - -	C	Jamali - -	Weevilled - -	61½	41	0	Fine, small, soft berried, red.
93	5	- - - -	,,	Kheri - -	Ditto - - -	60½	40	0	Good, soft, red, small berried, little dirty.
91	3	- - - -	—	Gangajali - -	Destroyed by weevil.				
92	4	- - - -	—	Desi - - -					
		Burdwan District.							
99	11	- - - -	A C	Kheri jamali -	Weevilled - -	57½	31	6	Inferior, dingy reddish, mixed with barley, earth and seeds, would require screening.
95	7	Bood-bood - - -	C	Desi - -	- - - -	61	41	0	Fine, soft, small berried, red.
94	6	- - - -	—	Jamali - -	Destroyed by weevil.				
96	8	- - - -	—	Dudhia jamali -					
97	9	- - - -	—	Jamali - -					
98	10	- - - -	—	Gangajali - -	Lost.				
		Hooghly District.							
100	12	Hooghly - - -	A	Dhudia - -	Very much weevilled -	—	39	0	Good, white, about No. 2.
101	13	Ditto - - - -	C	Jamali - -	Weevilled - -	56	38	0	Good, soft, small berried, red, some barley.
		ORISSA DIVISION.							
		Balasore District.							
103	2	- - - -	D	Desi, No. 2 - -	- - - -	61	36	6	Dingy, clean, hard, red.
102	1	- - - -	—	Desi, No. 1 - -	Destroyed by weevil.				
104	3	- - - -	—	Gobra - -					
		RAJSHAHYE DIVISION.							
		Moorshedabad District.							
107	3	Moorshedabad - -	A	Jamali - -	- - - -	—	34	6	Largely mixed with grain; wheat good.
109	5	Dewanserai - - -	B	Ditto - -	Weevilled - -	62½	41	6	Fine, hard, short berried, nearly white.
118	14	Sooty - - - -	,,	Gangajali - -	- - - -	61	40	0	Fine, hard, long berried, flinty white.
117	13	Ditto - - -	,,	Jamali - -	- - - -	59	38	6	Good, hard, long berried, flinty white.
105	1	Moorshedabad - - -	,,	Gangajali - -	Weevilled - -	59	38	0	Good, hard, white, a little mixed with earth.
115	11	Mirzapur - - -	C	Ditto - -	- - - -	60½	38	6	Good, red, mixed with barley.
108	4	Dowlutabad - -	,,	Kheri - -	- - - -	—	32	0	Inferior, small berried, red, mixed with gram.
116	12	Mirzapur - - -	D	Ditto - -	- - - -	58½	34	6	Common, red, mixed with barley.
106	2	- - - -	—	Ditto - -	Lost.				
110	6	- - - -	—	Gangajali - -	Destroyed by weevil.				
111	7	- - - -	—	Kheri - -					
112	8	- - - -	—	Jamali - -					
113	9	- - - -	—	Ditto - -					
114	10	- - - -	—	Ditto - -					
119	15	- - - -	—	Kheri - -					
		Rajshahye District.							
120	16	Jellinghee - - -	D	Jamali - -	- - - -	59	36	6	Hard, small, thin berried, red.
121	17	- - - -	—	Gangajali - -	Destroyed by weevil.				
122	18	- - - -	—	Kheri - -					
		BHAGULPORE DIVISION.							
		Bhagulpore District.							
60	7	- - - -	A	Jamali - -	- - - -	62½	43	0	Fine, white, small berried, rather hard, better than No. 1.
64	11	- - - -	,,	Ditto - -	Weevilled - -	61	43	0	Good, white, rather better than No. 1 Club.
68	15	- - - -	,,	Burghona - -	- - - -	61	42	6	Fine, long berried, white, semi-hard.
59	6	- - - -	,,	Jamali - -	- - - -	61	42	0	Good, small berried, white, semi-hard.
65	2	Banka - - -	,,	Doodhia - -	Little weevilled - -	60	40	0	Fine, white, mixed with gram.
67	14	Bhagulpore - - -	B	Jamali - -	Ditto - - -	60½	39	0	Good, small berried, hard white.

Valuation of the Samples of Wheat, &c.—*continued.*

Valuation Number of Sample.	Number on Sample as received.	Locality.	Description of Sample. Colour and Hardness.	Description of Sample. Name.	Valuation and Report. Condition.	Weight.	Value. s.	Value. d.	Remarks.
		Bhagulpore District—cont.							
66	13	Kishengunge - - -	C	Jamali - -	- - - -	62½	41	0	Fine, small berried, red.
58	5	Lakhanpur - - -	—	Sona Ticker - -	Destroyed by weevil.				
61	8	Soopole - - -	—	Doodhia - -	Lost.				
62	9	- - - -	—	Jamalia - -	Destroyed by weevil.				
63	10	Madipura - - -	—	Doodhia - -					
69	16	- - - -	—	Ditto - -	Lost.				
70	17	- - - -	—	Jamali - -	Destroyed by weevil.				
		Monghyr District.							
57	4	Monghyr - - -	B	Bogra - -	- - - -	62	41	0	Fine, hard, long berried, white, flinty.
56	3	Ditto - - -	"	Jamali - -	- - - -	63	40	0	Good, clean, hard, small berried, white.
54	1	Ditto - - - -	—	Doodhia, No. 1 -	Destroyed by weevil.				
55	2	Ditto - - - -	—	Ditto, No. 2 -					
		Maldah District.							
71	18	- - - -	A	Jamali - -	- - - -	59	41	0	Good, thin, long, white, semi-hard.
77	24	Gomastipore - - -	B	Gangajali - -	- - - -	63½	42	0	Very fine, long berried, clean, hard, white.
72	19	- - - -	"	Jamali - -	Little weevilled - -	62½	40	0	Fine, hard, small berried, white.
86	33	Nahalgunge - - -	"	Kheri - -	- - - -	—	37	0	Common, hard, white, mixed with earth.
81	28	Nawalgunge - - -	C	Ditto - -	- - - -	61	40	0	Good, small berried, red.
76	23	- - - -	"	Jamali - -	Weevilled - -	59	39	6	Good, small berried, soft.
87	34	Gomastipore - - -	D	Gangajali - -	- - - -	62	35	0	Rough, hard, reddish, mixed with earth; wheat good, requires cleaning.
73	20	Debipore - - -	—	Ditto - -	Destroyed by weevil.				
74	21	- - - -	—	Kheri - -					
75	22	- - - -	—	Mukri - -					
78	25	Kharba - - -	—	Gangajali - -					
79	26	Gomastipore - - -	—	Kheri - -					
80	27	Shibaganj - - -	—	Ditto - -					
82	29	Debipore - - -	—	Ditto - -					
83	30	Nawabgunge - - -	—	Gangajali - -					
84	31	Gazole - - -	—	Kheri - -					
85	32	Ditto - - - -	—	Gangajali - -					
88	35	English Bazaar - -	—	Ditto - -	Lost.				

		Purneah District.							
297	A	- - - -	—	Doodhi - -	Destroyed by weevil.				
298	B	- - - -	—	Gangajali - -					
299	C	- - - -	—	Jamali - -					
		Sonthal Pergunnahs.							
210	—	Rajmahal - - -	—	Gangajali - -	Destroyed by weevil.				
211	—	Ditto - - -	—	Jamali - -					
212	—	Deoghur - - -	—	Gahu - -					
213	—	Doomka - - -	—	Jamali - -					
		CHOTA NAGPORE DIVISION.							
		Hazareebagh District.							
162	5	- - - -	C	Gour - -	- - - -	63	41	6	Fine, small berried, red, yellowish, clean.
		Lohardugga District.							
160	3	- - - -	A	Doodhia - -	- - - -	62	44	0	Fine, soft, white, few reddish grains.
158	1	- - - -	C	Jogra - -	- - - -	63½	42	0	Fine, soft, clean, stout, red.
159	2	- - - -	—	Chumpapuri - -	Destroyed by weevil.				
		Manbhoom District.							
161	4	- - - -	—	Choonia - -	Destroyed by weevil.				
		Singbhoom District.							
163	6	- - - -	C	Lalka - -	- - - -	61	40	0	Fine, small berried, clean, red.
		PATNA DIVISION.							
		Chumparun District.							
157	33	- - - -	A	Dawoodie - -	- - - -	63	47	0	Fine, soft, small berried, white.
156	32	- - - -	"	Jamalkhani - -	- - - -	61	40	6	Good white, about No. 2, some linseed.
154	30	- - - -	A C	Hada - -	Weevilled - -	61	40	6	Fine, mixed, but few linseed grains, rather better than No. 2.
155	31	- - - -	C	Lalka - -	- - - -	62	38	0	Fine, small berried, soft, red, mixed with linseed and other seeds, requires cleaning.
		Gya District.							
150	26	- - - -	A	Dawoodie - -	- - - -	62½	48	0	Fine, white, soft, some rice, mixed, like Californian.
149	25	- - - -	C	Lal - - -	- - - -	64	41	6	Fine, stout, soft, short berried, red, little linseed.

Valuation of the Samples of Wheat, &c.—*continued.*

Valuation Number of Samples.	Number on Samples as received.	Locality.	Description of Sample. Colour and Hardness.	Description of Sample. Name.	Valuation and Report. Condition.	Weight.	Value. s.	Value. d.	Remarks.
		Patna District.							
141	17	- - - -	A	Maghie - -	- - - -	64½	45	6	Fine, soft, white, mixed with some reddish white.
140	16	- - - -	"	Ditto - -	- - - -	63	41	6	Good, mixed, nearly white, about No. 1.
139	15	- - - -	"	Jamali - -	Weevilled - -	62½	40	0	Good stuff, small berried, white, mixed with barley and gram.
136	12	- - - -	C	Maghie - -	- - - -	61	39	0	Good, soft, small berried, and red.
135	11	- - - -	C	Lalee - -	Little weeviled - -	62½	37	6	Good, red, dirty, semi-hard, mixed with gram and linseed.
137	13	- - - -	—	Doodhia - -	Lost.				
138	14	- - - -	—	Maghie - -	Destroyed by weevil.				
		Sarun District.							
152	28	- - - -	A	Doodhia - -	Little weevilled - -	59½	38	6	Wheat good, a few gram.
153	29	- - - -	A C	Jamalia - -	- - - -	61	37	6	Good, soft, mixed, some gram.
151	27	- - - -	C	Lalee - -	Little weevilled - -	63	40	0	Good, short berried, semi-hard, red.
		Shahabad District.							
144	20	- - - -	A	Doodhia - -	Weevilled - -	62	47	0	Fine, soft, white, like Californian.
142	18	- - - -	"	Hurha -	- - - -	64	41	6	Fine, stout, soft, some gram.
143	19	- - - -	C	Jamalia - -	- - - -	62	38	6	Fine, soft, red, some gram, few damaged grains.
		Tirhoot District.							
146	22	Mozaffarpur - - -	A	Lal Desi - -	- - - -	63	44	6	Fine, clean, small berried, mixed, white.
147	23	Ditto - - -	A C	Doodhia - -	- - - -	64	43	0	Fine, clean, semi-hard, red and white.
132	8	Durbhunga - - -	A	Haraha - -	Weevilled - -	64½	41	6	Very clean, a few grains of linseed, equal to No. 1. club.
129	5	Saraisa - - -	A C	Sarhoa - -	- - - -	—	38	6	Ordinary, mixed, scarcely No. 2, mixed with gram.
128	4	Durbhunga - -	"	Hada - -	- - - -	61	38	0	Good, mixed with barley, equal No. 2.
145	21	Mozaffarpur - - -	B	Jamalkhani - -	A little weevilled - -	64	41	6	Fine, regular, small berried, hard, white.
126	2	Ditto - - -	"	Ditto - -	- - - -	61	39	0	Good, hard, flinty, white.
148	24	Ditto - - - -	C	Hurrah - -	- - - -	63½	41	0	Fine, clean, small berried, semi-hard, red.
127	3	Ditto - - -	C D	Sarhab - -	- - - -	62	40	6	Fine, clean, semi-hard, red.
125	1	Ditto - - - -	"	Jamalkhani - -	- - - -	62½	40	0	Fine, semi-hard, red.
133	9	- - - -	D	Hadhee - -	- - - -	—	37	6	Stout, hard, dingy red.

130	6	Saraisa - - -	"	Ditto - -	- - - -	—	35	0	Common, hard, small berried, red, mixed with barley.
134	10	- - - -	"	Ditto - -	- - - -	—	35	6	Small berried, hard, red, mixed with barley.
131	7	Seripeer - - -	—	Herraha - -	Lost.				
		NORTH-WEST PROVINCES AND OUDE.							
		BENARES DIVISION.							
		Azimgarh District.							
713	—	- - - -	A	Daudi - -	- - - -	61	46	0	Fine, white, superior No. 1.
313	—	- - - -	"	Ditto - -	Weevilled - -	64	43	0	Fine, white, small berried, clean.
791	—	- - - -	C	Lalia - -	- - - -	—	40	0	Good, red, soft.
314	—	- - - -	—	Ditto - -	Destroyed by weevil.				
		Benares District.							
703	—	- - - -	A	Daudia - -	- - - -	—	46	0	Fine, white, coloury, soft.
747	—	- - - -	"	Desi - -	- - - -	—	41	6	White, about No. 2.
781	—	- - - -	A C	Lal - -	Much weevilled - -	—	40	6	Small berried, mixed white and red, soft.
822	—	- - - -	C	Mungeri - -	- - - -	—	39	0	Good, red.
525	—	- - - -	"	Gehun lal - -	Weevilled - -	60	38	0	Soft, good, large berried, chiefly red, mixed with oil seeds.
526	—	- - - -	"	Gehun disi - -	Ditto - - -	56½	37	0	Small berried, little shrivelled, weevil, and linsee d.
523	—	- - - -	—	Dandi - -	Lost.				
524	—	- - - -	—	Mungen - -	Destroyed by weevil.				
		Basti District.							
715	—	- - - -	A	Gangajali - -	Weevilled - -	—	45	0	Fine, white, superior No. 1.
764	—	- - - -	"	Daudi - -	- - - -	—	43	0	White, about No. 1.
487	—	- - - -	C	Lalia - -	Much weevilled - -	—	40	0	Fine, small berried, red, soft.
823	—	- - - -	C A	Ditto - -	- - - -	—	39	0	Ordinary red, small berry, mixed, white.
776	—	- - - -	C	Samudhra - -	Much weevilled - -	54	38	0	Good, red, some white.
484	—	- - - -	—	Gangajali - -	Destroyed by weevil.				
485	—	- - - -	—	Daudi - -					
486	—	- - - -	—	Samodhwa - -					
		Ghazipur District.							
679	—	- - - -	A	Daudi - -	- - - -	—	43	6	Good, white, about No. 1, but thin.
307	—	- - - -	"	Ditto - -	Weevilled - -	56½	40	0	Good, white, soft, good colour, rather dirty.
308	—	- - - -	C	Lalia - -	Ditto - - -	62	39	0	Good, red, but dirty.
810	—	- - - -	"	Ditto - -	Much weevilled - -	—	39	0	Good, red, soft.

Valuation of the Samples of Wheat, &c.—*continued.*

Valuation Number of Sample.	Number on Sample as received.	Locality.	Description of Sample. Colour and Hardness.	Name.	Condition.	Weight.	Value. s.	Value. d.	Remarks.
		Gorakhpur District.							
377	—		C A	Lalia	Weevilled	62½	40	0	Fine, red, mixed with white, clean.
792	—		C	Ditto		—			Good, red.
376	—		—	Daudi	Destroyed by weevil.				
		Mirzapur District.							
334	—		A	Daudi	Weevilled	62	43	0	Fine, small berried, soft, white.
785	—		C	Lalia bargehuna		—	40	0	Good, red, soft.
335	—		„	Lalia		60½	39	0	Good, stout, red, dirty, gram, &c.
336	—		„	Lalia tisia	Weevilled	60	38	6	Good, red, somewhat rough.
784	—		D	Ditto	Much weevilled	—	36	0	Red, long berry, hard.
337	—		—	Lalia bargehuna	Destroyed by weevil.				
694	—		—	Daudi					
816	—		—	Lal					
		ALLAHABAD DIVISION. *Allahabad District.*							
343	—		A	Daudi	Weevilled	59	44	6	Fine, small berried, soft, white.
344	—		A C	Raksa	Ditto	60	40	0	Fine, mixed with red, like Polish.
777	—		C	Ditto		—	41	0	Good, red, soft.
345	—		„	Burgehuna		60	40	0	Good, red, soft, rough, large berried.
795	—		„	Pisi		—	39	0	Good, red.
347	—		„	Pissi surkh	Weevilled	—	38	6	Good, red, thin.
828	—		„	Bargehuna		—	37	0	Long berried, red, roughish.
827	—		„	Kathia		—	36	0	Inferior, red, dirty, thin.
346	—		—	Murwa	Destroyed by weevil.				
348	—		—	Kathia					
		Banda District.							
704	—		A	Pisi gangajali		—	47	0	Fine, white, superior, No. 1, soft.
529	—		A C	Pisia lal kattria		60½	41	0	Rather mixed, large berried, about No. 2, few gram, and damaged, and grains.
530	—		A	Haveraj gangajali	Damaged	—	39	0	Rough, white, gram, rather dirty,
531	—		„	Pisia gangajali		—	38	6	Good, white, mixed, gram, rather hard.

832	—		D	Kathia laltumbia	Weevilled	58	37	0	Red, long berry, hard.
528	—		„	Ditto	Ditto	55½	32	0	Very large berried, rough, hard, red, gram.
527	—		„	Kathia Shuora		60	26	0	Large berried, hard red, grams, unfit for milling.
740	—		—	Gangajali	Lost.				
750	—		—	Pisi lal kathia					
		Cawnpore District.							
642	—		A	Muria	Weevilled	—	48 (without weevil.)	0	Very fine, white, stout, heavy, soft.
621	—		„	Anokha		—	47	0	Fine, white, superior, No. 1, soft.
637	—		„	Desi		—	46	0	Fine, white, superior, No. 1, large berry.
514	—		„	Mudia	Much weevilled	—	44	6	Fine drop wheat, probably weighs 64 lbs.
520	—		„	Tamra	Weevilled	61	43	6	Small berried, white, better than No. 1.
664	—		„	Ditto		—	43	6	White, about No. 1.
695	—		„	Seta	Weevilled	—	42	0	White, about No. 1.
675	—		„	Muria		—	41	6	Good white, but semi-hard.
513	—		„	Madnaia	Weevilled	62	41	0	Hardish white, mixed, some red.
947	1		„	Dasee Doodhia	Ditto	58	39	0	Mixed with barley.
948	2		A C	Dasee Goojur	Ditto	58	38	6	Mixed with barley.
949	3		A	Gunga	Ditto	55½	37	0	Inferior, mixed with barley.
950	4		„	Puchan	Ditto	54½	36	6	Inferior, mixed with pease.
521	—		B	Anokha	Much weevilled	—	40	0	Hard, large berried, clean, white.
647	—		„	Vilaiti		—	40	0	Long berried, hard, part soft.
789	—		C	Pisia		—	41	0	Fine, red, soft.
522	—		„	Ditto	Much weevilled	60½	39	0	Fine, red, large, clean, long berried.
831	—		D	Kuthia		—	35	0	Inferior, red, long berry, hard, rough.
519	—		„	Ditto		58½	32	6	Very inferior, red, mostly hard, flinty, gram.
515	—		—	Seta	Destroyed.				
516	—		—	Vilayeti	Destroyed by weevil.				
517	—		—	'Manayia					
518	—		—	Disi					
		Futtehpore District.							
639	—		A	Pisi awwal	Much weevilled	—	46 (without weevil.)	0	Fine, white, large berry.
670	—		„	Muria		—	45	0	White, superior, No. 1, soft.
669	—		„	Pisia		—	43	6	White, about No. 1.
751	—		„	Sitia		—	42	6	White, nearly No. 1.
732	—		„	Lalia		—	42	0	White, fully No. 2.
455	—		A C	Mundwa	Weevilled	60½	41	6	Fine, white, nearly mixed white and red.
458	—		C	Kathia	Mixed with barley	57	21	0	Very inferior, red, small, gram, barley, linseed, unfit for milling.
830	—		D	Ditto	Weevilled	59	37	0	Red, long berry, hard.

Valuation of the Samples of Wheat, &c.—*continued.*

Valuation Number of Sample.	Number on Sample as received.	Locality.	Description of Sample. Colour and Hardness.	Name.	Variation and Report. Condition.	Weight.	Value. s.	d.	Remarks.
		Futtehpore District—cont.							
453	—		—	Pissia	Destroyed by weevil.				
454	—		—	Ditto					
456	—		—	Lalia					
457	—		—	Seta or Gangajali					
		Jounpore District.							
374	—		A	Daudi	A few weevils	60½	43	0	Fine, small berried, soft, white.
730	—		„	Ditto	Much weevilled	56	43	0	Good white, some red.
780	—		A C	Lalia		—	40	0	Good red and white, mixed.
375	—		„	Ditto	Weevilled	62½	38	6	Good mixed, fully No. 2, dirty, with seeds.
		ROY BAREILLY DIVISION.							
		Pratabgarh District.							
466	—		A	Mundwa		62½	47	0	Fine, clean, round, white, like Californian.
630	—		„	Setua		60	46	6	Fine, white, superior, No. 1.
614	—		„	Mundia	Some weevil	—	46	0	Fine, white, small berry, good colour, superior, No. 1.
469	—		„	Satwa	Much weevil	62½	44	0	Fine, soft, white.
742	—		„	Majua-phul Khaja		—	44	0	Fine, white, about No. 1.
468	—		„	Rakasiva	Weevilled	61½	42	6	Good small, white, better than No. 1.
739	—		„	Roksua		—	41	6	White, about No. 2.
467	—		—	Mujwa or Phul Khaja	Destroyed by weevil.				
		Roy Bareilly District.							
685	—		A	Setua		—	42	6	White, about No. 1.
615	—		„	Mundia		—	41	0	White, about No. 2.
761	—		A C	Lalia	Much weevilled	—	37	0	Poor, ordinary, mixed.
331	—		—	Seta	Destroyed by weevil.				
332	—		—	Lalia					
333	—		—	Murwa					
		Sultanpur District.							
684	—		A	Dina Shahi		—	43	6	Fine, white, about No. 1, soft and hard, mixed.
711	—		„	Samdhara		—	43	6	White, about No. 1.

Valuation Number of Sample.	Number on Sample as received.	Locality.	Description of Sample. Colour and Hardness.	Name.	Variation and Report. Condition.	Weight.	Value. s.	d.	Remarks.
712	—		„	Daudia		—	43	6	Good, white, about No. 1, soft.
721	—		„	Mundwa		—	42	6	Good, white, nearly No. 1.
762	—		„	Sitwa	Weevilled	—	40	6	White, about No. 2.
652	—		B	Vilaiti		—	41	6	Long berried, hard.
763	—		D A	Lalia		—	38	0	Ordinary red, mixed white.
352	—		—	Daudi	Destroyed by weevil.				
353	—		—	Dipasahi					
354	—		—	Samodhawa					
355	—		—	Setwa					
356	—		—	Lalia					
357	—		—	Mundwa					
358	—		—	Australian wheat					
		FYZABAD DIVISION.							
		Bharaich District.							
489	—		A	Daudi		61	46	6	Fine, round, soft, white, like Californian, rather harder.
488	—		„	Sambodhwa	Weevilled	—	46	0	Fine, soft, regular, clean, white.
702	—		„	Sandhua		—	46	0	Fine, white, colory.
738	—		„	Mundia		59	43	0	Good, white, about No. 1.
722	—		„	Chastia		60	42	0	White, about No. 2.
490	—		„	Gangajali		61	42	0	Good, soft, small berried, clean, white, like Danzig.
494	—		„	Mundia	Few weevils	60	42	0	Small berried, good, soft, white, better than No. 1.
773	—		„	Raksia	Weevilled	60	41	6	White, fully No. 2.
492	—		A C	Kathia		—	41	0	Fine, small berried, white and red, mixed.
493	—		A	Raksi		60	40	6	Small berried, good, soft, white, better than No. 2.
772	—		A C	Lalia		—	40	0	Mixed, white and red, small berried,
495	—		A	Chunia	Much weevilled	59	39	0	Common, small berried, soft, dirty white.
491	—		—	Lalia	Destroyed by weevil.				
		Fyzabad District.							
708	—		A	Safed		—	44	0	Good, white, about No. 1.
719	—		„	Daudi		—	43	6	Fine, white, about No. 1.
718	—		„	Gangajali		—	43	0	Fine, white, about No. 1.
330	—		„		Weevilled	60½	42	6	Fine, white, mixed, long berried.
325	—		„	Safed	Mixed with oilseeds, &c.	62	40	6	Fine, white, soft, regular, little dirty.
329	—		„	Kathia lalia	Weevilled	61½	40	0	Good, white, mixed, hardish.
324	—		A D	Lalia	Ditto	63½	39	0	Good, mixed, mostly hard.
793	—		C	Ditto		—	39	6	Good, red.
794	—		„	Samadha		—	39	6	Good, red, some white.
326	—		—	Daudi	Destroyed by weevil.				
327	—		—	Samodhwa					
328	—		—	Gangajali					

Valuation of the Samples of Wheat, &c.—*continued.*

Valuation Number of Sample.	Number on Sample as received.	Locality.	Description of Sample. Colour and Hardness	Description of Sample. Name.	Valuation and Report. Condition.	Weight.	Value. s.	Value. d.	Remarks.
		Gonda District.							
767	—		A	Daudi		—	45	6	White, superior No. 1.
682	—		"	Ujra		—	44	0	Good, white, about No. 1.
768	—		"	Gangajali		—	42	6	White, nearly No. 1.
395	—		"	Ujra or Satua		60	42	0	Fine, soft, white, rather dirty.
393	—		A B	Samodwha		62½	39	6	Good, white, mixed, hard.
396	—		A	Gangajali		61	39	0	Good, white, fully No. 2, mixed with seeds.
394	—		B	Daudi		63	41	0	Fine, clean, regular, mostly hard, white.
392	—		B D	Lalia		62	38	0	Good, hard, white, mixed, hard, red.
802	—		C	Samodwha		—	39	0	Good, red.
818	—		C	Lalia		—	39	0	Ordinary, red.
		LUCKNOW DIVISION.							
		Barabanki District.							
741	—		A	Gangajali safed		—	44	0	White, about No. 1.
709	—		"	Lalia Sagarha		—	43	0	Good, white, about No. 1.
782	—		"	Muria	Weevilled	—	39	6	Ordinary, white.
710	—		A C	Kathia	Ditto	—	39	0	Good, white and red, mixed.
367	—		B	Murua	Ditto	62	41	0	Fine, mixed, hard, white.
755	—		D A	Phul Khaja		—	39	0	Good, red, hard, mixed with soft white.
366	—		—	Gangajali.					
368	—		—	Lalia sakraha	Destroyed by weevil.				
369	—		—	Kathia					
370	—		—	Dina Sahi					
371	—		—	Sita					
372	—		—	Bulrampuri					
373	—		—	Phul Khaja					
		Lucknow District.							
688	—		A	Kathua		—	44	0	Fine, white, about No. 1.
683	—		"	Sweta		—	44	0	Fine, white, fully No. 1, semi-hard.
474	—		"	Seta	Much weevilled	60	43	6	Fine, small berried, soft, white.
479	—		"	Kathua		—	43	6	Good, white, better than No. 1.
748	—		"	Gangajali		—	43	6	White, about No. 1.
766	—		"	Tamra		—	42	6	Good, white, nearly No. 1.
476	—		A B	Gangajali		60½	41	0	Good, white, mixed with clear grain, about No. 2.
477	—		A C	Dina Sahi	Partly eaten	61	40	0	Good, mixed, rather better than No. 2, some barley.
475	—		B	Tamla	Few weevils	64½	42	6	Fine, clean, hard, white, few tares.
478	—		B	Lalia	Much weevils	62½	39	0	Good, hard, large berried, white.
770	—		C	Dina Shahi		—	40	6	Good, red, some white.
		Unao District.							
359	—		A	Saman		—	48	0	Beautiful, soft, white.
361	—		"	Marua		62½	46	0	Fine, white, like Californian.
633	—		"	Muria	Wevilled	—	46	0	Fine, white, like Californian but harder.
672	—		"	Safeda	Ditto	—	45	0	Fine, white, fully No. 1.
778	—		A C	Desi		—	40	6	Mixed, white and red, soft.
364	—		A	Ditto	Weevilled	59	39	6	Good, soft, white, but mixed with inferior large berry.
650	—		B	Saman bargehuna		—	41	0	Long berried, hard.
360	—		"	Ditto		60	40	0	Fine, long berried, hard, flinty, white.
362	—		—	Marua	Insufficient for report.				
363	—		—	Seta	Destroyed by weevil.				
365	—		—	Desi	Insufficient for report.				
		SITAPUR DIVISION.							
		Hardui District.							
338	—		A	Seta	Weevilled	62	44	6	Fine, white, large berried, clean, mostly soft.
341	—		"	Mundia		62	44	6	Fine, small berried, soft, white, superior No. 1.
667	—		"	Sweta		—	44	0	Fine, white, about No. 1.
759	—		"	Kathia		—	43	6	Fine, white, about No. 1.
707	—		"	Daudi	Weevilled	—	43	6	Good, white, about No. 1.
668	—		"	Sambharia	Ditto	—	43	0	White, about No. 1.
619	—		"	Muria	Much weevilled	—	42	6	Fine, white, about No. 1.
340	—		"	Samharia	Weevilled	62	41	6	Good, mixed, clean.
339	—		—	Daudi	Destroyed by weevil.				
342	—		—	Kathia					
		Kheri District.							
386	—		A	Sitia		60½	45	0	Fine, soft, white, like Danzig, but dirty.
700	—		"	Ditto		—	43	6	Good, white, about No. 1.
774	—		"	Kathia		—	43	6	Good, white, about No. 1.
717	—		"	Sambharia	Weevilled	—	43	0	Good, white, about No. 1.
385	—		"	Ditto		62½	42	6	Fine, round, clean, regular white, better than No. 1.
775	—		A C	Muria		60	39	0	Mixed, white and red, small berried.
391	—		A D	Gajra	Weevilled	57	39	0	Common, mixed, dirty.
819	—		C A	Gajar		—	41	0	Good, mixed, red and white.

Valuation of the Samples of Wheat, &c.—*continued.*

Valuation Number of Sample.	Number on Sample as received.	Locality.	Description of Sample. Colour and Hardness.	Name.	Valuation and Report. Condition.	Weight.	Value. s.	Value. d.	Remarks.
		Kheri District—cont.							
821	—		C	Lalua		—	37	6	Ordinary red, some barley.
820	—		„	Sagarhei		—	37	0	Ordinary red, some barley.
390	—		D	Sikurha	Mixed barley and pulse	—	26	0	Inferior red, very dirty.
387	—		—	Muria	Destroyed by weevil.				
388	—		—	Kathua					
389	—		—	Lalua					
		Sitapur District.							
350	—		A	Mundia		61	46	0	Fine, white, like Californian.
665	—		„	Muria		—	46	0	Fine, white, soft, superior No. 1.
349	—		„	Lalia	Weevilled	61	43	0	Fine, soft, white.
696	—		„	Ditto		—	43	0	Good, white, about No. 1.
693	—		„	Setua		—	43	0	White, about No. 1.
351	—		A B	Satua		60½	42	0	Good, white, mostly soft, mixed with hard, thin.
		JHANSI DIVISION.							
		Jalaun District.							
472	—		A B	Pisia white		62½	40	0	Good, clean, long berried, white, much mixed with rough, red, hard wheat.
473	—		C	Pisia, red	Some weevil	61½	41	6	Fine, large berried, red, good.
814	—		C	Pisi doem		—	39	0	Good, soft, red, long berry.
824	—		„	Basra		—	37	6	Long berried, red, hard, some soft.
471	—		D	Bhusra	Weevilled	61	34	0	Rough, long berried, mixed, hard, red.
470	—		„	Kathia	Ditto	60½	32	6	Inferior large berried, red, mostly hard and rough.
		Jhansi District.							
649	—		B	Bakasia	Much weevilled	—	39	0	Long berried.
317	—		„	Baugasia	Weevilled	59	38	6	Long berried, hard flinty, like Cubanca.
786	—		C	Pisi	Ditto	—	39	6	Red, long berry, soft.
315	—		D	Kathia	Ditto	60	34	0	Common, rough, inferior red.
316	—		—	Pissi	Destroyed by weevil.				
		Lallitpur District.							
636	—		A	Pisi duem		—	45	0	Fine, white, long berry, superior No. 1.
829	—		„	Kathia		—	43	6	White, about No. 1.
448	—		„	Bhusra	Weevilled	60½	38	0	Common, rough, long berried, white, fully half hard.
749	—		A C	Chikrasia	Much weevilled	55	36	0	Mixed, white and red.
449	—		„	Khibrasia	Ditto	60½	35	0	Inferior mixed, rough, long berry.
646	—		B	Jalah	Weevilled	—	40	0	Long berried, hard, part soft.
645	—		„	Hasia mkasia		—	39	6	Long berried, hard, thin.
446	—		„	Kathia		61	33	6	Common, rough, flinty, white.
817	—		C	Pisi lal		—	40	0	Fine, round, red.
451	—		D	Pissi lal	Weevilled	59½	36	0	Hard, red, large berried, some barley.
447	—		—	Jalalia	Destroyed by weevil.				
450	—		—	Hanzia bangrasia					
452	—		—	Pissi safed					
		AGRA DIVISION.							
		Agra District.							
623	—		A	Ratta	Weevilled	—	42	0	White, fully No. 2.
319	—		„	Gajar		63	42	0	Fine, long berried, semi-hard, white.
622	—		„	„		—	41	0	White, about No. 2.
323	—		A C	Gajar lal		62	39	0	Good, mixed, long berried, white and red.
752	—		„	Gajar		—	38	6	Mixed red and white.
322	—		C	Laljaware	Weevilled	62	40	0	Good, red, few barleys, tares, &c.
807	—		„	Lalia		—	40	0	Good, red.
808	—		„	Lal Khali		—	38	6	Good, red, long berry.
318	—		—	Mandia	Destroyed by weevil.				
320	—		—	Rata					
321	—		—	Lal Kahis					
753	—		—	-					
		Etawah District.							
496	—		A	Gajar		61	44	6	Fine, white, fully No. 1.
731	—		„	Muria	Weevilled	59	44	0	Good, white, fully No. 1.
497	—		„	Anokha		63½	43	6	Fine, white, long, semi-hard, clean.
689	—		„	Gajar	Much weevilled	—	43	6	Good, white, about No. 1.
627	—		„	Anokha		—	43	6	White, about No. 1.
504	—		„	Lal pisia		58½	42	0	Good, white, large berried, mixed gram.
505	—		„	Madina		62½	42	0	Fine, white, large berried, mixed, red.
733	—		„	Pisia	Much weevilled	—	41	0	White, about No. 2.
503	—		„	Chelkna		61	41	0	Soft, long berried, rough and dirty.
736	—		A C	Madnainya		—	39	6	White, mixed, red.

Valuation of the Samples of Wheat, &c.—*continued.*

Valuation Number of Sample.	Number on Sample as received.	Locality.	Description of Sample. Colour and Hardness.	Description of Sample. Name.	Valuation and Report. Condition.	Weight.	Value. s.	Value. d.	Remarks.
		Etawah District—cont.							
498	—	- - - -	A	Mundia - -	Mixed barley and gram -	60	37	0	Large berried, good, white, few damaged grains, 42*s.* if cleaned.
806	—	- - - -	C	Kathia - -	- - - -	—	39	6	Good, red, soft, long berry.
501	—	- - - -	,,	Laltambia - -	- - - -	62½	38	6	Fine, large berried, mixed, mostly red, clean.
811	—	- - - -	,,	,, - -	- - - -	59	37	0	Ordinary red.
499	—	- - - -	,,	Kathia - -	Weevilled - -	62½	36	0	Large berried, soft, red, fine, but mixed with small gram.
500	—	- - - -	—	Samaria - -	} Destroyed by weevil.				
502	—	- - - -	—	Sukhdas - -					
734	—	- - - -	—	Chilkna - -	Lost.				
		Etah District.							
430	—	- - - -	A	Mundia - -	Few weevils - -	62	47	0	Fine, soft, clean, white, like Australian.
632	—	- - - -	,,	Sambharia - -	Weevilled - -	—	46	0	Fine, white, like Californian.
671	—	- - - -	,,	Ratta - -	- - - -	—	46	0	White, superior No. 1, soft, like Californian.
431	—	- - - -	,,	Samaria - -	- - - -	62½	43	0	Fine, soft, clean, white, like Spanish.
434	—	- - - -	,,	Rata - -	Much weevilled - -	60½	42	6	Fine, soft, large berried, white.
432	—	- - - -	A B	Gajar - -	- - - -	62½	41	6	Fine, soft, white, mixed with hard.
673	—	- - - -	A	Gajah - -	Weevilled - -	—	41	0	White, about No. 2.
433	—	- - - -	A C	Katha - -	A few weevils - -	62	40	0	Good, mixed, mostly hard, about No. 1.
435	—	- - - -	B	Bhidia - -	- - - -	61	40	6	Long berried, flinty, hard, like Cubanca.
648	—	- - - -	,,	Bhadia - -	- - - -	—	40	6	Long berried, good.
771	—	- - - -	C	Kathia - -	- - - -	—	39	0	Ordinary red, some white.
		Furruckabad District.							
661	—	- - - -	A	Muria - -	Much weevilled - -	—	42	6	White, about No, 1.
511	—	- - - -	,,	Mundia - -	Weevilled - -	60½	42	0	Good, clean, white.
662	—	- - - -	,,	Sambharia - -	- - - -	—	41	6	White, about No. 2.
508	—	- - - -	,,	Safeda - -	- - - -	57	41	0	Good, soft, white, but very thin.
744	—	- - - -	,,	Sambharia - -	- - - -	—	41	0	Thin, white, about No. 2.
510	—	- - - -	A C	Gajar - -	Weevilled - -	60½	40	0	Long berried, mixed, rather hard.
743	—	- - - -	,,	Ditto - -	- - - -	—	39	0	Mixed, red and white.
512	—	- - - -	A	Samaria - -	Weevilled - -	55	37	0	Small, thin, shrivelled, white.
506	—	- - - -	B	Ditto - -	A little weevilled - -	60½	41	0	Good, hard, white.

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507	—	- - - -	,,	Ditto - -	Ditto - - -	61½	40	0	Hard, large berried, white, better than No. 2.
509	—	- - - -	B D	Katha - -	- - - -	60	39	0	Common, mixed, hard.
796	—	- - - -	C	Kathia - -	- - - -	61	38	6	Good, red.
660	—	- - - -	—	Sambharia - -	Lost.				
		Muttra District.							
631	—	- - - -	A	Safeda - -	- - - -	—	46	6	Fine, white, like Californian.
303	—	- - - -	,,	Ditto - -	- - - -	60½	41	0	Fine, white, soft, large berried, but dirty, mixed with barley, requires cleaning,
304	—	- - - -	A C	Gajar - -	Weevilled - -	61	39	0	Large berried, red and white, mixed barley.
760	—	- - - -	A D	Ditto - -	- - - -	—	38	0	Mixed, white, soft, and red, hard.
790	—	- - - -	C	Lal - - -	- - - -	—	40	6	Good, red, soft.
815	—	- - - -	,,	Lal awwal - -	- - - -	—	39	0	Good, red.
306	—	- - - -	,,	Lal - - -	Much mixed with barley -	60	30	0	Common, long berried, rough, red, unfit for milling.
305	—	- - - -	D	Ditto - -	Mixed with barley -	61	32	0	Hard, large berried, red, mixed with barley.
		Mainpoori District.							
635	—	- - - -	A	Sambharia - -	- - - -	—	40	0	Fine, white, like Californian.
634	—	- - - -	,,	- - -	- - - -	—	46	0	Fine, white, like Californian.
380	—	- - - -	,,	Safeda - -	Weevilled - -	60	44	6	Fine, white, clean, long berried.
674	—	- - - -	,,	Lalia - -	- - - -	—	43	6	White, about No. 1.
381	—	- - - -	,,	Muria - -	Much weevilled - -	60½	43	0	Fine, soft, white.
634	—	- - - -	,,	Safeda - -	- - - -	—	42	0	Good, white, about No. 2.
382	—	- - - -	A D	Lalia - -	Much weevilled - -	63	40	0	Fine, long berried, mixed, red, hard, soft, white.
379	—	- - - -	B	Anokha - -	Ditto. - -	60½	42	0	Long berried, flinty, hard,
653	—	- - - -	,,	Ditto - -	- - - -	—	40	6	Long berried, hard.
378	—	- - - -	—	Samaria - -	Destroyed by weevil.				
383	—	- - - -	—	Lalia - -	} Insufficient for report.				
384	—	- - - -	—	Lirhia - -					
		ROHILKUND DIVISION.							
		Bareilly District.							
625	—	- - - -	A	Sambharia - -	Weevilled - -	—	46	0	Fine, white, superior No. 1, soft.
677	—	- - - -	,,	Pisia - -	- - - -	60	46	0	Fine, white, superior No. 1, soft.
692	—	- - - -	,,	Katha - -	- - - -	—	45	0	Fine, white, superior No. 1, soft.
706	—	- - - -	,,	Sambharia - -	- - - -	—	44	6	Fine, white, superior No. 1, soft.
624	—	- - - -	,,	Muria purnaria -	- - - -	—	43	6	White, about No. 1.
658	—	- - - -	,,	Kathia paria -	- - - -	—	43	6	White, about No. 1.
659	—	- - - -	,,	Daudi - -	- - - -	—	43	6	White, about No. 1.
737	—	- - - -	,,	Mundia - -	- - - -	—	43	0	White, about No. 1.
758	—	- - - -	,,	Bhamuan -	- - - -	—	42	6	Good, white, about No. 1.
540	—	- - - -	,,	Bhambua (2) -	A few weevils - -	60	42	0	Good, white, clean, better than No. 2.

Valuation of the Samples of Wheat, &c.—*continued.*

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		Bareilly District—cont.							
549	—		A	Katha (2)	Weevilled	60½	41	6	Fine, white, about No. 1.
536	—		"	Mundia (1)	Ditto	61	41	6	Fine, mixed, about No. 1.
746	—		AC	Ratua	-	—	41	6	Good, white, thin, about No. 2.
537	—		A	Mundia (2)	Weevilled	61	41	0	Good, white, small berried, semi-hard, about No. 1.
745	—		"	Gajra	-	—	41	0	Thin, white, about No. 2.
538	—		"	Ratna	Very much weevilled	56½	40	0	Fair, white, dirty, imperfectly threshed.
539	—		"	Bhambua (1)	Weevilled	60½	40	0	Fair, thin, white, about No. 2.
541	—		"	Hansa	Ditto	59½	40	0	Fair, white, semi-hard.
551	—		"	Mund panwaria	Ditto	61	40	0	Common, white, partly hard.
544	—		"	Gajra	Very much weevilled	56	38	0	Thin, poor, white.
644	—		B	Barlamba	-	—	41	0	Long berried, hard, good, white.
550	—		"	Pasia	Weevilled	61	41	0	Good, hard, white.
547	—		"	Daudkhani	Ditto	59	38	6	Common, rough, hard, white.
548	—		"	Katha panwaria	Ditto	60½	38	0	Common, hard, white.
542	—		C	Katha (1)	Weevilled	62	39	7	Fine, clean, red, fully equal, No. 2.
809	—		"	Ditto	Much weevilled	—	37	0	Good, red.
543	—		—	Lalua pahari	Destroyed by weevil.				
545	—		—	Samaria (1)					
546	—		—	Ditto (2)					
765	—		—	Muria Surkh	Lost.				
552	—		—	Burlumba					
		Budaon District.							
697	—		A	Bhambua	-	—	46	6	Fine, white, superior No. 1, soft.
698	—		"	Muria	-	61	46	6	Fine, white, superior No. 1, soft.
617	—		"	Ratua	-	61	46	0	Fine, white, superior to No. 1.
656	—		"	Raimunea	-	—	45	0	Fine, white, like pearl barley.
616	—		"	Muria ratua	Much weevilled	—	43	6	White, about No. 1.
687	—		"	Ratua	-	—	42	6	Good, white, superior No. 2.
723	—		"	Muria	Very much weevilled	51	42	0	Good, white, about No. 1.
724	—		"	Katta	Ditto	49	42	0	Good, white, about No. 1.
686	—		"	Sambharia	Much weevilled	53	41	6	White, about No. 2.
783	—		"	Gajar	-	59	41	6	White, about No. 2.
655	—		B	Ratua	-	—	40	6	Long berried, hard.
		Mooradabad District.							
714	—		A	Muria awwal	-	62	47	0	Fine, white, superior No. 1, like pearl barley.
613	—		"	Mundia	Some weevil	—	46	0	Fine, white, small berry, good colour, superior No. 1.
728	—		"	Mandwa Kada	-	60	46	0	Fine, white, small berry, superior No. 1.
727	—		"	Ditto	-	61½	45	6	Fine, white, small berry, superior No. 1.
726	—		"	Muna safed	-	61	45	0	Fine, white, small berry, about No. 1.
729	—		"	Safed	-	59	43	6	Fine, white, small berry, round, about No. 1.
725	—		"	Ratta awwal	-	—	43	6	White, about No. 1.
691	—		A C	Surkh	-	—	40	0	Ordinary, mixed red and white, soft.
800	—		C	Kathia	-	62	39	0	Good, red, mixed with white.
801	—		"	Mundwa	-	59	38	0	Good, red.
		Shahjehanpur District.							
735	—		A	Muria safed	-	—	44	6	White, fully No. 1.
690	—		"	Samba	-	—	44	0	Good, white.
705	—		"	Daudi	-	—	43	6	Fine, white, about No. 1.
480	—		"	Ditto	Weevilled	60½	43	0	Fine, small berried, soft, white, better than No. 1, few damaged grains.
779	—		A C	Kathia	-	—	41	0	Good, white, mixed red, nearly No. 2.
483	—		"	Katha	-	59	40	0	Good, mixed, about No. 2, soft, mostly white.
482	—		A	Mundia	-	60½	38	0	Fine, white.
481	—		B	Sambhari	Weevilled	60	40	6	Good, hard, white.
		KUMAON DIVISION.							
		Gurwhal District.							
620	—		A	-	Much weevilled	52	43	6	Fine, white, about No. 1.
803	—		C	-	-	60	38	6	Good, red.
		Kumaon District.							
618	—		A	-	Very much weevilled	—	43	6	White, about No. 1.
804	—		C	-	Much weevilled	—	35	6	Good, red.
		MEERUT DIVISION.							
		Aligurh District.							
754	—		A D	Gajar	-	60	39	0	Mixed, white, soft, and red, hard.
628	—		B	Ratta	-	—	41	6	Good, hard, white.
643	—		"	Kathia	-	58	41	0	Long berried, hard.
787	—		C	-	-	57	40	0	Good, red, soft.
788	—		"	Lal	Weevilled	53½	39	6	Red, long berry, soft.

Valuation of the Samples of Wheat, &c.—*continued.*

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		Bulundshahr District.							
459	—		A	Safed	Sound	63	48	0	Fine, white, like Australian, soft, long berried.
463	—		"	Gajar		63½	47	0	Fine, white, like Australian, rather harder.
640	—		"	Safed		—	46	6	Fine, white, like Californian, soft.
465	—		"	Mendha		62½	46	0	Fine, white, like Californian, clean, regular.
638	—		"	Gajar		—	46	0	Fine, white, superior No. 1, large berry.
626	—		"	Rutta		62	45	6	Fine, white, superior No. 1.
462	—		"	Ditto		63	45	0	Fine, mixed with hard, clean, white, better than No. 1.
657	—		"	Munia		—	45	0	Fine, white, like pearl barley.
676	—		"	Munda	Much weevilled	—	43	0	Good, white, about No. 1.
460	—		"	Munia		61½	41	6	Small, round, white, like pearl barley.
651	—		B	Barha		—	42	0	Long berried, hard.
461	—		"	Ditto		—	40	6	Very long, large, steely, white.
464	—		C	Gehun lal		62½	42	0	Fine, clean, regular, red, fully No. 1.
812	—		"	Lal		—	40	0	Fine, red.
		Dehra Doon District.							
681	—		A	Mihirta		—	45	0	Good, white, superior No. 1.
680	—		"	Ditto		—	44	0	Good, white, about No. 1.
666	—		"	Ditto		62	43	6	Good, white, about No. 1.
720	—		"	Ditto		60½	43	0	White, about No. 1.
442	—		"	Ditto		60½	41	6	Good, small berried, part hard, white, about No. 1.
441	—		"	Ditto (5)		61	41	0	Good, white, nearly No. 1.
756	—		A D	Ditto		—	40	6	Good, white, mixed, red, about No. 2.
437	—		A	Ditto (1)		62	40	0	Good, white, semi-hard, dirty.
439	—		"	Ditto (3)		61	39	6	Good, white, semi-hard, rather dirty.
440	—		"	Ditto (4)	Mixed with barley	58	22 to 27	0 0	Inferior, white, dirty, mixed with barley, unfit for milling.
438	—		B	Ditto (2)	Badly cleaned	60	39	0	Fair, hard, white, better than No. 2.
799	—		C	Lal gehun		—	39	0	Good, red.
825	—		"	Kusar		—	38	0	Good, red, soft.
798	—		"	Lal tondi dar		—	37	0	Ordinary, red.
436	—		"	Lal ta rider		61	37	0	Good, reddish, mixed barley, dingy.
445	—		"	Kusal		—	36	0	Fair, soft, red, many shrivelled grains, and barley.
443	—		"	Lal gehun	Mixed with barley	60	33	0	Good, small berried, red, tares and barley, a few white grains, require cleaning.
826	—		"	Mihirti		59	30	6	Inferior, red, dirty, barley.
444	—			Mundla	Insufficient for report.				
		Meerut District.							
397	—		A	Safed		62	48	0	Very fine, soft, white, like Californian.
629	—		"			—	48	0	Very fine, soft, white, like Australian.
403	—		"	Monda		62	47	0	Fine, round, soft, white, like Californian, clean, regular, some hardish.
641	—		"	Muria		—	45	6	Fine, white, superior No. 1, stout.
399	—		"	Gajar		62	44	0	Fine, white, better than No. 1.
701	—		"	Ditto		—	44	0	Fine, white, fully No. 1.
401	—		"	Chunia		63½	43	6	Very fine, small berried, round, white, regular, like pearl barley.
400	—		"	Gajar		61	42	0	Good, white, mixed, red, about No. 1.
757	—		A C	Ditto		58	41	6	Mixed white and red, small berry.
402	—		B	Barha		61	41	0	Very long, large, steely, white (fine).
654	—		"	Ditto		—	40	6	Long berried, hard.
398	—		C	Surkh		61½	41	0	Good, long berried, clean, red, about No. 1.
813	—		"	Lal		—	39	0	Good, red.
		Muzaffarnuggur District.							
699	—		A	Safeda		—	46	0	Fine, white, superior No. 1.
534	—		"	Ditto		61½	44	0	Fine, white, soft, small berried, better than No. 1.
678	—		"	Mundia		—	43	0	White, about No. 1.
716	—		"	Gajra		—	42	0	Good, white, about No. 2.
533	—		B	Menda		60	40	0	Fine, clean, hard, thin berried, white.
805	—		C	Surkh		59	40	0	Good, red, soft.
532	—		"	Ditto	Weevilled	60½	39	0	Good, red, soft, clean, like Polish.
535	—		—	Gajra	Destroyed by weevil.				
		Saharunpur District.							
310	—		A	Monda		62½	46	6	Very fine, clean, semi-hard, white.
663	—		"	Muria	Weevilled	—	45	0	Fine, white, superior No. 1, soft.
769	—		A C	Gajar	Much weevilled	—	38	0	Ordinary mixed red and white.
312	—		B C	Gajra	Weevilled	60	40	0	Good, mixed, hard, white.
309	—		C	Surkh		62	40	0	Fine, small, red, some white, better than No. 2.
797	—		"	Ditto		—	38	6	Good, red.
311	—		—	Daudkhani	Destroyed by weevil.				

Valuation of the Samples of Wheat, &c.—*continued.*

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		AJMERE AND MHAIRWARRA.							
595	—	Mhairwarra - -	B	Katha safed -	- - - -	59½	40	0	Long berried, flinty, white.
592	—	Ditto - - -	C	Kharcha baja -	- - - -	64½	42	6	Long berried, soft, very fine, red.
588	—	Ajmere - - -	,,	Baja maigee -	Weevilled - -	61	41	6	Long berried, soft, fine, red, yellowish.
590	—	Ditto - - -	,,	Baja kharcha -	Ditto - - -	62	41	0	Long berried, soft, fine, red.
594	—	Mhairwarra - -	D	Katha lal - -	- - - -	60½	37	6	Long berried, rough, flinty, red.
589	—	- - - -	—	Baja sajwa - -	Lost.				
591	—	- - - -	—	Maigee baja -	Lost.				
593	—	- - - -	—	Kath baja - -	Lost.				
		PUNJAB.							
		DELHI DIVISION.							
		Delhi District.							
273	—	Sonepal - - -	A	Gundun safed -	- - - -	65	48	0	Fine, white, like Australian.
274	—	Ditto - - -	C	Gundun surkh -	Weevilled - -	60½	40	0	Fine, red, yellowish.
		Gurgaon District.							
259	—	- - - -	C	- - -	- - - -	64	41	6	Fine, yellowish, soft, red.
		Kurnool District.							
260	—	- - - -	C	Gehun lal - -	- - - -	53½	31	6	Inferior, thin, red, much mixed with barley and tares.
268	—	- - - -	—	- - -	Lost.				
		HISSAR DIVISION.							
		Hissar District.							
296	—	- - - -	C	Kerletia - -	- - - -	61½	39	0	Good, small berried, red, semi-hard.
229	—	- - - -	—	Kathuiya gehun -	Lost.				
		Rohtak District.							
427	—	Barram land - -	C	Red wheat - -	Weevilled - -	62	41	0	Fine, red, yellowish.
422	—	Canal land - -	,,	Ditto - -	Ditto - -	61	39	6	Good, soft, red, few grams and barley.
420	—	Jhapar - - -	,,	Ditto - -	Ditto - - -	60	30	0	Good, red, mixed with barley, unfit for milling.
426	—	Well land - -	,,	Ditto - -	Ditto - - -	59	30	0	Good, long berried, red, very much mixed with barley, unfit for milling.
428	—	Dahri land - -	,,	Ditto - -	Ditto - - -	58	28	0	Good, soft, red, half barley, unfit for milling.
429	—	Baram land - -	D	Bangra - -	Ditto - - -	59½	33	0	Common, red, mixed with gram and barley.
421	—	- - - -	—	Red wheat - -	Destroyed by weevil.				
423	—	- - - -	—	Daud khani -	Destroyed by weevil.				
424	—	- - - -	—	White wheat -	Destroyed by weevil.				
425	—	- - - -	—	Red wheat - -	Destroyed by weevil.				
267	—	- - - -	—	- - -	Lost.				
		Sirsa District.							
292	—	- - - -	A	White - -	Weevilled - -	61	45	0	Fine, soft, small berried, white.
291	—	- - - -	B	Brown - -	- - - -	60½	41	0	Good, hard, small berried, white.
295	—	- - - -	C	Nali - - -	- - - -	61	38	0	Good, soft, small berried, red.
293	—	Dabwali - - -	,,	Brown - -	- - - -	55½	33	0	Common, red, mixed, gram and barley.
294	—	- - - -	D	Canal wheat - -	- - - -	61½	36	0	Common, semi-hard, small berried, dingy red.
		UMBALLA DIVISION.							
		Umballa District.							
240	—	Naraingurh - - -	B	- - -	- - - -	62½	40	0	Good, hard, small berried, white.
252	—	Manailla - - -	C	- - -	Weevilled - -	61	39	6	Good, soft, small berried, red.
243	—	- - - -	,,	- - -	Much weevilled - -	61	39	0	Good, soft, red, yellowish.
241	—	Jagadhree - - -	,,	- - -	Ditto - - -	58	37	0	Small berried, red, some barley.
239	—	Hurnaal - - -	—	- - -	Destroyed by weevil.				
242	—	Jehsulpuplee - - -	—	- - -	Destroyed by weevil.				
238	—	- - - -	—	- - -	Destroyed by weevil.				
		Loodiana District.							
244	—	- - - -	C	- - -	Little weevilled - -	61	38	6	Good, red, hardish.
258	—	- - - -	,,	Red - - -	Weevilled - -	60	38	0	Good, small berried, red.
		Simla District.							
257	—	Barowli - - -	A	White - -	- - - -	61½	44	0	Fine, small, regular berry, soft.
222	—	Ditto - - - -	C	Red - - -	- - - -	60½	39	0	Good, red, semi-hard, small berry.

Valuation of the Samples of Wheat, &c.—*continued.*

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		JULLUNDUR DIVISION.						
		Hoshiarpur District.						
247	—	Unal tehsel - - -	A	Daudkhani - -	Weevilled - -	62½	44 0	Fine, white, about half hard.
251	—	- - - -	C	Lal kanak - -	Much weevilled - -	60	40 0	Very fine, soft, small berried, red, yellow.
245	—	- - - -	—	Berra - -	Destroyed by weevil.			
246	—	- - - -	—	Daud khani - -				
248	—	- - - -	—	Ditto - -				
250	—	- - - -	—	Lal kanak - -				
		Jullundur District.						
264	—	- - - -	B	Kathee - -	Much weevilled - -	56½	33 0	Thin, hard, white, much mixed with barley, requires cleaning.
		Kangra District.						
256	—	- - - -	A	- - -	Weevilled - -	59	41 0	Good, white, but dirty.
263	—	- - - -	,,	Kunku - -	- - - -	62½	41 0	Good, white, small berried, semi-hard.
253	—	- - - -	,,	Rungri - -	Weevilled - -	56	36 0	Inferior, dirty, thin, small berried, white.
		UMRITSUR DIVISION.						
		Umritsur District.						
276	—	- - - -	—	Vadanak - -	Destroyed by weevil.			
277	—	- - - -	—	Lal - - -				
278	—	- - - -	—	Gaddar - -				
279	—	- - - -	—	Safaid - -				
		Gurdaspur District.						
227	—	Chahia - - -	C	Lal kanak - -	- - - -	53	30 0 and 32 0	Common, red, mixed with barley and gram, unfit for milling.

		Sialkot District.						
265	—	Pathanwalla - - -	C	Dagar - -	Much weevilled - -	55	32 0	Inferior, red, yellowish, much mixed with barley.
228	—	Jamki - - -	—	- - -	Destroyed by weevil.			
		LAHORE DIVISION.						
		Ferozepore District.						
226	—	- - - -	A	- - -	Much weevilled - -	59½	43 6	Good, soft, white.
269	—	- - - -	—	- - -	Insufficient for report.			
		Gujranwalla District.						
254	—	- - - -	A	Vadanak - -	Weevilled - -	58	42 0	Long berried, white, partly red, semi-hard.
		Lahore District.						
249	—	- - - -	A	- - -	Much weevilled - -	59½	43 6	Fine, soft, small berried, white.
255	—	- - - -	C	- - -	Weevilled - -	59½	37 0	Good, thin, small berried, red.
		MOOLTAN DIVISION.						
		Jhang District.						
230	—	Kaluwala - -	A C	Rodi kanak - -	- - - -	60	41 0	Good, small berried, semi-hard, white.
		Montgomery District.						
225	—	- - - -	—	Goni safed - -	Destroyed by weevil.			
		Mooltan District.						
271	—	- - - -	A	Makai kanak -	Weevilled - -	57½	44 0	Fine, small berried, white, mostly soft.
		Muzaffargarh District.						
231	—	Alipur - - -	—	White - -	Destroyed by weevil.			
232	—	Ditto - - -	—	Makki - -				
233	—	Sanawan - - -	—	Wadang - -				
234	—	Bhuki - - -	—	- - -				
235	—	Ditto - - -	—	Kohadu - -				
236	—	- - - -	—	Sanawan - -				
280	—	Kalandarwala - -	—	Gaji - -				
281	—	Umr Budh - -	—	White - -				
282	—	Kalandarwala - -	—	Paman - -				

Valuation of the Samples of Wheat, &c.—*continued.*

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		Rawulpindee Division.							
		Gujerat District.							
283	—	- - - -	A	Dagur - -	Mixed with oilseeds -	57½	38	0	Thin, long berried, white, dirty.
285	—	Mukiana - - -	D	Nikki - -	- - - -	53	35	6	Thin, inferior, long berried, hard, red.
284	—	Hurbuspur - -	—	Jawagul - -	Destroyed by weevil.				
		Jhelum District.							
272	—	- - - -	C	Red - - -	- - - -	61½	41	0	Fine, small berried, red, yellowish.
		Rawulpindee District.							
266	—	- - - -	—	Red - - -	Lost.				
		Shahpur District.							
410	—	- - - -	C	Rati - - -	Few weevils - -	61	41	0	Fine, large berried, red, mixed with barley.
408	—	- - - -	"	Ditto - -	Much weevils - -	59	37	0	Fine, soft, red, yellowish, mixed with barley, like Polish.
404	—	- - - -	—	Dagar - -	Destroyed by weevil.				
405	—	- - - -	—	Ditto - -					
406	—	- - - -	—	Radi - -					
407	—	- - - -	—	Soon kanak - -					
409	—	- - - -	—	Rati - - -					
		Peshawur Division.							
		Hazara District.							
275	—	Haripur - - -	—	Red - - -	Lost.				
		Kohat District.							
287	—	- - - -	A	Kulangi - -	Weevilled - -	57½	42	0	Long berried, soft, rough, white.
288	—	Namilzai - - -	"	Ditto - -	- - - -	56½	40	0	Long berried, white, semi-hard.
289	—	- - - -	C	Mirgandi Sindi -	Weevilled - -	56½	37	0	Common, soft, dingy red.
290	—	- - - -	"	Ail sarki - -	Much weevilled - -	55½	34	0	Inferior, thin, common, red.
286	—	- - - -	—	Srah ganam - -	Destroyed by weevil.				
262	—	Miranzai - - -	—	White - -					
		Peshawur District.							
224	—	Gurkhani - -	D	- - -	Chaffy - - -	47	26 and 29	0 0	Inferior, hard, red, very thin and chaffy.
		Derajat Division.							
		Bannu District.							
261	—	- - - -	C	Marwat red - -	Much weevilled - -	58½	36	6	Common, soft, red.
223	—	Jahsil Mianwali - -	"	- - - -	Ditto - - -	54	32	0	Inferior, red, mixed with barley.
237	—	- - - -	—	Destroyed by weevil.					
		Dera Ghazi Khan.							
270	—	- - - -	—	White - -	Destroyed by weevil.				
		Dera Ismail Khan.							
411	—	- - - -	A	- - -	Little weevilled - -	63	48	0	Fine, white, like best Californian.
412	—	- - - -	"	Zurd kanak - -	Ditto - - -	60½	44	6	Fine, soft, white, good, many damaged grains.
413	—	- - - -	C	Rutti kanak -	Weevilled - -	60½	41	6	Fine, long berried, soft, red.
415	—	Bhakkar - - -	"	- - -	Ditto - - -	60½	37	0	Long berried, soft, red, mixed with barley.
414	—	- - - -	—	Surkh - -	Destroyed by weevil.				
416	—	- - - -	—	Zurd kanak -					
417	—	- - - -	—	Ditto - -					
418	—	- - - -	—	Surkh - -					
419	—	- - - -	—	Rutti kanak - -					
		BOMBAY PRESIDENCY.							
		Sind.							
		Hyderabad District.							
1111	92	Naushabro - -	A	Shori - -	Some weevils - -	58½	43	0	No. 1, white.
1119	100	Hyderabad - -	"	Goji - -	Ditto - - -	57	42	0	White.
1104	85	Moro taluk - -	"	Makaien - -	Much weevilled - -	57½	41	0	Good, white, No. 1.

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		Hyderabad District—cont.							
1110	91	Naushahro - -	A	Shori - -	Weevilled - -	56	41	0	Small berried, white.
1121	102	Hyderabad - -	"	Khudna - -	Ditto - - -	54	37	0	Mixed.
1100	81	Kandiero tal - -	B	Gaj - -	Ditto - - -	61	39	0	Large berried, hard.
1102	83	Ditto - - -	"	Shori - -	Ditto - - -	54	39	0	Small, hard.
1099	80	Ditto - - -	"	Kahani (bearded) -	Ditto - - -	61	38	6	Good, hard, white.
1107	88	Moro taluk - -	C	Pamban - -	A little weevilled -	58	39	6	Fine, soft, red.
1101	82	Kandiero tal - -	—	- - -	Destroyed by weevil.				
1103	84	Ditto - - -	—	- - -					
1105	86	Moro tal - - -	—	- - -					
1106	87	Ditto - - -	—	- - -					
1108	89	Ditto - - -	—	- - -					
1109	90	Naushahro - -	—	- - -					
1112	93	Ditto - - -	—	- - -					
1113	94	Ditto - - -	—	- - -					
1114	95	Hala - - -	—	- - -					
1115	96	Jaude - - -	—	- - -					
1116	97	Ditto - - -	—	- - -					
1117	98	Ditto - - -	—	Garhi - -					
1118	99	Ditto - - -	—	Pamban - -					
1120	101	Hyderabad - -	—	Ghari - -					
1122	103	- - - -	—	Karir - -					
		Kurrachee District.							
1129	110	Sehwan division - -	A	- - -	Much weevilled - -	56½	41	0	Fine, white.
1136	117	Ditto - - -	"	- - -	Weevilled - -	55	41	0	Good, small berried, soft, white.
1133	114	Ditto - - -	"	Popri, 1st sort -	Ditto - - -	52	40	6	Fine, soft, white.
1134	115	Ditto - - -	"	Popri, 2nd sort -	Ditto - - -	52	40	6	Fine, soft, white, small berried.
1130	111	Ditto - - -	"	Shori, 1st sort -	Ditto - - -	54½	40	0	Good, small, white.
1138	119	Ditto - - -	"	Gauji - -	Ditto - - -	53	38	6	Thin, white.
1128	109	Ditto - - -	"	- - -	Ditto - - -	52½	38	0	Small, white.
1132	113	Ditto - - -	B	Kahnia, 1st sort -	Ditto - - -	55	36	6	Hard.
1135	116	Ditto - - -	"	Kahnia gaujo -	Ditto - - -	55	36	0	Hard, thin, white
1139	120	- - - -	C	Pamban, 1st sort -	Ditto - - -	52	36	0	Soft, red.
1131	112	- - - -	—	Shori, 3rd sort -	Destroyed by weevil.				
1137	118	- - - -	—	Red - -					
1140	121	- - - -	—	Ditto - -					
1141	122	- - - -	—	Samban, 3rd sort -					
		Shikarpur District.							
1080	61	Sukkur taluk - -	A	Shori - -	Little weevilled - -	58	43	6	Very fine, white.
1096	77	Mehar taluk - -	"	Ditto - -	Ditto - - -	57½	43	0	
1092	73	Sigar taluk - -	"	Ditto - -	Ditto - - -	58½	42	0	Fine, soft, white.
1079	60	Shikarphur taluk - -	"	Khudain - -	Ditto - - -	59	42	0	Short berried, fine, white, clean.
1095	76	Kakar taluk - -	"	Shori - -	Ditto - - -	55	41	6	Good, white.
1074	55	Rohri division - -	"	Khudayen - -	Ditto - - -	57	41	0	Short, round, white, like pearl barley.
1081	62	Kambar taluk - -	"	Shori, 1st sort -	Ditto - - -	58	41	0	Good, white, No. 1.
1091	72	Ratodero taluk - -	"	Ditto - -	Ditto - - -	58½	41	0	White.
1075	56	Rohri division - -	"	Ditto - -	Much weevilled - -	56	40	6	Fine, white.
1073	54	Ditto - - -	A C	Gahri gereri -	Weevilled - -	58	40	0	Good, mixed.
1087	68	Sujawal tal - -	A	Shori, 2nd sort -	Little weevilled - -	52	39	0	Small, soft, white.
1089	70	Larkhana tal - -	"	Shori - -	Ditto - - -	53	39	0	Soft, white.
1082	63	Kambar tal - -	"	Shori, 2nd sort -	Ditto - - -	53½	38	0	White.
1072	53	Rohri division - -	B	Gaj - - -	Much weevilled - -	55	38	0	Fine, hard, white.
1078	59	Naushahro tal - -	"	Kahin - -	Little weevilled - -	57½	38	0	Hard, white.
1085	66	Rabdarga tal - -	"	Gaj, 2nd sort -	Ditto - - -	56½	38	0	Hard, white.
1093	74	Sigar tal - -	"	Kahno - -	Ditto - - -	57	38	0	Hard.
1097	78	Mehar tal - -	"	Gaj kahno - -	Ditto - - -	56	37	0	Hard, rough.
1088	69	Larkhana tal - -	"	Gaj - - -	Ditto - - -	52½	36	6	Hard, thin.
1083	64	Kambar tal - -	"	Khano, 2nd sort -	Ditto - - -	57½	36	0	Hard.
1090	71	Ratodero tal - -	"	Gaj - - -	Ditto - - -	54½	36	0	Hard.
1086	67	Sajawal tal - -	"	Gaj, 1st sort -	Ditto - - -	53	35	0	Hard, dirty, inferior.
1076	57	Rohri division - -	—	Jawah - -	Destroyed by weevil.				
1077	58	Naushahro tal - -	—	Shori - -					
1084	65	Labdarga tal - -	—	Gaj, 1st sort -					
1094	75	Kakar tal - -	—	Shori - -					
1098	79	Mehar tal - -	—	Kahno gaudi -					
		Thur and Parkur District.							
1124	105	- - - -	B	Khahno, No. 2 -	Weevilled - -	57	36	0	Hard.
1123	104	- - - -	—	Shori - -	Destroyed by weevil.				
1125	106	- - - -	—	Gori gaji, No. 3 -					
1126	107	- - - -	—	Khodno, No. 4 -					
1127	108	- - - -	—	Goji jowali, 5 -					
		Upper Sind Frontier.							
1070	51	- - - -	A	Shori shadi - -	Little weevilled - -	59	43	6	Fine, white, better than No. 1.

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		Upper Sind Frontier—cont.							
1069	50	- - - -	A C	Kaisri - -	Little weevilled - -	61	40	0	Good, mixed, little barley.
1063	44	- - - -	"	Red - - -	Ditto - - -	58½	39	6	Mixed.
1040	21	- - - -	"	Kaisri garhi -	Ditto - - -	58	39	0	Mixed.
1047	28	- - - -	"	Shir (red) - -	Ditto - - -	55½	39	0	Mixed.
1051	32	- - - -	A	Kaisri jawati -	Ditto - - -	62	38	6	Mixed with barley.
1053	34	- - - -	A C	Garhi sanhi - -	Ditto - - -	56½	38	6	Mixed, good.
1054	35	- - - -	"	Jawali - -	Ditto - - -	56½	38	6	Mixed, good.
1056	37	- - - -	A	Gaj kaisri - -	Ditto - - -	52½	38	0	Mixed with barley.
1071	52	- - - -	A C	- - -	Ditto - - -	57½	38	0	Mixed.
1024	5	- - - -	"	Garhi shori shuli -	Ditto - - -	56½	37	6	Mixed.
1023	4	- - - -	A	Achi shori - -	Much weevilled - -	55½	37	0	Good, white.
1049	30	- - - -	"	Jawali - -	Ditto - - -	54½	37	0	Mixed with barley.
1058	39	- - - -	"	Garhi sanhi - -	Ditto - - -	57	37	0	Mixed with barley.
1041	22	- - - -	"	Kaisri garhi -	Weevilled - -	53	36	0	Mixed with barley.
1045	26	- - - -	"	Shori jawali - -	Ditto - - -	56	36	0	Mixed with barley.
1020	1	- - - -	—	Sanhi garhi jowali -	Lost.				
1021	2	- - - -	—	Ditto - -					
1022	3	- - - -	—	Sanhi shori - -					
1025	6	- - - -	—	Garhi shori - -					
1026	7	- - - -	—	Bhuri shori - -					
1027	8	- - - -	—	Gaj shori jawali -					
1028	9	- - - -	—	Khudain - -					
1029	10	- - - -	—	Shori achi - -					
1030	11	- - - -	—	Red, mixed - -					
1031	12	- - - -	—	Achi shori - -					
1032	13	- - - -	—	Shori - -					
1033	14	- - - -	—	Shori saf shuli -					
1034	15	- - - -	—	Shori - -					
1035	16	- - - -	—	Red jawali - -	Destroyed by weevil.				
1036	17	- - - -	—	Ditto - -					
1037	18	- - - -	—	Shori garhi - -					
1038	19	- - - -	—	Shori or bald -					
1039	20	- - - -	—	Shori jawali - -					
1042	23	- - - -	—	Jawali - -					
1043	24	- - - -	—	Ditto - -					
1044	25	- - - -	—	Saf shori jawali -					
1046	27	- - - -	—	Shori jawali - -					
1048	29	- - - -	—	Ditto - -					
1050	31	- - - -	—	Garhi sanhi jawali -					
1052	33	- - - -	—	Jawali kaisri -					
1057	38	- - - -	—	Achi jawali - -					
1055	36	- - - -	—	Jawali - -					
1059	40	- - - -	—	Shori garhi - -					
1060	41	- - - -	—	Jwalai - -					
1061	42	- - - -	—	Shori jawali - -					
1062	43	- - - -	—	Red - - -					
1064	45	- - - -	—	Shori - -	Destroyed by weevil.				
1065	46	- - - -	—	Shori jawali - -					
1066	47	- - - -	—	Ditto - -					
1067	48	- - - -	—	Ditto - -					
1068	49	- - - -	—	Shori saf - -					
		Native States in Guzerat.							
1	—	Gondal - - -	D	- - -	- - - -	59	37	6	Hard, long berried, red.
1*a*	—	Ditto - - - -	"	- - -	- - - -	58½	37	6	Hard, long berried, red, flinty.
2	—	Limri - - - -	"	- - -	- - - -	58½	37	6	Large berried, red, flinty.
2*	—	Ditto - - - -	"	- - -	- - - -	60	37	6	Thin, long berried, red, flinty.
3*a*	—	Morvi - - -	"	- - -	- - - -	58½	37	6	Thin, long berried, red, flinty.
3*b*	—	Ditto - - - -	"	- - -	- - - -	60½	37	0	Thin, long berried, red.
		Districts of the Bhownuggur State.							
25	—	Gadhada - - -	B	Hasia - -	- - - -	60½	40	6	Long berried, white, mostly hard.
19	—	Bhab - - - -	"	Ditto - -	- - - -	60	39	0	Long berried, hard, white, flinty, mixed with reddish.
15	—	Sihor - - - -	C	Vajia - -	- - - -	58	40	6	Long berried, red, mostly soft.
22	—	Botad - - -	"	Patalia - -	- - - -	58	40	6	Long berried, red, semi-hard.
9	—	Kundla - - -	C D	Ditto - -	- - - -	59½	40	6	Long berried, semi-hard, mixed, flinty.
7	—	Ditto - - - -	"	Vajia - -	- - - -	58½	40	0	Long berried, red, mixed, semi-hard.
11	—	Sihor - - - -	"	Katha - -	- - - -	59	40	0	Long berried, red, semi-hard, good.
13	—	Mahwa - - -	"	Ditto - -	- - - -	61	40	0	Long berried, red, semi-hard.
17	—	Ditto - - - -	"	Patalia - -	- - - -	61½	40	0	Good, semi-hard, red.
12	—	Jalaja - - -	C	Ditto - -	- - - -	60	39	6	Small, semi-hard, red.
14	—	Sihor - - - -	C D	Ditto - -	- - - -	61½	39	0	Long berried, red, semi-hard, good.
18	—	Daskroi - - -	C	Vajia - -	- - - -	63	39	0	Long berried, red, semi-hard.
20	—	Gadhada - - -	"	Patalia - -	- - - -	59½	39	0	Long berried, red, semi-hard.
16	—	Lilia - - - -	D	Kathia - -	- - - -	57½	39	0	Long berried, red, flinty.
23	—	Daskroi - - -	"	Ditto - -	- - - -	57	39	0	Long berried, red, flinty.
26	—	Lilia - - - -	"	Vajia - -	- - - -	58	39	0	Long berried, red, flinty.
27	—	Umrala - - -	"	Ditto - -	- - - -	61	39	0	Long berried, red, flinty.
6	—	Bhab - - - -	"	Katha - -	- - - -	59½	38	6	Long berried, red, flinty.

Valuation of the Samples of Wheat, &c.—*continued.*

Valuation Number of Sample.	Number on Sample as received.	Locality.	Description of Sample. Colour and Hardness.	Name.	Valuation and Report. Condition.	Weight.	Value. s.	d.	Remarks.
		Districts of the Bhownuggur State—cont.							
8	—	Umrala	D	Chasia		58½	38	6	Long berried, red, flinty.
21	—	Gadhada	"	Katha		57½	38	6	Long berried, red, flinty.
24	—	Umrala	"	Ditto		58	38	6	Long berried, red, thin, hard.
10	—	Jalaja	"	Patalia		58	38	0	Long berried, red, flinty.
28	—		—		Destroyed by weevil.				
29	—		—						
		NORTHERN DIVISION.							
		Ahmedabad District.							
869	—		B A	Chasia katha		59	40	0	White, long berried, mixed, hard and soft.
868	—		D	Ditto	Much weevilled	54	35	6	Red, long berried, hard, yellowish.
870	—		—	Wadina	Destroyed by weevil.				
		Broach District.							
214	—	Wagra taluk	A	Pota		57	42	6	Long berried, white, like Spanish.
220	—	Ankleswar	"	Potia		58	41	0	Long berried, soft, white, like Spanish.
218	—	Ditto	A B	Katha		57½	41	0	Long berried, white, about semi-hard.
217	—	Wagra taluk	B	Hansia		55	40	0	Long, white.
221	—	Jambusar	"	Ditto		58	40	0	Hard, flinty, white.
219	—	Ankleswar	"	Ditto		58	39	6	Long-berried, flinty, white.
215	—	Wagra taluk	"	Katha		59	38	6	Long-berried, flinty, white.
5	—		"			57½	38	6	Long-berried, flinty, white, earthy.
216	—	Wagra taluk	D	Jira	Much weevilled	53	36	0	Long-berried, rough, red.
4	—		—		Destroyed by weevil.				
		Kaira District.							
1008	—	Radoo taluk	D	Doodkhani	Badly weevilled	54½	36	0	Hard.
1007	—		—	Katha	Destroyed by weevil.				
1009	—		—	Wajia					
1010	—		—	Katha					

		Khandesh District.							
41	D	Amalner taluk	A		Some weevil	62½	43	0	Good, clean, regular, white.
580	G	Bhadgaon	B	Kalee Kusal	Ditto	61	42	6	Fine, stout, long berried, hard, white.
605	K 2	Nasirabad	"	Bansi		62½	42	6	Long berried, flinty, white, fine.
607	L 2	Jamner	"	Ditto	Weevilled	58½	40	0	Long berried, flinty, white, fine.
48	F 1	Nandurbar tal	"			59	40	0	Good, long berried, flinty, white, fine.
51	F 4	Ditto	"			59	40	0	Good, long berried, flinty, white, fine.
941	R	Taluk Dhulea	"	Pievale Pote		60	40	0	Small, semi-hard, white.
943	T		"	Pievale Bansi		61½	40	0	Fine, hard, white.
39	D 1	Amalner taluk	"			58	39	6	Long berried, hard, flinty, good, white.
47	E 2	Taloda	"		Weevilled	59	39	6	Long berried, hard, white.
50	F 3	Nandurbar taluk	"			60½	39	6	Long berried, flinty, white, good.
599	I 2	Sanda	B D	Bansi		60½	39	6	Long berried, flinty, rough, mixed.
612	N 2	Edalabad	B	Ditto	Weevilled	61	39	0	Long berried, flinty, fine, white.
46	E 1	Taloda tal	"		Ditto	59	39	0	Long berried, flinty, white, earthy.
35	C 1	Shahadu tal	"			57½	38	6	Long berried, flinty, white.
42	D 4	Amalner tal	B D			59	38	6	Long berried, hard, mixed white and red.
942	S	Tal Dhalea	"	Lal Kate		60	38	6	Hard, mixed.
34	B 2	Pachora tal	B			58½	38	0	Long berried, flinty, mostly white.
49	F 2	Nandurbar tal	"			57	38	0	Good, flinty, white, earthy.
602	F 2	Yawal tal	B D	Kate		60	37	6	Long berried, mixed, mostly hard.
946	P	Kirdel tal	"	Bansi	Slightly weevilled	58½	37	0	Hard, mixed.
945	O 2	Sirpar tal	B	Berad Bansi	Badly weevilled	56	35	0	Rough, hard.
209	F 6	Pimpalner tal	C D			61	38	6	Long berried, red, mixed, hard and soft.
208	F 5	Ditto	D		Weevilled	57½	38	0	Long berried, red, flinty, good.
598	I 1	Sanda	"	Nun Bansi		62	37	6	Long berried, rough, flinty.
610	M 3	Bhusawal	"	Bansi		62	37	6	Long berried, rough, flinty, good, red.
600	I 3	Sanda	"	Kati		58½	37	0	Long berried, flinty.
601	J 1	Yawal	"	Bansi		61	37	0	Long berried, flinty, good, mixed.
604	K 1	Nasirabad	"	Kate		61	37	0	Long berried, flinty, rough.
33	B 1	Pachora taluk	"			57	37	0	Long berried, flinty, mostly red.
603	J 3	Yawal	"	Nun Bansi	Weevilled	61	35	0	Long berried, flinty, rough.
940	Q	Taluk Dhulia	"	Lal Pote		56	35	0	Dark, thin, red.
597	H 2	Chupra tal	"	Kate	Weevilled	—	34	0	Long berried, flinty, rough.
31	A 1	Erandol tal	—		Destroyed by weevil.				
32	A 2	Ditto	—						
36	C 2	Shahada tal	—						
40	D 2	Amalner tal	—						
596	H 1	Chupra tal	—	Bansi					
606	L 1	Jamner tal	—	Kate					
608	M 1	Bhusawal	—	Bansi					
609	M 2	Ditto	—	Ditto					
611	N 1	Edalabad	—	Lal					
944	O 1	Taluka sirpar	—	Pote					

Valuation of the Samples of Wheat, &c.—*continued.*

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		Nassick District.							
999	—	- - - -	B	Banshi, yellow -	Weevilled - -	57	40	0	Very fine, hard, white.
1003	—	- - - -	"	Kate Pote - -	Ditto - - -	61	40	0	Very hard, dark white.
1005	—	- - - -	"	Pote, yellow -	Ditto - - -	63	40	0	Fine, hard, white.
1000	—	- - - -	"	Banshi, red - -	Much weevilled - -	61	39	6	Fine, hard, white.
1004	—	- - - -	D	Khuple - -	Weevilled - -	54½	36	0	Thin, hard, red, little husky.
1001	—	- - - -	—	Dawood Khani -	Destroyed by weevil.				
1002	—	- - - -	—	Kate, red - -					
1006	—	- - - -	—	Pote, red and yellow -					
		Punch Mehals.							
1011	—	- - - -	B	Daudkhani - -	- - - -	62	42	0	Very fine, large berried, hard, white.
1013	—	- - - -	"	Katha malvi - -	Little weevilled - -	61	40	6	Good, hard, white.
1014	—	- - - -	"	Gamadrov (1) -	- - - -	58	40	0	Hard, white, good colour.
1016	—	- - - -	"	Ditto (3) -	Badly weevilled - -	59	39	6	Very good, hard, white.
1015	—	- - - -	"	Ditto (2) -	Ditto - - -	58½	38	0	Good, hard, white.
1018	—	- - - -	"	Katha (2) - -	Ditto - - -	58	37	6	Hard.
1012	—	- - - -	—	Daud khani (2) -	Destroyed by weevil.				
1017	—	- - - -	—	Katha (1) - -					
1019	—	- - - -	—	Wajia - -					
		Surat District.							
962	—	Taluka Bardki - -	—	Pota - -	Destroyed by weevil.				
963	—	Taluka Olpar - - -	—	Hansia - -					
964	—	Ditto - - - -	—	Katha - -					
		Thana District.							
43	—	- - - -	B	- - -	- - - -	59	40	0	Good, round berried, white, flinty.
44	—	- - - -	"	- - -	- - - -	57	38	6	Thin, long berried, white, flinty.
45	—	- - - -	C	- - -	- - - -	61	38	0	Good, large berried, red, yellowish.

		SOUTHERN DIVISION.							
		Ahmednuggur District.							
300	—	- - - -	—	- - -	Destroyed.				
301	—	- - - -	—	- - -					
302	—	- - - -	—	- - -					
		Belgaum District.							
207	—	Sampgaon taluk - -	A C	- - -	Weevilled - -	58½	43	0	Fine, soft, mixed, red and white.
30*b*	—	- - - -	D	- - -	- - - -	58	37	6	Long, thin berried, red.
204	—	Athni taluka - - -	"	- - -	Weevilled - -	59	37	6	Long berried, flinty, red.
205	—	Ditto - - - -	"	- - -	Ditto - - -	56½	37	0	Long berried, flinty, red.
206	—	Parasgad taluka - -	"	- - -	Dttto - - -	58	37	0	Long berried, flinty, red, thin.
30*c*	—	Gokak - - -	"	- - -	- - - -	57½	36	6	Long berried, flinty, red, thin.
207*a*	—	- - - -	"	- - -	- - - -	—	36	6	Long berried, flinty, red.
38	—	Chikori taluk - -	"	- - -	- - - -	57	36	6	Long berried, flinty, red.
30*a*	—	- - - -	"	- - -	- - - -	58	36	0	Long berried, red, common.
30*d*	—	- - - -	—	- - -	Destroyed by weevil.				
37	—	Chikori taluk - - -	—	- - -					
		Dharwar District.							
581	—	- - - -	B	Wheat from Challisgaum (2 years acclimatised).	Few weevils - -	58	40	6	Fine, flinty, white.
584	—	- - - -	"	Wheat from Jabbalpur-Shapwa (3 years acclimatised).	- - - -	61	40	0	Long berried, hard, flinty, fine, white.
585	—	- - - -	"	Wheat from Tasulgaum (3 years acclimatised).	Some weevils - -	59	39	0	Good, hard, flinty, chaffy, white.
586	—	- - - -	D	Mixed Seine (3 years acclimatised).	- - - -	59	37	0	Long berried, hard, flinty, mostly red, dirty.
587	—	- - - -	"	- - -	- - - -	63	34	6	Rough, long berried, flinty, red.
582	—	- - - -	—	Wheat from Hoshungabad (2 years acclimatised) -	Destroyed by weevil.				
583	—	- - - -	—	Wheat from Jabbalpur (2 years acclimatised) -					

Valuation of the Samples of Wheat, &c.—*continued.*

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		Kaladgi District.							
52	—	- - - -	D	- - -	Much weevilled - -	55½	36	6	Long berried, red.
53	—	- - - -	"	- - -	Ditto - - -	59	35	0	Common red.
		Poona District.							
965	—	- - - -	B	Bakshi gahu -	- - - -	62	41	0	Fine, large berried, hard, white.
967	—	- - - -	"	Kate gahu - -	- - - -	63½	40	0	Very find, hard.
966	—	- - - -	"	Kali Kusal - -	- - - -	59	38	6	Hard, white.
969	—	- - - -	"	Daud khani -	- - - -	60	38	6	Thin, hard, good, white.
970	—	- - - -	"	Pote gahu - -	- - - -	60½	38	0	Hard, white.
968	—	- - - -	D	Khapla or Jod -	- - - -	59½	37	6	Thin, hard, red, brittle, husky.
		Satara District.							
994	—	Taluka Khutai - -	B	Buxi - -	- - - -	60	40	6	Good, hard, white.
976	—	Taluka Khanapur - -	"	Shet - -	- - - -	61	39	6	Hard, white.
981	—	Taluka Wan - -	"	Buxi - -	- - - -	54	39	6	Thin, hard, white.
998	—	Taluka Satara - -	"	Ditto - -	Slightly weevilled -	62½	39	6	Hard, white.
984	—	Taluka Palan - -	B D	Ditto - -	- - - -	62	39	0	Dark, hard, mixed.
991	—	- - - -	B	Kate - -	- - - -	61½	39	0	Large berried, hard.
992	—	Taluka Fauli - -	"	Shet - -	- - - -	60	39	0	Hard, mixed.
993	—	Taluka Wai - -	"	Ghaolee - -	- - - -	61	39	0	Hard, mixed.
989	—	- - - -	"	Shet - -	Rather weevilled - -	59	38	0	Hard.
985	—	Tal Koregaon - -	"	Buxi - -	- - - -	61	37	0	Hard.
977	—	Tal Palan - -	D	Shet - -	- - - -	—	37	6	Hard, good, red.
972	—	Tal Tasgaon - -	"	Ditto - -	- - - -	58	37	0	Hard, red.
978	—	Tal Walwa - -	"	Buxi - -	- - - -	57	37	0	Hard, thin, red.
996	—	Ditto - - -	"	Khuple - -	- - - -	60	36	6	Hard, thin, red.
971	—	Taluk Tasgaon - -	"	Ditto - -	- - - -	57	36	0	Hard, thin, red.
973	—	Taluk Kanid - -	"	Buxi - -	- - - -	58½	36	0	Hard, dirty, red.
974	—	Ditto - - -	"	Khuple - -	- - - -	58	36	0	Hard, thin, red, husky.
975	—	Taluk Khanapur - -	"	Ditto - -	- - - -	56½	36	0	Hard, thin, red, husky.
979	—	Taluk Wai - -	"	Ditto - -	- - - -	55	36	0	Thin, red, little husky.
980	—	Taluk Wan - -	"	Ditto - -	- - - -	56	36	0	Thin, red, hard.
982	—	Ditto - - -	"	Pote - -	- - - -	61	36	0	Thin, red, hard.
983	—	Taluk Palan - -	"	Khuple - -	- - - -	54½	36	0	Thin, red, hard, little husky.
986	—	- - - -	"	Kate - -	- - - -	59½	36	0	Hard, red, dirty.
987	—	- - - -	"	Khuple - -	- - - -	57½	36	0	Hard, red, thin, husky.
990	—	Tal Satara - -	"	Ditto - -	- - - -	58½	36	0	Hard, red, thin.
995	—	- - - -	"	Kali Koosli - -	- - - -	57½	36	0	Hard, red, dirty.
997	—	Tal Jauli - -	"	Khuple - -	- - - -	55½	36	0	Hard, red, thin, husky.
988	—	Tal Khatao - -	"	Ditto - -	- - - -	58	35	0	Thin, red, husky.
		Sholapur District.							
959	—	- - - -	B	Baxi or Bansi -	- - - -	61	37	6	Hard.
960	—	- - - -	D	Khapli or Jod -	- - - -	54	34	0	Thin, hard, red, little husky.
		CENTRAL PROVINCES.							
		NERBUDDA DIVISION.							
		Baitul District.							
181	1	- - - -	A	Pissi - -	- - - -	63	46	0	Fine, soft, white, like Californian, but few red grains.
182	2	- - - -	B	Akdania - -	- - - -	63½	40	0	Large berried, white, mostly hard.
183	3	- - - -	B C	Khamra - -	- - - -	62½	38	6	Long berried, mixed soft and red.
184	4	- - - -	D	Kathia - -	- - - -	62½	37	6	Long berried, mixed hard and soft, white.
		Chindwarra District.							
568	1	Linga - - -	—	Pissi - -	Destroyed by weevil.				
569	2	Kamarpuni - -	—	Bhokria - -					
570	3	Sonekhar- - -	—	Kathya - -					
		Hoshangabad District.							
579	3	- - - -	A	Sohareea - -	Weevilled - -	—	48	0	If not weevilled. Beautiful sample.
575	1	- - - -	A	White Pissi - -	Ditto - -	62	48	0	Very fine, white, like Australian, soft.
576	2	- - - -	—	Red Pissi - -	Destroyed by weevil.				
577	3	- - - -	—	Jellalea - -					
578	4	- - - -	—	Kathia - -					
		Nimar District.							
193	1	- - - -	A	Bansi - -	- - - -	—	41	0	Long berried, stout, white.
194	2	- - - -	C	Dhunya - -	- - - -	—	40	6	Long berried, hard, red, yellowish.
195	3	- - - -	D	Kathia - -	- - - -	—	37	6	Long berried, flinty, red.

Valuation of the Samples of Wheat, &c.—*continued.*

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		Nursingpore District.							
199	1	- - - -	A	Pissi - -	- - - -	62	42	0	Fine, large berried, white, mixed, hard, red.
200	2	- - - -	D	Kathia - -	- - - -	62	36	6	Rough, long berried, red.
		JUBBULPORE DIVISION.							
		Damoh District.							
201*e*	*e*	- - - -	AC	Doosra - -	- - - -	64	39	6	Good, mixed, hard, white and red, some gram.
201*d*	*d*	- - - -	AD	Pissī - -	- - - -	60	38	0	Long berried, red and white, hard and soft.
201*c*	*c*	- - - -	BD	Jalalia - -	- - - -	60½	37	6	Long berried, hard, mixed.
201*a*	*a*	- - - -	D	Hansia - -	- - - -	62	37	6	Long berried, flinty, red.
201*b*	*b*	- - - -	"	Kateea - -	- - - -	61	37	6	Long berried, flinty, red.
		Jubbulpore District.							
571	1	- - - -	—	Mundi -	Destroyed by weevil.				
572	2	- - - -	—	Kathia -					
573	3	- - - -	—	Jalalia - -					
574	4	- - - -	—	Pinjara - -					
		Mandla District.							
171	3	- - - -	A	Pissi Sookrawali -	- - - -	60½	46	6	Fine, small berried, white, like Californian.
170	2	- - - -	"	Pissi moondi -	- - - -	56	41	0	Good, thin, white.
172	4	- - - -	"	Jalalia (1) - -	- - - -	58½	40	6	Good, soft, white, few damaged grains.
174	6	- - - -	C	Bangasia - -	- - - -	57	38	6	Long berried, red, soft.
175	7	- - - -	"	Katia - -	- - - -	59	38	6	Long berried, red, soft.
173	5	- - - -	"	Jalalia (2) - -	Weeviled - -	55	37	6	Long berried, red, soft, rough.
169	1	- - - -	—	Pissi lal -	Destroyed by weevil.				
		Saugor District.							
165	2	- - - -	A	Pissi - -	- - - -	62½	46	0	Fine, clean, long berried, white.
164	1	- - - -	B	Hansia - -	- - - -	62½	40	6	Long berried, fine, flinty, white.
167	4	- - - -	"	Jalalia - -	- - - -	61	40	0	Long berried, flinty, white.
166	3	- - - -	D	Kathia - -	- - - -	62	37	6	Long berried, flinty, red.
		Seoni District.							
189	5	- - - -	A	Mundi - -	- - - -	64	47	0	Fine, clean, white, like Californian.
188	4	- - - -	"	Pissi - -	- - - -	59½	45	6	Fine, soft, white, few reddish.
187	3	- - - -	"	Jalalia - -	- - - -	58½	41	6	Good, long, soft, white.
186	2	- - - -	C	Kathia - -	- - - -	60½	38	6	Long berried, soft, red.
185	1	- - - -	"	Bungasia - -	- - - -	59½	38	6	Long berried, red and soft.
		CHUTTEESGURH DIVISION.							
		Bilaspur District.							
567	3	- - - -	C	Kathia - -	- - - -	60	41	6	Fine, clean, small berried, soft, red.
566	2	- - - -	"	Red Pissi - -	- - - -	63	41	0	Fine, clean, small berried, soft, red.
565	1	- - - -	"	White Pissi -	Few weevils - -	61	39	0	Good, soft, dingy red.
		Raipore District.							
563	2	Sunga - - -	C	Red Pissi - -	Weevilled - -	61	39	0	Fine, stout, soft, red, few damaged grains.
564	3	Ditto - - -	"	Red Katia - -	Ditto - - -	60½	39	0	Long berried, soft, red.
562	1	- - - -	—	White Pisia - -	Destroyed by weevil.				
		NAGPORE DIVISION.							
		Balaghat District.							
192	3	- - - -	A	Bansi - -	- - - -	62	43	0	Fine, clean, large berried, white.
190	1	- - - -	B	Pissi - -	- - - -	62	40	0	Good, hard, clean, white.
191	2	- - - -	D	Kathia - -	- - - -	61½	37	0	Long berried, almost hard.
		Bhandara District.							
553	1	- - - -	—	Pisi - -	Destroyed by weevil.				
554	2	- - - -	—	Kathi - -					
555	3	- - - -	—	Havra - -					
556	4	- - - -	—	Bansi - -					
		Chanda District.							
178	3	- - - -	C	Mal Katteh - -	- - - -	60	38	6	Long berried, hardish, red.
180	5	- - - -	"	Mal havali - -	- - - -	60	38	6	Long berried, soft, red.
176	1	- - - -	D	Katteh - -	- - - -	61½	37	6	Long berried, flinty, red.
177	2	- - - -	"	Katteh lal - -	- - - -	—	37	6	Long berried, hard, flinty, thin, red.
179	4	- - - -	"	Bansi - -	- - - -	61	37	0	Long berried, hard, red.

Valuation of the Samples of Wheat, &c.—*continued.*

Valuation Number of Sample.	Number on Sample as received.	Locality.	Description of Sample. Colour and Hardness.	Description of Sample. Name.	Valuation and Report. Condition.	Weight.	Value. s.	Value. d.	Remarks.
		Nagpore District.							
198	3	- - - -	A B	Chawal kathi -	- - - -	61	38	6	Long berried, soft, mixed, hard, flinty.
197	2	- - - -	B	Botka - -	Weevilled - -	61	40	6	Long berried, fine, hard, thin, white.
196	1	- - - -	"	Havra - -	Much weevilled - -	58½	39	0	Long berried, hard, white.
		Wurdha District.							
561	5	Hurghenghat - - -	D	Sousalya - -	Weevilled - -	62	37	6	Long berried, hard, flinty, red.
557	1	- - - -	—	Kathya - -	Destroyed by weevil.				
558	2	- - - -	—	Havara - -					
559	3	- - - -	—	Bhokra - -					
560	4	- - - -	—	Lal Pissi - -					
		Upper Godavery District.							
168	1	- - - -	D	Kathi - -	- - - -	60	37	0	Long berried, hard, red.
		BERAR.							
		East Berar.							
		Oomraottee District.							
879	—	Hartala - - -	B	Bansi - -	- - - -	61	41	6	Long berried, white, hard, thin.
881	—	Hatoornah - - -	"	Ditto - -	Much weevilled - -	56	40	0	Large berried, white, hard, good.
873	—	Chandur - - -	"	Chaoul katee -	- - - -	61	40	0	Long berried, white, hard, greyish, good.
874	—	Ditto - - - -	"	Bunsee gahun -	Weevilled - -	60	40	0	Long berried, white, hard, good.
875	—	Bulgaon - - -	"	Katish gahun -	Dirty - - -	60	39	6	Long berried, white, hard, grey.
871	—	Bhatkooli - - -	"	Bunsee gahun -	Few weevils - -	60	38	0	Long berried, white, hard.
876	—	Murhzapur - - -	"	Ditto - -	Much weevilled - -	58	38	0	Long berried, white, hard, grey.
877	—	Bulgaon - - -	"	Katiah - -	Few weevils - -	59½	38	0	Long berried, hard.
884	—	Murtizapur - - -	"	Ditto - -	- - - -	61	38	0	Long berried, hard, white, dirty.
882	—	Chandur - - -	D	Katiah gehun -	- - - -	60	37	6	Long berried, hard, red, good.
883	—	Morsi - - -	"	Ditto - -	Few weevils - -	59	37	0	Long berried, hard, red, good.
880	—	Bulgaon - - -	"	Lal gehun - -	- - - -	61	37	0	Long berried, hard, red, good.
878	—	Chandur - - -	"	Jode gehun - -	- - - -	58	36	0	Long berried, hard, red, thin.
872	—	Bulgaon - - -	—	Lal gehun - -	Lost.				
		Ellichpur District.							
923	—	Durriapur - - -	B	Bansi - -	- - - -	60½	41	0	White, long berried, hard.
918	—	Ellichpur - - -	"	Ditto - -	- - - -	60	40	6	White, long berried, hard.
921	—	Mailghat - - -	"	Ditto - -	Mixed rape seed - -	62½	40	0	White, long berried, hard, some earth.
920	—	Ditto - - -	B D	Potia - -	Ditto - - -	60½	39	0	Long berried, mixed hard and soft.
919	—	Ellichpur - - -	D	Katey - -	- - - -	60½	38	0	Red, long berried, hard.
922	—	Mailghat - - -	"	Kattia - -	Weevilled - -	60½	37	0	Red, long berried, hard.
924	—	Durriapur - - -	"	Katey - -	- - - -	59½	37	0	Red, long berried, hard.
		Woon District.							
925	—	Pumner - - -	B	Bukshi - -	Weevilled - -	60	40	0	Long berried, hard.
926	—	Dabat - - -	"	Deshi - -	Much weevilled - -	57	40	0	Long berried, hard, white.
927	—	Burrad - - -	"	Ditto - -	Ditto - - -	59	40	0	Long berried, hard, white.
928	—	Nandura - - -	D	Ditto - -	Ditto - - -	56½	36	0	Long berried, hard, red.
		West Berar.							
		Akola District.							
894	—	Akote - - -	B	Bansi - -	- - - -	61	41	6	Long berried, white, hard, good.
891	—	Ballapur - - -	"	Ditto - -	Weevilled - -	60	41	0	Long berried, white, hard.
892	—	Jalgaon - - -	"	Bagayati - -	Some weevils - -	58	40	0	Long berried, white, hard, ricey.
897	—	Akola - - -	"	Bansi - -	- - - -	61	39	6	Long berried, white, hard, good but earthy.
885	—	Khamgaon - - -	"	Bakshi - -	- - - -	60	39	0	Long berried, white, hard, grey.
886	—	Akola - - -	"	Chawal - -	Weevilled and dirty -	60	38	6	Long berried, white, hard, grey.
887	—	Khamgaon - - -	"	Bansi - -	Much weevilled - -	55	38	0	Long berried, white, hard, fair quality.
889	—	Ditto - - -	"	Ditto - -	Weevilled - -	59	38	0	Long berried, hard.
898	—	Jalgaon - - -	"	Kathi - -	Much weevilled - -	57½	38	0	Long berried, hard.
895	—	Ditto - - -	C	Bagati bansi - -	Weevilled - -	58	39	0	Small berried, red, soft, good.
888	—	Ditto - - - -	D	Bagayah bansi -	- - - -	60	37	6	Long berried, red, hard, grey.
893	—	Akote - - -	"	Kate - -	- - - -	60	37	6	Long berried, red, hard, grey.
890	—	Akola - - -	"	Kathe - -	Weevilled - -	59	37	0	Long berried, red, hard.
896	—	Ditto - - - -	"	Bagati bansi - -	- - - -	59	37	0	Long berried, red, hard, grey.
		Buldana District.							
908	—	Sarangpur - - -	B	Bansi - -	- - - -	61	41	0	Long berried, white, hard.
914	—	Waghapur - - -	"	Ditto - -	- - - -	60	41	0	Long berried, white, hard.
912	—	Gungakhed - - -	"	Ditto - -	- - - -	61	40	6	Long berried, white, hard.
916	—	Ganapur - - -	C	Pote -	Few weevils - -	61½	40	0	Long berried, red, good, soft, earthy.

Valuation of the Samples of Wheat, &c.—*continued.*

Valuation Number of Sample.	Number on Sample as received.	Locality.	Description of Sample. Colour and Hardness.	Description of Sample. Name.	Valuation and Report. Condition.	Weight.	Value. s.	Value. d.	Remarks.
		Buldana District—cont.							
909	—	Wadhoda	D	Bansi	-	58	37	0	Long berried, red, hard.
911	—	Sarangpur	"	Kathe	-	59	37	0	Long berried, red, hard.
917	—	Mugsari	"	Ditto	Few weevils	60	37	0	Long berried, red and white, hard.
907	—	Harsode	"	Ditto	Weevilled	55½	36	6	Long berried, red, hard.
910	—	Waghapur	—	Bansi	Destroyed by weevil.				
913	—	Meuria	—	Pote					
915	—	Dattala	—	Ditto					
		Bassim District.							
900	—	Wakua	B	Bukshi	-	60	40	0	White, long berried, hard.
901	—	Rissode	"	Ditto	-	59	39	6	White, long berried, hard.
905	—	Sirpoor	"	Khattai	-	60	39	6	White, mostly hard.
906	—	Ditto	C	Caodee	-	61	41	0	Red, good, soft.
904	—	Rissode	"	Botkai	-	62	40	0	Red, long berried, soft, good, some earth.
903	—	Ditto	"	Khattai	-	60	39	0	Red, long berried, semi-hard.
902	—	Oomerkheir	"	Sawali	-	60	38	0	Red, long berried, semi-hard.
899	—	Rissode	C D	-	-	62	37	6	Red, long berried, mixed hard and soft.
		MADRAS PRESIDENCY.							
		Bellary District.							
842	—	Aloor Taluq	D	Java godama	Few weevils	60	37	0	Red, long berry, hard.
840	—	Gooty Taluq	"	Salaku godama	Weevilled	58	36	6	Red, long berry, hard.
843	—	Todpaty Taluq	"	Budda godama	-	59	36	6	Red, long berry, hard.
839	—	Aloor Taluq	"	Java godama	Badly weevilled	50	36	0	Red, long berry, spindley.
841	—	Adoni Taluq	"	Potta godama	Much weevilled	—	35	0	Red, long berry.
961	—	Harpunhully Taluq	"	Java godhi	-	56	35	0	Thin, red, rather hard.
838	—	Gooty Taluq	—	Budda godama	Lost.				
844	—	Dharmsagur Taluq	—	Java godama	Destroyed by weevil.				
929	—	Kutlighi Taluq	—	Jave godama					
930	—	Ditto	—	Ditto					
931	—	Huvshhadgalli	—	-	Broken and chaffy.				

Valuation Number of Sample.	Number on Sample as received.	Locality.	Description of Sample. Colour and Hardness.	Description of Sample. Name.	Valuation and Report. Condition.	Weight.	Value. s.	Value. d.	Remarks.
		Coimbatore District.							
852	—	Oodoomulpetteh	D	Pottay godama	Musty	55	35	6	Red, small berry, hard clean, ricey.
855	—	Collegal	"	Javay godama	Much weevilled	54	35	6	Red, long berry, hard, thin.
854	—	Ditto	"	Hodday godama	Weevilled	54	34	0	Red, long berry, inferior.
853	—	Pulladum	—	-	Not threshed.				
851	—	-	—	Samba godama	Not husked	—	—		A kind of spelt, no value.
		Cuddapah District.							
837	—	-	D	Paramaty gothamalu	Weevilled	59	37	0	Red, hard, small berry, dingy.
835	—	Pulwendula	"	Budda gothamalu	Ditto	58	36	6	Red, hard, large berry.
836	—	Kadiry	"	Java gothamalu	Ditto	52	36	6	Red, hard, spindley, chaffy.
		Kurnool District.							
847	—	Rajupalam	D	-	-	58	37	6	Red, long berry, hard.
850	—	Kankanooroo	"	-	Weevilled	58	37	6	Red, long berry, hard, good.
848	—	Mundlapad	"	-	Ditto	56	37	0	Red, long berry, hard.
849	—	Sivavaram	"	-	-	57½	36	6	Red, long berry, hard.
846	—	Billalapuram	"	-	Weevilled	55	34	6	Red, long berry, hard, inferior, thin, dirty.
845	—	Allur	—	-	Lost.				
		Kistna District.							
834	—	Narsarowpeta	D	-	Much weevilled	59	35	6	Red, hard, dirty.
833	—	Nuzanul division	—	-	Lost.				
		Nilgherry District.							
856	—	Ootacamund	—	-	Not husked	—	—		A kind of spelt, no value.
		Tinnevelly District.							
857	—	Idakal tenkasi	-	-	Not husked	—	—		A kind of spelt, no value.
		MYSORE.							
864	—	-	D	Hotte godhi	-	60	37	6	Red, good, large berry, hard.
859	—	Betmangala	"	Java godhi	-	—	36	0	Red, long berry, hard, spindley.
867	—	Bangalore	"	Hotte godhi	Few weevils	59	35	6	Red, long berry, hard, inferior.
957	—	Chittledrag taluk	"	Java godhi	-	55	35	0	Thin, hard, red, a little husky.
953	—	Hoomali taluk	"	Hottee godhi	Unsuitable	—	—		Very dark red, hard.

Valuation of the Samples of Wheat, &c.—*continued.*

Valuation Number of Sample.	Number on Sample as received.	Locality.	Description of Sample. Colour and Hardness.	Description of Sample. Name.	Valuation and Report. Condition.	Weight.	Value.	Remarks.
		MYSORE—*cont.*						
955	—	Hosdrug taluk	D	Hottee godhi	Unsuitable	—	s. d. —	Dark, hard, red.
858	—	Kolar taluk	—	Java godhi	Not husked	—	—	A kind of spelt, no value.
860	—	Mulbagul	—	Ditto				
861	—	Malur	—	Ditto				
862	—	Sidlagutta	—	Ditto				
863	—	Goribidnur	—	Ditto				
865	—	Gumnaya Kanpalya	—	Ditto	Lost.			
866	—	Ditto	—	Ditto	Not husked	—	—	A kind of spelt, no value.
932	—	Arkalgud	—	Ditto				
933	—	Chamagiri	—	Ditto				
934	—	Hiriyur	—	Hotte godhi	Destroyed by weevil.			
935	—	Chitaldrug	—	Jave godhi				
936	—	Banavar	—	Ditto	Not husked	—	—	A kind of spelt, no value.
937	—	Tarikere	—	Ditto	Chaffy.			
938	—	Ditto	—	Hotte godhi	Ditto.			
939	—	Chihmagalur	—	Jave godhi	Ditto.			
951	—		—	Hottee godhi	Insufficient for report.			
952	—	Moosoor	—	Java godhi	Ditto.			
954	—	Nursepur	—	Ditto	Half in chaff.			
956	—	Powghur	—	Ditto	In the chaff.			
958	—		—		Destroyed by weevil.			
		BURMA.						
		Pegu District.						
202	—	Thayetmyo	D			55	35 0	Common, large berried, red.
203	—	Ditto	"			58	33 6	Common, large berried, red, much mixed with barley.

LONDON:
Printed by George E. Eyre and William Spottiswoode,
Printers to the Queen's most Excellent Majesty.
For Her Majesty's Stationery Office.

SUPPLEMENTAL REPORT

ON

INDIAN WHEAT.

Presented to both Houses of Parliament by Command of Her Majesty.

LONDON:
PRINTED BY GEORGE EDWARD EYRE AND WILLIAM SPOTTISWOODE,
PRINTERS TO THE QUEEN'S MOST EXCELLENT MAJESTY.
FOR HER MAJESTY'S STATIONERY OFFICE.
1881.

SUPPLEMENTAL REPORT

ON

INDIAN WHEAT.

THE Report on Indian wheat by Dr. Forbes Watson in 1879 made definite allusion to the weevilled condition of the samples received for valuation from the Punjab and Sind. In consequence of this a second series of samples were forwarded from the Punjab during 1880 for supplementary valuation and report. It is with especial reference to these samples that the following observations are submitted.

The samples, as enumerated below, were sent from the following localities :—

District.	No. of Samples.	District.	No. of Samples.
Delhi	7	Jhelum	2
Gurgaon	1	Gujrat	3
Karnal	5	Shahpur	8
Hissar	2	Mooltan	3
Rohtak	13	Kohat	5
Sirsa	3	Rawalpindi	13
Amballa	2	Muzaffargarh	6
Ludhiana	2	Jhang	11
Simla	4	Bannu	1
Jullundur	3	Peshawar	4
Hoshiapur	4	Hazara	4
Kangra	3	Montgomery	11
Amritsur	3	Dera Ghazi Khan	14
Gurdaspur	6	Dera Ismail Khan	19
Sialkot	11		
Lahore	11	Total	192
Ferozepore	4		
Gujranwala	4		

Although some of these samples were weevilled they were not destroyed to such an extent as to prevent their approximate valuation, and the majority were in excellent condition.

The valuation was undertaken by the same expert as on the previous occasion which has ensured the necessary uniformity essential for comparison. The advanced prices ruling in the English market at the time of this last valuation (11 October 1880) must, however, be taken into account in comparing the two valuations. The prices ruling at the time of the first valuation are given in the report. The prices ruling at the time of this second valuation are as follows :—

MARK LANE CORN EXCHANGE, 11 October 1880.

English red	per imp. qr.	39*s*. to 43*s*.
„ white	„	42*s*. to 47*s*.
Dantzig	per 496 lbs.	—
Rostock and Pomeranian	„	46*s*. to 51*s*.
Petersburg	„	None.
Saxonka	„	48*s*. to 50*s*.
Nicolaieff and Odessa Ghirka	„	42*s*. to 46*s*.
Berdianski and Marianople	„	None.
Danubian	„	None.
Taganrog Ghirka	„	44*s*, to 46*s*.
„ hard	„	48*s*. to 50*s*.

Australian - - -	per 496 lbs.	50*s.* to 51*s.*
New Zealand - - -	„	44*s.* to 54*s.*
Californian and Oregon - -	„	None.
White American and Canadian -	„	46*s.* to 47*s.*
No. 1 Milwaukee - - -	„	48*s.* to 49*s.*
No. 2 do. - - -	„	46*s.* to 47*s.*
No. 2 spring - - -	„	45*s.* to 46*s.*
Red winter, new - - -	„	47*s.* to 48*s.*
„ old - - -	„	50*s.* to 52*s.*
Calcutta, No. 1, white - -	„	48*s.* to 49*s.*
„ No. 2 „ - -	„	46*s.* to 47*s.*
„ ordinary - - -	„	44*s.* to 45*s.*
„ red - - -	„	42*s.* to 43*s.*
„ hard - - -	„	44*s.* to 45*s.*
Bombay, red and white - -	„	46*s.* to 50*s.*
Kurrachee - - -	„	44*s.* to 46*s.*

By comparison of the prices at the two periods a considerable advance will be noticed in 1880. In reference to this, the valuer has stated in reply to a request for a statement of the relationship which the prices at one period bore to the other, that "we "may take the average rise in value of wheat on the 11th October 1880, as com- "pared with 14th March 1879, to be, say 4*s.* 6*d.* per quarter of 480 lbs. On some "kinds, such as Russian Ghirkas, the increase in value is, from special causes, much "more, say about 8*s.* per quarter of 480 lbs.; but taking the market value as a whole, "the increase is as above stated."

In consequence of this condition of the markets it has been thought to be advisable to present the valuation as it has been made, with its relation to the prices ruling in October 1880, since any attempt by means of a diminution to the extent of 4*s.* 6*d.* per quarter all round would be inadequate, for the 8*s.* advance in Ghirka would represent also a greater advance than 4*s.* 6*d.* in all the class of Indian hard reds, some of which greatly resemble Ghirka. This will to a great extent explain the apparently great anomaly of hard red wheat bearing so low a price in the former valuation, and so high a one in the present.

The whole collection of 192 samples may be found classed in the following table:—

Denomination.	Value.			Total.
	48*s.* 6*d.* and above.	46*s.* 6*d.* to 48*s.*	46*s.* and under.	
A.—Soft white - - -	17	14	—	31
B.—Hard white - - -	17	40	10	67
C.—Soft red - - -	3	22	6	31
D.—Hard red - - -	1	36	22	59
Mixed - - -	—	—	—	4
	38	112	38	192

By computing the whole of the 192 samples at the rates quoted, always taking the lowest value where a range of 6*d.* or 1*s.* is allowed, the result is a very satisfactory one, as it gives an average value per quarter of 46*s.* 10½*d.* against 39*s.* 8*d.* for the whole of India in the previous valuation, or an advance of 7*s.* 2½*d.*, which cannot be all attributed to advanced prices.

Only seven samples were valued at or below 41*s.* 6*d.*, which is scarcely 4 per cent., whereas in the previous valuation fully 14 per cent. of the total of samples valued were below 37*s.* per quarter. In the present instance, with but one exception, all the inferior samples (with a value under 41*s.* 6*d.*) were sent from Dera Ghazi Khan and Dera Ismail Khan, the low price being occasioned by the dirtiness of the samples, which includes under the term "dirty" an admixture of barley or other grain.

A.—*Soft white wheat.*

The samples which fall under this heading do not extend over such a wide range of value as did those of the previous valuation. They are arranged in order of prices in

the following table, the approximate value at the period of the last valuation in February 1879 would have been about 4*s.* 6*d.* per quarter less.

Numbers in Valuation List.	Locality.	Weight per Bushel.	Price per Quarter.	Remarks.
		lbs.		
117	Muzaffargarh - -	63	50*s.* 6*d.* to 51*s.*	Very finest, like Oregon.
110	Rawalpindi - -	62½	50*s.* 6*d.*	Very fine, like Australian.
19	Rohtak - - -	64	50*s.*	Like Australian.
67	Lahore - - -	62½	„	Ditto.
69	Ditto - - -	62½	49*s.* 6*d.*	Ditto.
156	Rohtak - - -	62½	49*s.* to 49*s.* 6*d.*	Extra No. 1.
158	Ditto - - -	62	„	
159	Dera Ghazi Khan -	62	„	
15	Hissar - - -	62½	49*s.*	Like Australian.
43	Amritsur - -	64	„	Ditto.
137	Hazara - - -	59	„	The low weight caused by weevils; price, if free from insects; like Spanish.
138	Ditto - - -	60	„	Ditto.
75	Ferozepore - -	63	48*s.* 6*d.* to 49*s.*	Like Chilian.
98	Kohat - - -	61½	„	
157	Rohtak - - -	62½	„	
132	Peshawur - -	63½	48*s.* 6*d.*	
165	Dera Ghazi Khan -	60½	„	Extra No. 1.
3	Delhi - - -	64	48*s.*	Like Chilian.
12	Karnal - - -	62½	„	Like Australian.
13	Ditto - - -	61½	„	Ditto.
22	Sirsa - - -	62	„	
23	Amballa - -	63	„	Like Kubanka.
66	Lahore - - -	63	„	Small round.
145	Montgomery - -	61	„	
4	Delhi - - -	62½	47*s.* 6*d.* to 48*s.*	Like Chilian.
26	Ludhiana - -	58½	47*s.* 6*d.*	
47	Gurdaspur - -	61½	„	Like Chilian.
6	Delhi - - -	63	47*s.* to 47*s.* 6*d.*	Like Californian.
61	Lahore - - -	61½	46*s.* 6*d.*	Small round.
74	Ferozepore - -	62½	„	
78	Gujranwala - -	61	„	

These 31 samples have therefore only an extreme range of 4*s.* to 4*s.* 6*d.* per quarter, the highest being from 50*s.* 6*d.* to 51*s.* and the lowest 46*s.* 6*d.* Making allowance for the difference in market value at the two periods, these would all fall within the two highest groups of the classification adopted in Dr. Forbes Watson's Report, 25 of them being of the quality denominated "superior," and 6 of "No. 1 Club." The one sample, No. 117, valued at from 50*s.* 6*d.* to 51*s.*, with a weight of 65 lbs. per bushel, would not be equal to the Delhi sample No. 273 of the Report then valued at 48*s.*, which at the date of the present valuation would have advanced to about 52*s.* 6*d.* Although some of the samples were "weevilled" more or less, the valuation has been based on the value of the grain in a sound state.

B.—*Hard white wheat.*

In the previous valuation only three samples of hard white wheat were valued from the Punjab, whereas there are no less than 67 in the present series. By arranging the whole of these in gradation according to price, it will be observed that they compare favourably with the samples previously reported on from the whole of India.

Numbers in Valuation List.	Locality.	Weight per Bushel.	Price per Quarter.	Remarks.
128	Jhang - - -	64	49*s.* 6*d.* to 50*s.*	Like pearl barley.
113	Muzaffargarh - -	64	49*s.* 6*d.*	Ditto.
109	Rawalpindi - -	61½	49*s.*	
139	Montgomery - -	61½	„	Mixed.
161	Dera Ghazi Khan -	61½	„	
32	Jullundar - -	63	48*s.* 6*d.* to 49*s.*	Like F
33	Ditto - -	63	„	Dit
173	Mooltan - -	64	„	
172	Dera Ghazi Khan -	63	„	

Numbers in Valuation List.	Locality.	Weight per Bushel.	Price per Quarter.	Remarks.
10	Karnal - - -	63½	48*s.* 6*d.*	Like No. 1 Kubanka.
14	Hissar - - -	59½	"	Weevilled.
50	Sialkot - - -	61	"	Dike Kubanka.
52	Ditto - - -	62½	"	Ditto.
58	Ditto - - -	60½	"	Ditto.
59	Ditto - - -	62	"	Ditto.
160	Dera Ghazi Khan -	60½	"	
166	Ditto - - -	59½	"	
2	Delhi - - -	64¼	48*s.* to 48*s.* 6*d.*	Like Australian.
94	Mooltan - -	62	"	
111	Rawalpindi - -	60½	"	
147	Montgomery - -	62	"	
168	Dera Ghazi Khan -	63½	"	Like pearl barley.
37	Hoshiarpur - -	63½	48*s.*	
39	Kangra - - -	62	"	
46	Gurdaspur - -	63½	"	Like Kubanka.
48	Ditto - - -	60½	"	Ditto.
56	Sialkot - - -	61	"	Ditto.
57	Ditto - - -	60½	"	Ditto.
68	Lahore - - -	62	"	
112	Rawalpindi - -	61	"	
118	Muzaffargarh - -	62	"	
127	Jhang - - -	61½	"	
129	Ditto - - -	61	"	Like Kubanka.
176	Dera Ismail Khan -	60½	"	
178	Ditto - - -	59½	"	
183	Ditto - - -	60½	"	
29	Simla - - -	64½	47*s.* 6*d.* to 48*s.*	
30	Ditto - - -	62	"	Ricey.
60	Sialkot - - -	61	"	Like Kubanka.
84	Gujrat - - -	61½	"	Ditto.
106	Rawalpindi - -	60½	"	Ditto.
116	Muzaffargarh - -	56½	"	Clear long grain.
41	Amritsur - -	58½	47*s.* 6*d.*	
70	Lahore - - -	62½	"	
93	Mooltan - -	61½	"	
140	Montgomery - -	59½	"	
179	Dera Ismail Khan -	61½	"	
148	Montgomery - -	61	47*s.* to 47*s.* 6*d.*	Roughish, dirty.
11	Karnal - - -	62	47*s.*	Like glassy Dantzig.
40	Kangra - - -	62½	"	
65	Lahore - - -	59½	"	Like Kubanka.
169	Dera Ghazi Khan -	60	"	Dirty.
149	Montgomery - -	60½	46*s.* 6*d.* to 47*s.*	Ditto.
171	Dera Ghazi Khan -	60	"	
63	Lahore - - -	60	46*s.* 6*d.*	Ricey.
76	Gujranwala - -	61	"	Roughish.
162	Dera Ghazi Khan -	59½	"	
42	Amritsur - -	59	46*s.*	Dirty.
125	Jhang - - -	59½	"	Ditto.
27	Simla - - -	62	45*s.* 6*d.* to 46*s.*	Some shrivelled.
77	Gujranwala - -	57½	45*s.* 6*d.*	Ditto.
115	Muzaffargarh - -	57½	45*s.* to 46*s.*	Dirty.
175	Dera Ismail Khan -	60	39*s.* to 40*s.*	Half barley.
163	Dera Ghazi Khan -	57	36*s.* to 37*s.*	Mixed.
174	Dera Ismail Khan -	58½	"	⅓ barley.
182	Ditto - - -	57½	34*s.*	⅓ do.
167	Dera Ghazi Khan -	54½	32*s.* to 34*s.*	⅓ do.

The highest valuation for hard white wheat in the previous valuation was 42*s.* 6*d.*, whereas from 49*s.* 6*d.* to 50*s.* is the highest in the present. As no price for "Kubanka" was quoted in October 11, 1880, there being none in the market, the Indian "hard whites" cannot be compared with the type which they most resemble. The average price of all the samples in the valuation of 1879 from all India was 39*s.* 5*d.*, whereas the average value of the 67 samples now examined would be 46*s.* 9*d.*, or an advance of 7*s.* 4*d.* per quarter on the average price of the previous valuation. Allowing a reasonable discount for advance in prices, the average would still be above that of the valuation of 1879. The samples 163, 167, 174, 175, and 182 illustrate the effect which a large admixture of barley has upon the value of a sample in the London market.

C.—*Soft red wheat.*

The last valuation included 30 samples of this kind of wheat from the Punjab, whilst the present contains 31. All of these latter, except three, would have fallen into Class I. of that arrangement, whereas only two of the previous samples came under that class, so that all the soft red wheats are much superior to those of the 1879 consignment. The same mode is again adopted of tabulating in the soft red wheats according to gradations in value.

Numbers in Valuation List.	Locality.	Weight per Bushel.	Price per Quarter.	Remarks.
108	Rawalpindi - -	62	48*s.* 6*d.*	
130	Bannu - - -	61½	"	Like No. 1 red winter.
136	Hazara - - -	62	48*s.* to 48*s.* 6*d.*	
34	Hoshiarpur - -	63	48*s.*	Like No. 2 red winter.
101	Rawalpindi - -	63½	"	Like No. 1 ditto.
104	Ditto - - -	61	"	Like Dantzig.
107	Ditto - - -	62½	"	
92	Shahpur - -	62⅓	47*s.* 6*d.* to 48*s.*	Like No. 1 red winter.
131	Peshawar - -	62⅓	"	Like No. 2 red winter.
103	Rawalpindi - -	62	47*s.* 6*d.*	
133	Peshawar - -	63½	"	
189	Dera Ismail Khan -	60½	"	
102	Rawalpindi - -	62	47*s.* to 47*s.* 6*d.*	
7	Delhi - - -	63¼	"	Mixed barley.
9	Karnal - - -	62¾	47*s.*	Like No. 2 amber.
21	Sirsa - - -	62½	"	
25	Ludhiana - -	62	"	Like No. 1 red winter.
88	Shahpur - -	60½	"	Like No. 2 ditto.
89	Ditto - - -	60½	"	Ditto.
90	Ditto - - -	60½	"	Ditto.
91	Ditto - - -	60½	"	Ditto.
97	Kohat - - -	60½	"	
135	Hazara - - -	61	"	
192	Dera Ismail Khan -	60½	"	
24	Amballa - -	62½	46*s.* 6*d.*	Dirty.
38	Kangra - - -	58½	46*s.*	Ditto.
186	Dera Ismail Khan -	60½	"	
16	Rohtak - - -	59½	45*s.* 6*d.*	Mixed.
185	Dera Ismail Khan -	60½	45*s.*	Dirty.
184	Ditto - - -	60½	44*s.*	Ditto.
191	Ditto - - -	60½	"	Ditto.

It may be remarked here that the following paragraph which appears in the previous report now requires modification. "The prevalence of inferior varieties "in the Punjab may be gathered from the fact that out of 30 samples of soft red "wheat 10 are classed as inferior, being in value below 37*s.* the quarter, whereas "out of 131 samples sent from the other parts of India only 11 are inferior." If an addition of 5*s.* per quarter were made to this price, still the present 31 samples would none of them fall so low by 2*s.* per quarter, the two lowest samples being valued at 44*s.*, so that really none of them are equivalent to the class "inferior" alluded to in the foregoing paragraph.

D.—*Hard red wheat.*

In this group there is a most marked and characteristic advance in value of the samples reported on. It seems difficult to compare the low priced samples of "hard red" in the Report of 1879 with the high priced samples just reported upon, even after making every allowance for advanced rates in the London market. Of the 59 samples, no less than 58 are valued at 43*s.* to 44*s.* and upwards. In the previous valuation the whole of the samples of this kind of wheat were classed in two groups, ordinary from 37*s.* to 39*s.* per quarter, inferior below 37*s.* per quarter.

Numbers in Valuation List.	Locality.	Weight per Bushel.	Price per Quarter.	Remarks.
82	Gujrat - - -	62¾	48*s.* 6*d.*	Round drop.
18	Rohtak - - -	62½	48*s.*	Like finest Ghirka.
99	Kohat - - -	59	"	
121	Jhang - - -	61½	"	Like Ghirka.
1	Delhi - - -	64½	47*s.* 6*d.*	Like red winter.
8	Gurgaon - -	63½	"	Like No. 1 Toledo.
141	Montgomery - -	60¾	"	
142	Ditto - - -	61	"	
143	Ditto - - -	61	"	
150	Rohtak - - -	63½	"	
170	Dera Ghazi Khan -	60	"	
180	Dera Ismail Khan -	61	"	
105	Rawalpindi - -	61	47*s.* to 47*s.* 6*d.*	
126	Jhang - - -	59½	"	Like pearl barley.
154	Rohtak - -	62½	"	
155	Ditto - - -	63	"	
17	Ditto - - -	61½	47*s.*	
31	Jullunder - -	62	"	
44	Gurdaspur - -	64	"	Like No. 1 red winter.
45	Ditto - - -	62½	"	Ditto.
51	Sialkot - - -	62½	"	
55	Ditto - - -	63½	"	Like No. 1 red winter.
72	Ferozepore - -	62	"	
95	Kohat - - -	61½	"	Like hard No. 1 spring.
100	Rawalpindi - -	60½	"	
151	Rohtak - - -	62½	"	
152	Ditto - - -	61½	"	
177	Dera Ismail Khan -	60	"	
53	Sialkot - - -	62½	46*s.* 6*d.* to 47*s.*	
87	Shahpur - -	59½	"	
153	Rohtak - - -	61½	"	
5	Delhi - - -	64	46*s.* 6*d.*	Like No. 2 red winter.
36	Hoshiarpur - -	63	"	
64	Lahore - - -	62½	"	
85	Shahpur - -	61½	"	Small round.
119	Jhang - - -	59½	"	
123	Ditto - - -	62	"	Mixed.
20	Sirsa - - -	61	46*s.*	
61	Lahore - - -	61½	"	
62	Ditto - - -	60½	"	Like Kubanka.
122	Jhang - - -	60	"	
190	Dera Ismail Khan -	61	"	
86	Shahpur - -	60½	45*s.* 6*d.* to 46*s.*	Mixed.
124	Jhang - - -	59	"	Dirty.
187	Dera Ismail Khan -	58½	"	
188	Ditto - - -	59	"	
54	Sialkot - - -	61½	45*s.* 6*d.*	Irregular.
73	Ferozepore - -	60	"	Ditto.
96	Kohat - - -	57	"	
83	Gujrat - - -	59	45*s.* to 45*s.* 6*d.*	Dirty.
35	Hoshiarpur - -	60½	45*s.*	
79	Gujranwala - -	58	"	
81	Jhelum - - -	58½	44*s.* 6*d.*	Dirty.
144	Montgomery - -	56	"	Very dirty.
28	Simla - - -	61	44*s.*	Like rye.
80	Jhelum - - -	58½	"	Dirty.
114	Muzaffargarh - -	54½	43*s.* to 44*s.*	Ditto.
120	Jhang - - -	55½	"	Ditto.
181	Dera Ismail Khan -	57½	37*s.* to 39*s.*	Mixed.

In order to obviate any misconception which may arise in consequence of the present advanced prices in hard red wheats, and the high values quoted for the above samples, it may be repeated here that the present high prices for this class, of which the Ghirka is a type, are accidental, and due to peculiar circumstances, which are not permanent. In comparing the above prices with those of the previous report, an allowance of nearly 8*s.* per quarter should be made for the altered condition of the market.

The detailed valuation is appended in the same form as in the previous Report.

M. C. Cooke.

November 1880.

TABLES.

VALUATION of the Supplementary Samples of Wheat forwarded from the Punjab.

The values given are based upon the quotations ruling in the London Market on October 11, 1880.

Key to letters showing colour and hardness—A, soft white; B, hard white; C, soft red; D, hard red.

Valuation Number.	Number on Sample as received.	Locality.	Description of Sample.		Valuation and Report.			
			Colour and Hardness.	Name.	Condition.	Weight.	Value.*	Remarks.
		Delhi District.					s. d.	
1	1	Barwala - - -	D	Red wheat, 1 -	Clean - - -	64½	47 6	Extra No. 1, yellowish red, clean, fine.
2	2	Rajpur - - -	B	White, 1 - -	Ditto - - -	64¼	48 0 to 48 6	Extra No. 1, clean, fine, longish, like Australian.
3	3	- - - -	A	Ditto 4 - -	Ditto - - -	64	48 0	Extra No. 1, clean, fine, round, like Chilian.
4	4	Bakthanapur - -	"	Ditto 3 - -	Some barley - -	62½	47 6 to 48 0	No. 1, soft, white, mixed with hard red, like Chilian.
5	5	Dyalpur - - -	D	Red, No. 2 - -	Ditto - - -	64	46 6	No. 2, clean, fine, round.
6	6	Sanpat - - -	A	White, No. 2 -	Clean - - -	63	47 0 to 47 6	No. 2, clean, fine, long, white, like Californian.
7	7	- - - -	C	—	Mixed with barley -	63¼	47 0 to 47 6	Extra No. 2, dirty, fine, long, red, like No. 1, Toledo.
		Gurgaon District.						
8	—	- - - -	D	Sarkh gandam -	Some barley - -	63½	47 6	Clean, fine, long, hard, red, like No. 1, Toledo.
		Karnal District.						
9	—	- - - -	C	Lal Gehun - -	Clean - - -	62¾	47 0	No. 1, yellowish red, small, like No. 2, Amber.
10	—	- - - -	B	Kunj - -	Ditto - - -	63½	48 6	Extra No. 1, fine, long, clear, like No. 1, Kubanka.
11	—	- - - -	"	Sharoti Kathia -	Ditto - - -	62	47 0	No. 2, dingy white, good, like glassy Dantzig.
12	—	- - - -	A	Dand Khani - -	Slightly weevilled -	62½	48 0	Extra No. 1, fine, white, like Australian.
13	—	- - - -	"	Safed Kathia -	Clean - - -	61½	48 0	No. 1, good, white, medium, like Australian.
		Hissar District.						
14	—	- - - -	B	Paman - -	Weevilled - -	59½	48 6	Extra No. 1, clean, long, white, like No. 1, Kubanka.
15	—	- - - -	A	Dand Khani - -	Much weevilled - -	62½	49 0	Extra No. 1, fine, ordinary sized, like Australian.
		Rohtak District.					s. d.	
16	—	Sikandurpur - -	C	Red - - -	Mixed with barley -	59½	45 6	No. 2, dirty, fair, long, thin, yellowish red.
17	—	Rohtak - - -	D	Ditto Garhi Sanpla -	Some barley - -	61½	47 0	No. 1, fair, stout, hard, red.
18	—	Ditto - - -	"	Red - - -	Ditto - - -	62½	48 0	No. 1, very fine, strong, hard, red, like finest Ghirka.
19	—	Ditto - - -	A	Khurkhoda - -	Clean - - -	64	50 0	Extra No. 1, splendid white, like Australian.
		Sirsa District.						
20	—	- - - -	D	Nali - - -	Clean - - -	61	46 0	Dingy red, No. 2 grade.
21	—	- - - -	C	Tangal - -	Weevilled - -	62½	47 0	Medium, No. 1, red.
22	—	- - - -	A	Dand Khani -	Clean - - -	62	48 0	Medium, No. 1, white.
		Amballa District.						
23	—	- - - -	A	Dand Khani -	Slightly weevilled -	63	48 0	Yellowish white, resembling Kubanka.
24	—	- - - -	C	Lal Gehun - -	Dirty - - -	62½	46 6	Soft, red, resembling No. 2, red winter.
		Ludhiana District.						
25	—	- - - -	C	Lal Gehun - -	Slightly weevilled -	62	47 0	Soft, red, resembling No. 1, red winter.
26	—	- - - -	A	Safed Gehun -	Much weevilled -	58½	47 0 to 47 6	Dirty, soft, white, No. 1.
		Simla District.						
27	—	- - - -	B	Lal Gehun, 1 -	Mixed - -	62	45 6 to 46 0	No. 2, hard, white, of irregular grain.
28	—	- - - -	D	Ditto 2 -	Fair - - -	61	44 0	No. 2, hard, thin, red, resembling rye.
29	—	- - - -	B	Safed Gehun, 1 -	Clean - - -	64½	47 6 to 48 0	No. 1, hard, white.
30	—	- - - -	"	Ditto 2 -	Fair - - -	62	47 6 to 48 0	Hard, yellowish white, No. 1, ricey.
		Jullundur District.						
31	—	- - - -	D	Lal Gehun - -	Weevilled - -	62	47 0	No. 1, hard, red, price quoted if free from weevil.
32	—	- - - -	B	Badanak - -	Ditto - - -	63	48 6 to 49 0	Extra No. 1, stout, long, like Kubanka.
33	—	- - - -	"	Mundesi - -	Slightly weevilled -	63	48 6 to 49 0	Ditto Ditto.

* An average reduction of 4*s.* 6*d.* per quarter for classes A, B, and C, and of 8*s.* per quarter for class D, should be made in comparing these prices with those of the previous valuation.

Valuation of the Supplementary Samples of Wheat, &c.—*continued.*

Valuation Number.	Number on Sample as received.	Locality.	Description of Sample. Colour and Hardness.	Description of Sample. Name.	Valuation and Report. Condition.	Weight.	Value.* s.	Value.* d.	Remarks.
		Hoshiarpur District.							
34	—	- - - -	C	Surkh Desi - -	Fair - - -	63	48	0	Mixed No. 1, red, like No. 2, red winter.
35	—	- - - -	D	Desi Lal - -	Poor, mixed - -	60½	45	0	No. 2, hard, red.
36	—	- - - -	"	Badanak - -	Fair - - -	63	46	6	No. 1, hard, red, mixed with long yellow.
37	—	- - - -	B	Mundri - -	Clean - - -	63½	48	0	Extra No. 1, hard, white.
		Kangra District.							
38	—	- - - -	C	Kangri - -	Dirty - - -	58½	46	0	Fine, small, soft, red, like No. 2, Amber.
39	—	- - - -	B	Kunku - -	Clean - - -	62	48	0	Mixed, No. 1, white.
40	—	- - - -	"	Mundri - -	Dirty - - -	62½	47	0	No. 1, hard, white, ricey.
		Amritsur District.							
41	—	- - -	B	Kunj - -	Fair - - -	58½	47	6	Hard No. 1, dingy yellow, long grain.
42	—	- - - -	"	Lal Wadanak -	Dirty - - -	59	46	0	Dingy, hard, white, No. 1.
43	—	- - - -	A	Safed Kanak -	Clean - - -	64	49	0	Extra No. 1, soft, white, like Australian.
		Gurdaspur District.							
44	—	- - - -	D	Lal Gehun - -	Clean - - -	64	47	0	Extra No. 1, round, like No. 1, red winter.
45	—	- - - -	"	Lal Kanak - -	Ditto - - -	62½	47	0	Ditto Ditto.
46	—	- - - -	B	Wadanak - -	Ditto - - -	63½	48	0	Long, hard, white, like Kubanka.
47	—	- - - -	A	Ghoni - -	Dirty, mixed - -	61½	47	6	Round, small, white, like Chilian.
48	—	- - - -	B	Wadanak - -	Clean - - -	60½	48	0	Round, hard, white, like Kubanka.
49	—	- - - -	Mixed A and D.	Gadur - -	Weevilled - -	61	46	6	Soft white, and hard red, mixed.
		Siálkot District.							
50	—	- - - -	B	Wadanak Lal -	Clean - - -	61	48	6	Hard, white, extra No. 1, like Kubanka.
51	—	- - - -	D	Nikki Surkh -	Fair - - -	62½	47	0	No. 1, hard, red.
52	—	- - - -	B	Kunj Wadanak -	Clean - - -	62½	48	6	No. 1, hard, white, like Kubanka.
53	—	- - - -	D	Nikki - -	Fair - - -	62½	46 to 47	6 0	No. 1, hard, red.
54	—	- - - -	D	Berrerah - -	Fair - - -	61½	45	6	No. 2, hard red, mixed with hard white.
55	—	- - - -	"	Lal Kanak - -	Clean - - -	63½	47	0	No. 1, hard, red, like No. 1, red winter.
56	—	- - - -	B	Lal Wadanak -	Fair - - -	61	48	0	Extra No. 1, hard, white, like Kubanka.
57	—	- - - -	"	Wadanak Chitti -	Slightly weevilled -	60½	48	0	Ditto Ditto.
58	—	- - - -	"	Dagar - -	Clean - - -	60½	48	6	Ditto Ditto.
59	—	- - - -	"	Safed Wadanak -	Slightly weevilled -	62	48	6	Ditto Ditto.
60	—	- - - -	"	Wadanak - -	Clean - - -	61	47 to 48	6 0	Ditto Ditto.
		Lahore District.							
61	—	Tahsil Chunian - -	D	Surkh Kanak -	Fair - - -	61½	46	0	No. 1, hard, red, mixed with white.
62	—	Tahsil Kasur - -	"	Lal Kanak - -	Clean - - -	60½	46	0	No. 1, hard, red, like Kubanka.
63	—	Tahsil Chunian - -	B	Ghoni - -	Fair - - -	60	46	6	No. 1, hard, white, ricey.
64	—	Tahsil Sharkpur - -	D	Lal Wikki - -	Clean - - -	62½	46	6	No. 1, hard, red.
65	—	Tahsil Kasur - -	B	Lal Rang - -	Ditto - - -	59½	47	0	No. 1, hard, clear, white, like Kubanka.
66	—	Ditto - -	A	Gabbar - -	Ditto - - -	63	48	0	Small, round, soft white, No. 1, mixed with red.
67	—	Tahsil Lahore - -	"	Safed Kanak -	Ditto - - -	62½	50	0	Extra No. 1, full berried, like Australian.
68	—	Ditto - -	B	Wadanak - -	Ditto - - -	62	48	0	No. 1, long, clear, hard white, ricey.
69	—	Tahsil Kasur - -	A	Dand Khani - -	Ditto - - -	62½	49	6	Extra No. 1, small, white, like Australian.
70	—	Tahsil Chunian - -	B	Pamman - -	Ditto - - -	62½	47	6	Long, clear, hard, white.
71	—	Tahsil Sharkpur - -	Mixed	Dudi - -	Fair - - -	58½	41	6	No. 2, mixed, white, shrivelled.
		Ferozepore District.							
72	—	- - - -	D	Lal Kanak - -	Slightly weevilled -	62	47	0	No. 1, hard, red, small, round.
73	—	- - - -	D	Paman - -	Ditto - - -	60	45	6	No. 2, hard, red, mixed, irregular.
74	—	- - - -	A and D	Gurree - -	Fair, mixed - -	62½	46 to 47	6 0	No. 1, soft white, and hard red.
75	—	- - - -	A	Safed Kanak -	Clean - - -	63	48 to 49	6 0	Extra No. 1, soft, round, white, like Chilian.
		Gujranwala District.							
76	—	Tahsil Gujranwala - -	B	Dagar - -	Clean - - -	61	46	6	No. 1, long, hard, white.
77	—	Tahsil Hafizabad - -	"	Busra Wadanak -	Fair - - -	57½	45	6	No. 2, hard, white, rough, shrivelled.
78	—	Tahsil Wuzirabad - -	A and D	Dand Khani - -	Ditto - - -	61	46	6	No. 1, soft white, and hard red, irregular.
79	—	Tahsil Gujranwala - -	D	Besara - -	Dirty - - -	58	45	0	No. 1, hard, red.

* An average reduction of 4*s.* 6*d.* per quarter for classes A, B, and C, and of 8*s.* per quarter for class D, should be made in comparing these prices with those of the previous valuation.

Valuation of the Supplementary Samples of Wheat, &c.—*continued.*

Valuation Number.	Number on Sample as received.	Locality.	Description of Sample. Colour and Hardness.	Description of Sample. Name.	Valuation and Report. Condition.	Weight.	Value.* s. d.	Remarks.
		Jhelum District.						
80	—	- - - -	D	Lal Gehun - -	Dirty - - -	58½	44 0	No. 2, hard, dingy, red, thin, small.
81	—	- - - -	"	Ditto - -	Ditto - - -	58½	44 6	No. 2, hard, red, round, small.
		Gujrat District.						
82	—	- - - -	D	Nikki - -	Clean - - -	62¾	48 6	Extra No. 1, very fine, round drop, hard, red.
83	—	- - - -	"	Jowalla - -	Dirty - - -	59	45 0 to 45 6	No. 1, hard, red, poor, irregular.
84	—	- - - -	B	Dagur - -	Clean - - -	61½	47 6 to 48 0	Extra No. 1, hard, white, like Kubanka.
		Shahpur District.						
85	—	- - - -	D	Dudhi - -	Dirty - - -	61½	46 6	No. 1, hard, red, small, round.
86	—	- - - -	"	Mohar - -	Dirty, weevilled - -	60½	45 6 to 46 0	No. 1, hard, red, round.
87	—	- - - -	"	Dagur - -	Clean - - -	59½	46 6 to 47 0	No. 1, hard, red, longish.
88	—	- - - -	C	Soon - -	Weevilled - -	60½	47 0	No. 1, medium, red, like No. 2, red winter.
89	—	- - - -	"	Nukka - -	Dirty - - -	60½	47 0	No. 1, soft, red, like No. 2, red winter.
90	—	- - - -	"	Kudhee - -	Fair - - -	60½	47 0	No. 1, medium, red, like No. 2, red winter.
91	—	- - - -	"	Ootar - -	Clean - - -	60½	47 0	No. 1, soft, red, like No. 2, red winter.
92	—	- - - -	"	Thull - -	Ditto - - -	62½	47 6 to 48 0	Extra No. 1, soft, red, like No. 1, red winter.
		Mooltan District.						
93	—	- - - -	B	Jawali - -	Fair, little weevilled -	61½	47 6	No. 1, hard, white.
94	—	- - - -	"	Rodi Makki - -	Fair - - -	62	48 0 to 48 6	Extra No. 1, hard, white.
173	—	- - - -	B	Ghori - -	Clean - - -	64	48 6 to 49 0	Small, short grain, like pearl barley.
		Kohat District.						
95	—	- - - -	D	Sorkhai Ratti -	Fair - - -	61½	47 0	No. 1, hard, red, like hard No. 1, spring.
96	—	- - - -	"	Mandy Sorkai -	Dirty - - -	57	45 6	No. 1, hard, dingy red.
97	—	- - - -	C	Sur Ghanam -	Fair - - -	60½	47 0	No. 1, medium, red.
98	—	- - - -	A	Adspin Ghanam -	Clean - - -	61½	48 6 to 49 0	Extra No. 1, plump, round, soft white.
99	—	- - - -	D	Kulanji - -	Ditto - - -	59	48 0	Extra No. 1, hard, yellow.
		Rawalpindi District.						
100	—	Tahsil Attok - -	D	Surkh - -	Fair - - -	60½	47 0	No. 1, hard, red.
101	—	Tahsil Murree - -	C	Gorin - -	Mixed barley - -	63½	48 0	No. 1, soft, red, mixed with barley, like No. 1, red winter.
102	—	Tashil Rawal Pindi -	"	Surkh - -	Clean - - -	62	47 0 to 47 6	No. 1, dingy red, medium.
103	—	Tahsil Murree - -	"	Narin, 1 - -	Ditto - - -	62	47 6	No. 1, medium, red.
104	—	Ditto - -	"	Ditto 2 - -	Ditto - - -	61	48 0	Extra No. 1, soft, yellow, like Dantzig.
105	—	Tahsil Futteh Jang -	D	Surkh - -	Fair - - -	61	47 0 to 47 6	No. 1, hard, dingy red.
106	—	Tahsil Murree - -	B	Dag - - -	Ditto - - -	60½	47 6 to 48 0	No. 1, hard, white, like Kubanka.
107	—	Tahsil Murree - -	C	Gorin - -	Clean - - -	62½	48 0	Extra No. 1, very soft, red.
108	—	Ditto - -	"	Ditto - -	Mixed - - -	62	48 6	Extra No. 1, mixed white and red.
109	—	Tahsil Futteh Jang - -	B	Sufaid - -	Clean - - -	61½	49 0	Extra No. 1, hard, white, ricey.
110	—	Tahsil Murree - -	A	Rodi Sufaid - -	Ditto - - -	62½	50 6	Extra No. 1, very finest, plump, like Australian.
111	—	Tahsil Attok - -	B	Chitti Attok - -	Ditto - - -	60½	48 0 to 48 6	No. 1, hard, white, small.
112	—	Tahsil Rawalpindi - -	B	Rodi Sufaid - -	Ditto - - -	61	48 0	No. 1, hard, white, long.
		Muzaffargarh District.						
113	—	Mendhianwala - -	B	Red - - -	Clean - - -	64	49 6	Extra No. 1, hard white, like pearl barley.
114	—	- - - -	D	Desi lal - -	Dirty - - -	54½	43 0 to 44 0 if clean.	No. 3, hard red, poor, thin.

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Valuation of the Supplementary Samples of Wheat, &c.—*continued.*

Valuation Number.	Number on Sample as received.	Locality.	Description of Sample. Colour and Hardness.	Description of Sample. Name.	Valuation and Report. Condition.	Weight.	Value.* s. d.	Remarks.
		Muzaffargarh District—cont.						
115	—	- - - -	B	Kinghari - -	Dirty - - -	57½	45 0 to 46 0 if clean.	No. 2, hard, white.
116	—	- - - -	B	Paman - -	Fair - - -	56½	47 6 to 48 0	No. 1, hard, white, long, spindley.
117	—	- - - -	A	Valelan - -	Clean - - -	63	50 6 to 51 0	Extra No. 1, white, plump, like Oregon.
118	—	- - - -	B	Pari - - -	Fair - - -	62	48 0	No. 1, dingy, white, hard.
		Jhang District.						
119	—	- - - -	D	Ratti chiniot wala -	Dirty - - -	59½	46 6	No. 2, hard, red.
120	—	- - - -	"	Ratti Nahri - -	Ditto - - -	55½	43 0 to 44 0 if clean.	No. 3, hard, red, poor, shrivelled.
121	—	- - - -	"	Ratti shorkolwala -	Clean - - -	61½	48 0	Extra No. 1, dark, red, hard, like Ghirka.
122	—	- - - -	"	Ratti Nahri Talki -	Dirty - - -	60	46 0	No. 2, hard, red.
123	—	- - - -	"	Ghaibari - -	Mixed - - -	62	46 6	No. 2, hard, red and white.
124	—	- - - -	"	Jowali - -	Dirty - - -	59	45 6 to 46 0 if clean.	No. 2, hard, red, thin.
125	—	- - - -	B	Koni, 1 - -	Ditto - - -	59½	46 0 to 46 6	No. 2, hard, white, thin.
126	—	- - - -	D	Koni, 2 - -	Ditto - - -	59½	47 0 to 47 6	No. 1, hard, red, like pearl barley.
127	—	- - - -	B	Sufed - -	Fair - - -	61½	48 0	No. 1, hard, white.
128	—	- - - -	B	Makin - -	Clean - - -	64	49 6 to 50 0	Very fine, small, like pearl barley.
129	—	- - - -	B	Dagar - -	Ditto - - -	61	48 0	Extra No. 1, hard, white, like Kubanka.
		Bannu District.						
130	—	- - - -	C	Marwali - -	Much weevilled - -	61½	48 6 if free.	Extra No. 1, soft, red, like No. 1, red winter.
		Peshawur District.						
131	—	- - - -	C	Sarkai - -	Slightly weevilled -	62½	47 6 to 48 0	No. 1, medium, red, like No. 2, red winter.
132	—	- - - -	A	Bowndi - -	Clean - - -	63½	48 6	Extra No. 1, medium, white.
133	—	- - - -	C	Mowri - -	Ditto - - -	63½	47 6	Extra No. 1, medium, red.
134	—	- - - -	A	Desi - - -	Fair - - -	59½	46 0	No. 2, soft white, mixed with red.
		Hazara District.						
135	—	- - - -	C	Lal - - -	Clean - - -	61	47 0	Extra No. 2, red, medium.
136	—	- - - -	"	- - - -	Ditto - - -	62	48 0 to 48 6	No. 1, medium, red, mixed, white.
137	—	- - - -	A	Sufed - -	Weevilled much - -	59	49 0 if free.	Extra No. 1, soft white, like Spanish.
138	—	- - - -	"	Sufed - -	Ditto - - -	60	49 0	No. 1, soft white, like Spanish.
		Montgomery District.						
139	—	- - - -	B	Lal Gehun - -	Mixed with barley -	61½	49 0 if clean.	No. 1, hard, white, mixed barley.
140	—	- - - -	"	Pamman - -	Weevilled slightly -	59½	47 6	No. 1, hard, white.
141	—	- - - -	D	Surkh - -	Clean - - -	60¾	47 6	No. 1, hard, red.
142	—	- - - -	"	Ratti - -	Dirty - - -	61	47 6 if clean.	No. 1, hard, red, mixed, white.
143	—	- - - -	"	Lal Gehun - -	Ditto - - -	61	47 6 if clean.	No. 1, hard, red.
144	—	- - - -	"	Nehri jowali - -	Very dirty - -	56	44 6 if clean.	No. 2, hard, mixed, red and white.
145	—	- - - -	A	Ghoni - -	Mixed barley - -	61	48 0 if clean.	No. 1, medium, white.
146	—	- - - -	Mixed	Pamman - -	Mixed barley and weevilled	60	45 0 if clean.	No. 2, medium, mixed.
147	—	- - - -	B	Ghoni - -	Clean - - -	62	48 0 to 48 6	Extra No. 1, white, hard.
148	—	- - - -	B	Daud Khani - -	Dirty - - -	61	47 0 to 47 6 if clean.	No. 2, hard, white.

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Valuation of the Supplementary Samples of Wheat, &c.—*continued.*

Valuation Number.	Number on Sample as received.	Locality.	Description of Sample. Colour and Hardness.	Description of Sample. Name.	Valuation and Report. Condition.	Weight.	Value.*	Remarks.
		Montgomery District—cont.						
149	—	- - - -	B	Dandi - -	Dirty - - -	60½	46 6 to 47 0 if clean.	No. 2, hard, white.
		Rohtak District.						
150	—	Barodah - - -	D	Lal Gehun - -	Clean - - -	63½	47 6	No. 1, hard, red.
151	—	Jawahra - - -	,,	Ditto - -	Dirty - - -	62½	47 0 if clean.	Ditto.
152	—	Aholana - - -	,,	Ditto - -	Ditto - - -	61½	47 0 if clean.	Ditto.
153	—	Barodah - - -	,,	Ditto - -	Ditto - - -	61½	46 6 to 47 0 if clean.	Ditto.
154	—	Moundlanah - -	,,	Ditto - -	Ditto - - -	62½	47 0 to 47 6 if clean.	Ditto.
155	—	Aholana - -	D	Ditto - -	Ditto - - -	63	47 0 to 47 6	Ditto.
156	—	Ditto - -	A	Dand Khani -	Clean - - -	62½	49 0 to 49 6	Extra No. 1, soft white.
157	—	Norankhara - -	A	Ditto - -	Dirty - - -	62½	48 6 to 49 0 if clean.	Extra No. 1, medium white.
158	—	Khanpur Kalan - -	A	Safed Gehun -	Clean - - -	62	49 0 to 49 6	Extra No. 1, soft white.
		Dera Ghazi Khan.						
159	—	Tahsil Dera Ghazi Khan -	A	Sufed - -	Clean - - -	62	49 0 to 49 6	Extra No. 1, soft white, stout, fine.
160	—	Tahsil Rajanpur - -	B	Rodi - -	Dirty - - -	60½	48 6 if clean.	No. 1, hard white, mixed soft.
161	—	Tahsil Tanapur - -	,,	Sufed - -	Clean - - -	61½	49 0	Extra No. 1, hard, white.
162	—	Tahsil Saugar - -	,,	Ditto - -	Dirty - - -	59½	46 6	No. 2, hard, white.
163	—	Tahsil Rajanpur - -	,,	Ditto - -	Very dirty - -	57	36 0 or 37 0	Fair, but spoilt with dirt, worth 46*s.* 6*d.* if clean.
164	—	Tahsil Tanapur - -	Mixed	Kinjhara - -	Fair - - -	60	48 0	No. 1, soft, mixed.
165	—	Tashil Dera Ghazi Khan -	A	Sufed - -	Ditto - - -	60½	48 6	Extra No. 1, soft, mixed.
166	—	Ditto - - -	B	Pamman - -	Clean - - -	59½	48 6	No. 1, hard, white, long.
167	—	Tahsil Rajanpur - -	,,	Goji - - -	About half barley -	51½	32 0 to 34 0	Grain, fair, worth 44*s.* 6*d.* if clean.
168	—	Tahsil Tanapur - -	B	Makira - -	Clean - - -	63½	48 0 to 48 6	Extra No. 1, hard white, like pearl barley.
169	—	Ditto - -	,,	Pamman - -	Dirty - - -	60	47 0	No. 2, hard white, irregular.
170	—	Tahsil Saugar - -	D	Lal - - -	Fair - - -	60	47 6	No. 1, hard, red.
171	—	Tahsil Dera Ghazi Khan -	B	Jawali - -	Dirty - - -	60	46 6 to 47 0 if clean, 48 0	No. 2, hard, white.
172	—	Ditto - - -	,,	Nikki - -	Clean - - -	63	48 6 to 49 0	Extra No. 1, hard white, like pearl barley.
		Dera Ismail Khan.						
174	1	Tahsil Leiah - -	B	Zard Kanak Kuchawali.	¼ barley - - -	58½	36 0 to 37 0	46*s.* 6*d.* to 47*s.* if clean.
175	2	Tahsil Irak - -	,,	Ditto - -	⅛ barley - - -	60	39 0 to 41 0	Ditto.
176	3	Tahsil Leiah - -	,,	Zard Kanak - -	Fair - - -	60½	48 0	Extra No. 2, good, thinnish, hard white.
177	4	Tahsil Tauk - -	D	Sark Kanak - -	Clean - - -	60	47 0	Extra No. 2, good, ordinary, hard red.
178	5	Tahsil Bakkar - -	B	Pali Kanak, 1 -	Fair - - -	59½	48 0	Extra No. 2, good, ordinary, hard white.
179	6	Tahsil Tauk - -	,,	Peli Kanak, 1 -	Ditto - - -	61½	47 6	Ditto.
180	7	Ditto - -	D	Peli Kanak, 2 -	Ditto - - -	61	47 6	No. 2, good, ordinary, hard red.

* An average reduction of 4*s.* 6*d.* per quarter for classes A, B, and C, and of 8*s.* per quarter for class D, should be made in comparing these prices with those of the previous valuation.

Valuation of the Supplementary Samples of Wheat, &c.—*continued.*

Valuation Number.	Number on Sample as received.	[illegible]	Description of Sample.		Valuation and Report.			
			Colour and Hardness.	Name.	Condition.	Weight.	Value.	Remarks.
		Dera Ismail Khan—cont.						
181	8	Tahsil Kalachi - -	D	Peli Kanak - -	Mixed with barley -	57½	37 0 to 39 0	45*s.* 6*d.* if clean.
182	9	Tahsil Bakkar - -	B	Peli Kanak, 2 -	⅓ barley - - -	57½	34 0	46*s.* 6*d.* to 47*s.* if clean.
183	10	Tahsil Tauk - -	„	Peli Kanak Barik -	Fair - - -	60½	48 0	No. 1, good, ordinary, hard white.
184	11	Painda Khan - -	C	Ratti Kachawali -	Dirty - - -	60½	44 0	Would be 47*s.* 6*d.* if clean.
185	12	Village Dera - -	„	Ratti Pakhawali -	Ditto - - -	60½	45 0	Ditto.
186	13	Tahsil Bakkar - -	„	Ratti Kanak, 1 -	Fair - - -	60½	46 0	No. 2, good, ordinary, soft red.
187	14	Tahsil Tauk - -	D	Ratti Kanak - -	Ditto - - -	58½	45 6 to 46 0	No. 2, good, ordinary, hard red.
188	15	Ditto - -	D	Ditto - -	Ditto - - -	59	45 6 to 46 0	Ditto.
189	16	Tahsil Kalachi - -	C	Ditto - -	Clean - - -	60½	47 6	No. 1, good, ordinary, soft red.
190	17	Tahsil Dera - -	D	Ratti Damain, 1 -	Mixed with barley and earth.	61	46 0	Good stout grain mixed with barley.
191	18	Ditto - -	C	Ratti Damain, 2 -	Ditto - - -	60½	44 0	Ditto.
192	19	Tahsil Kalachi - -	„	Ratti Kanak - -	Some barley - -	60½	47 0	Ditto.

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EAST INDIA (WHEAT REPORT).

FURTHER PAPERS

ON

INDIAN WHEAT.

[*In continuation of Command Papers Nos.* C. 2348 *of* 1879 *and* C. 2271 *of* 1881.]

Presented to both Houses of Parliament by Command of Her Majesty.

LONDON:
PRINTED BY EYRE AND SPOTTISWOODE.

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[C.—3710.] *Price 4d.* 1882.

Report on Indian Wheat by McDougall Brothers.

To the Secretary of State for India.

My Lord,

We have the honour to report upon the Indian wheats comprised in the four lots delivered to us by your brokers, Messrs. Harris Brothers & Co., which we have operated upon according to instructions contained in your Lordship's communications to us of 8th October and 25th October 1880, and supplemented by the verbal instructions made to us (we beg to refer to these communications and to our replies of 22nd October, 26th October, and 24th November 1880). These instructions were to the effect—

I. That we should take a given quantity of each of these four representative Indian wheats, viz.,—

Indian, fine soft white,
" superior soft red,
" average hard white,
" " " red,

and manufacture them into flour by the ordinary process of grinding under millstones. Also that we should take similar quantities of the same wheats and manufacture them into flour by means of crushing between rollers, according to the system known as the Hungarian or roller system.

II. That we should take a given quantity of each flour so produced and manufacture it into bread.

III. That we should note the qualities and other characteristics of the flours produced, also of the offals, viz., middlings, pollard, and bran.

IV. That we should procure the following representative wheats, of fair average quality of the season, as then being sold on Mark Lane market, and, for the purpose of obtaining results for comparison, deal with them precisely as above indicated, both as regards flour, bread, and offals, viz.:—

English average.
American (red winter).
" (spring).
Australian average.
Californian "
Russian, Saxonska.
" Taganrog.
" Kubanka.
" Ghirka.
Egyptian, Buhi.
" Saida.

Note.—Of the two latter qualities of Russian wheats, Kubanka and Ghirka, none was to be obtained in London or other English markets, and consequently cannot be included in this report.

These operations have all been carried out with due care and precision, and under the personal supervision of one of the members of our firm, during the whole period occupied until their completion.

We beg to report as follows:—

The quantity of each wheat operated upon by each system of milling was 5,000 lbs., as delivered from the ship (weight of sacks or bags not included).

The results obtained are stated in the following tables, which are followed by tabulated synopsis for convenience of ready comparison.

Lot 3.—*Indian, average hard white.*

Quality—Average hard white. (Colour light yellow, and semi-transparent, with a little hard red; size long and arched; skin thin; wheat clean, but about 3 per cent. of dry hard mud in large pieces; weevil only a trace.)
Value in London, 44*s*. per 496 lbs.
Weight per bushel, 60 lbs.
Weight of 100 separate grains of the wheat, 68·3 grains avoirdupois.

1. *System.*—Grinding under millstones.
Quantity operated upon, 5,000 lbs.

Enter quantity treated as -	100·00	per cent.	
Impurities removed - -	3·7	„	(Contained an excess of dry earth or mud.)
	96·3	„	
Water absorbed to render mellow - - -	8·4	„	(Very high.)
	104·7	„	
Yield: flour - - -	80·52	„	
„ middlings - -	·78	„	
„ pollard - -	10·0	„	
„ bran - - -	8·3	„	
	99·60	„	
Evaporation and loss -	5·1	„	(See notes, page 24.)
	104·7	„	
Gluten, by water test, when damp - - -	31·4	„	
Ditto, ditto, when dry -	11·7	„	

2. *System.*—Crushing between rollers.
Quantity operated upon, 5,000 lbs.

Enter quantity treated as - -	100·00	per cent.	
Impurities removed - -	3·7	„	
	96·3	„	
Water absorbed to render mellow - - -	8·4	„	(Very high.)
	104·7	„	
Yield: flour - -	72·1	„	(A high yield, colour medium, and good bloom.)
„ dark ditto - -	1·1	„	
	73·2	„	
„ middlings - -	10·3	„	
„ pollard - -	14·3	„	
„ bran - -	3·1	„	
	100·9	„	
Evaporation and loss -	3·8	„	(See Notes, page 24.)
	104·7	„	
Gluten, by water test, when damp - - -	33·2	„	
Ditto, ditto, when dry -	12·6	„	

Lot 4.—*Indian, average hard red.*

Quality—Average hard red. (Colour very dull brown, semi-transparent, with 10 per cent. fine, soft, white, large, coarse grains, arched and pointed.)
Value in London, 43*s*. per 496 lbs.
Weight per bushel, 61¼ lbs. (Condition clean and free from dirt, but a little grain, seed, and linseed and barley; free from weevil.)
Weight of 100 separate grains of the wheat, 77·7 grains avoirdupois.

1. *System.*—Grinding under millstones.
Quantity operated upon, 5,000 lbs.

Enter quantity treated as -	100·00	per cent.	
Impurities removed - -	1·2	„	
	98·8	„	
Water absorbed to render mellow - - -	7·6	„	
	106·4	„	
Yield: flour - -	79·88	„	(An exceedingly high yield; colour inferior.)
„ middlings - -	·78	„	
„ pollard - -	13·20	„	
„ bran - - -	8·50	„	
	102·36	„	
Evaporation and loss -	4·04	„	(See Notes, page 24.)
	106·4	„	
Gluten, by water test, when damp - - -	40·4	„	
Ditto, ditto, when dry -	13·4	„	

2. *System.*—Crushing between rollers.
Quantity operated upon, 5,000 lbs.

Enter quantity treated as -	100·00	per cent.	
Impurities removed - -	1·2	„	
	98·8	„	
Water absorbed to render mellow - - -	7·6	„	(Very high.)
	106·4	„	
Yield: flour - -	72·3	„	(A high yield; colour inferior.)
„ dark ditto - -	1·9	„	
	74·2	„	
„ middlings - -	10·3	„	
„ pollard - -	13·8	„	
„ bran - -	3·0	„	
	101·3	„	
Evaporation and -	5·1	„	(See Notes, page 24.)
	106·4	„	
Gluten, by water test, when damp - - -	41·6	„	
Ditto, ditto, when dry -	13·1	„	

Lot 5.—English.

Quality—English. (Colour, average red; skin thick and heavy; clean, tough from unfavourable season.)
Value in London, 49*s.* per 496 lbs.
Weight per bushel, 60½ lbs. (This wheat in dry season would weigh 63 lbs.)
Weight of 100 separate grains of the wheat, 57·4 grains avoirdupois.

1. *System.*—Grinding under millstones.

Quantity operated upon, 5,000 lbs.		
Enter quantity treated as -	100·0 per cent.	
Impurities removed - -	1·5 ,,	
	98·5 ,,	
Water absorbed to render mellow; none required.		(Already contained some excess of moisture. Would have worked better if mixed with a dry wheat.)
Yield: flour - -	65·2 ,,	
,, middlings - -	1·1 ,,	(This low percentage owing to dampness of the wheat, and consequent thickness of skin. Colour good, but not up to average in bloom.)
,, pollard - -	9·7 ,,	
,, bran - -	17·7 ,,	(Exceedingly high from toughness of wheat; did not clean well.)
	93·7 ,,	
Evaporation and loss -	4·8 ,,	(Evaporation was high from damp-condition of wheat. See Notes, page 24.)
	98·5 ,,	
Gluten, by water test, when damp - - -	32·8 ,,	
Ditto, ditto, when dry -	10·6 ,,	

2. *System.*—Crushing between rollers.

Quantity operated upon, 5,000 lbs.		
Enter quantity treated as -	100·0 per cent.	
Impurities removed - -	1·5 ,,	
	98·5 ,,	
Water absorbed to render mellow, none.		
Yield: flour - -	67·8	
,, dark - -	2·5	
	70·3 per cent.	
Middlings - - -	7·6 ,,	
Pollard - - -	7·2 ,,	
Bran - - -	9·2 ,,	(The same remarks apply here as above.)
	94·3 ,,	
Evaporation and loss -	4·2 ,,	(See Notes, page 24.)
	98·5 ,,	
Gluten, by water test, when damp - - -	34·2 ,,	
Ditto, ditto, when dry -	11·4 ,,	

Lot 6.—Australian.

Quality — Australian. (Skin medium thickness: short plump grain, with an admixture of about 1 per cent. black oats, straw, and chaff.)
Value in London, 50*s.* 6*d.* per 496 lbs.
Weight per bushel, 62½ lbs.
Weight of 100 separate grains of the wheat, 80·5 grains avoirdupois. (Highest weight of any of the grains of wheat.)

1. *System.*—Grinding under millstones.

Quantity operated upon, 5,000 lbs.		
Enter quantity treated as -	100·00 per cent.	
Impurities removed - -	1·0 ,,	
	99·0 ,,	
Water absorbed to render mellow, none.		
Yield: flour - -	75·8 ,,	(A good yield, superior white colour and bloom.)
,, middlings - -	1·1 ,,	
,, pollard - -	7·4 ,,	
,, bran - -	14·4 ,,	
	98·7 ,,	
Evaporation and loss -	·3 ,,	(See Notes, page 24.)
	99·0 ,,	
Gluten, by water test, when damp - - -	40·8 ,,	
Ditto, ditto, when dry -	11·6 ,,	

2. *System.*—Crushing between rollers.

Quantity operated upon, 5,000 lbs.		
Enter quantity treated as -	100·00 per cent.	
Impurities removed - -	1·0 ,,	
	99·0 ,,	
Water absorbed to render mellow, none.		
Yield: flour - -	73·8	(A high yield, colour and bloom superior.)
,, dark - -	1·3	
	75·1 per cent.	
,, middlings - -	8·0 ,,	
,, pollard - -	9·3 ,,	
,, bran - -	5·5 ,,	
	97·9 ,,	
Evaporation and loss -	1·1 ,,	(See Notes, page 24.)
	99·0 ,,	
Gluten, by water test, when damp - - -	37·4 ,,	
Ditto, ditto, when dry -	12·2 ,,	

Lot 7.—New Zealand.

Quality—New Zealand.—(Short plump, and regular white grains, in very good and clean condition; skin medium thickness.
Value in London, 48*s.* per 496 lbs.
Weight per bushel, 62¾ lbs.
Weight of 100 separate grains of the wheat, 67·6 grains avoirdupois.

1. *System.*—Grinding under millstones.

Quantity operated upon, 5,000 lbs.			
Enter quantity treated as		100·00 per cent.	
Impurities removed		·3 „	
		99·7 „	
Water absorbed to render mellow; none required.			
Yield: flour	76·1	„	(A high yield, superior white colour.)
„ middlings	·96	„	
„ pollard	8·8	„	
„ bran	11·5	„	
		97·36 „	
Evaporation		2·34 „	(See Notes, page 24.)
		99·7 „	
Gluten by water test, when damp		31·0 „	
Ditto, ditto, when dry		10·2 „	

2. *System.*—Crushing between rollers.

Quantity operated upon, 5,000 lbs.			
Enter quantity treated as		100·00 per cent.	
Impurities removed		·3 „	
		99·7 „	
Water absorbed to render mellow; none required.			
Yield: flour	73·9		
„ dark	2·2		
		76·1 „	(A high yield, superior white colour and bloom.)
„ middlings		7·8 „	
„ pollard		6·6 „	
„ bran		5·6 „	
		96·1 „	
Evaporation and loss		3·6 „	(See Notes, page 24.)
		99·7 „	
Gluten, by water test, when damp		26·6 „	
Ditto, ditto, when dry		9·0 „	

Lot 8.—California.

Quality—Californian. (White and irregular grains; skin rather tough; some barley and oats; condition good.)
Value in Liverpool, 48*s.* per 496 lbs.
Weight per bushel, 59¼ lbs.
Weight of 100 separate grains of the wheat, 47·7 grains avoirdupois.

1. *System.*—Grinding under millstones.

Quantity operated upon, 5,000 lbs.			
Enter quantity treated as		100·00 per cent.	
Impurities removed		1·7 „	
		98·3 „	
Water absorbed to render mellow, none.			
Yield: flour	71·1	„	(Medium yield, colour and bloom exceptionally good.)
„ middlings	·72	„	
„ pollard	9·2	„	
„ bran	15·3	„	(A high yield.)
		96·32 „	
Evaporation and loss		1·98 „	(See Notes, page 24.)
		98·3 „	
Gluten, by water test, when damp		32·2 „	
Ditto, ditto, when dry		10·5 „	

2. *System.*—Crushing between rollers.

Quantity operated upon, 5,000 lbs.			
Enter quantity treated as		100·00 per cent.	
Impurities removed		1·7 „	
		98·3 „	
Water absorbed to render mellow, none.			
Yield: flour	68·8		
„ dark	1·3		
		70·1 „	(Medium yield, colour and bloom exceptionally good.)
„ middlings		14·5 „	(A high yield.)
„ pollard		6·3 „	
„ bran		3·9 „	
		94·8 „	
Evaporation and loss		3·5 „	(See Notes, page 24.)
		98·3 „	
Gluten, by water test, when damp		29·6 „	
Ditto, ditto, when dry		8·7 „	

Lot 9.—*American winter.*

Quality—American winter. (Colour red; grains clean; skin rather thick, but irregular in size; condition good.)
Value in London, 49*s.* 6*d.* per 496 lbs.
Weight per bushel, 61¾ lbs.
Weight of 100 grains of the wheat, 49·6 grains avoirdupois.

1. *System.*—Grinding under millstones.

Quantity operated upon, 5,000 lbs.		
Enter quantity treated as -	100·00 per cent.	
Impurities removed - -	·5 ,,	
	99·5 ,,	
Water absorbed to render mellow; none required.		
Yield: flour - - -	73·8 per cent.	(A medium yield, colour fine.)
,, middlings - -	·38 ,,	
,, pollard - -	7·9 ,,	
,, bran - - -	16·4 ,,	(A high yield.)
	98·48 ,,	
Evaporation and loss - -	1·02 ,,	(See Notes, page 24.)
	99·5 ,,	
Gluten, by water test, when damp - - -	37·0 ,,	
Ditto, ditto, when dry -	11·0 ,,	

2. *System.*—Crushing between rollers.

Quantity operated upon, 5,000 lbs.		
Enter quantity treated as -	100·00 per cent.	
Impurities removed - -	·5 ,,	
	99·5 ,,	
Water absorbed to render mellow, none.		
Yield: flour - - -	70·8 ,,	(A medium yield, colour and bloom very fine.)
,, dark - - -	·7 ,,	
	71·5 ,,	
,, middlings - -	10·3 ,,	
,, pollard - - -	11·2 ,,	
,, bran - - -	3·1 ,,	
	96·1 ,,	
Evaporation and loss - -	3·4 ,,	(See Notes, page 24.)
	99·5 ,,	
Gluten by water test, when damp - - -	39·4 ,,	
Ditto, ditto, when dry - -	11·7 ,,	

Lot 10.—*American spring.*

Quality—American spring. (Small red grains; skin rather thick; some oats, with about 2 per cent. cockle and buckwheat.)
Value in London, 48*s.* per 496 lbs.
Weight per bushel, 61 lbs.
Weight of 100 separate grains of the wheat, 35·5 grains avoirdupois.

1. *System.*—Grinding under millstones.

Quantity operated upon, 5,000 lbs.		
Enter quantity treated as -	100·00 per cent.	
Impurities removed - -	·9 ,,	
	99·1 ,,	
Water absorbed to render mellow; none required.		
Yield: flour - - -	72·2 per cent.	(Medium yield, colour and bloom exceptionally good.)
,, middlings - -	·24 ,,	
,, pollard - -	7·2 ,,	
,, bran - - -	14·7 ,,	
	94·34 ,,	
Evaporation and loss - -	4·76 ,,	(See Notes, page 24.)
	99·1 ,,	
Gluten by water test when damp - - -	40·6 ,,	
Ditto, ditto, when dry -	15·3 ,,	(Strength above average.)

2. *System.*—Crushing between rollers.

Quantity operated upon, 5,000 lbs.		
Enter quantity treated as -	100·00 per cent.	
Impurities removed - -	·9 ,,	
	99·1	
Water absorbed to render mellow; none required.		
Yield: flour - - -	68·7 ,,	
,, dark - - -	·8 ,,	
	69·5 ,,	(Medium yield, colour and bloom exceptionally good.)
,, middlings - -	12·1 ,,	
,, pollard - - -	10·4 ,,	
,, bran - - -	3·8 ,,	
	95·8 ,,	
Evaporation and loss - -	3·3 ,,	(See Notes, page 24.)
	99·1 ,,	
Gluten, by water test, when damp - - -	39·2 ,,	
Ditto, ditto, when dry -	14·6 ,,	(Strength above average.)

Lot 11.—*Russian, Saxonska.*

Quality—Saxonska. (Long, red, transparent grain; skin medium thickness; some cockle and oats; few of the smallest grains unsound, otherwise good condition to work.)
Weight per bushel, 60½ lbs.
Value in London, 52*s.* per 496 lbs.
Weight of 100 separate grains of the wheat, 37·3 grains avoirdupois.

1. *System.*—Grinding under millstones.

Quantity operated upon, 5,000 lbs.			
Enter quantity treated as -	100·00	per cent.	
Impurities removed - -	·9	,,	
	99·1	,,	
Water absorbed to render mellow; none required.			
Yield: flour - - -	73·0	per cent.	(Medium yield, colour good, strength unequalled.)
,, middlings - -	1·2	,,	
,, pollard - -	11·6	,,	(High yields.)
,, bran - - -	12·6	,,	
	98·4	,,	
Evaporation and loss - -	·7	,,	(See Notes, page 24.)
	99·1	,,	
Gluten, by water test, when damp - - - -	64·2	,,	
Ditto, ditto, when dry -	22·1	,,	(Exceptionally high.)

2. *System*—Crushing between rollers.

Quantity operated upon, 5,000 lbs.			
Enter quantity treated as -	100·00	per cent.	
Impurities removed - -	·9	,,	
	99·1	,,	
Water absorbed to render mellow; none required.			
Yield: flour - - -	70·5	per cent.	(High yield, colour good, strength quite unequalled.)
,, dark ditto - -	·9	,,	
	71·4	,,	
,, middlings - -	12·5	,,	
,, pollard - -	11·7	,,	
,, bran - - -	3·3	,,	
	98·9	,,	
Evaporation and loss - -	·2	,,	(See Notes, page 24.)
	99·1	,,	
Gluten, by water test, when damp - - -	71·0	,,	
Ditto, ditto, when dry -	23·2	,,	(Exceptionally high.)

Lot 12.—*Russian, Taganrog.*

Quality.—Hard Taganrog. (Colour yellow; size, large long transparent grains about 3 per cent. barley and small pieces dry mud; too hard for grinding, required damping; skin thin.)
Value in London, 49*s.* per 496 lbs.
Weight per bushel, 61¼ lbs.
Weight of 100 separate grains of the wheat, 54·7 grains avoirdupois.

1. *System.*—Grinding under millstones.

Quantity operated upon, 5,000 lbs.			
Enter quantity treated as -	100·00	per cent.	
Impurities removed - -	·8	,,	
	99·2	,,	
Water aborbed to render mellow - - -	2·4	,,	
	101·6	,,	
Yield: flour - -	76·2	,,	(Good yield; much yellow bloom; very strong.)
,, middlings - -	1·2	,,	
,, pollard - -	12·7	,,	(Medium yield.)
,, bran - - -	8·1	,,	
	98·2	,,	
Evaporation and loss - -	3·4	,,	(See Notes, page 24.)
	101·6	,,	
Gluten, by water test, when damp - - -	51·1	,,	(Very high).
Ditto, ditto, when dry -	17·6	,,	

2. *System.* Crushing between rollers.

Quantity operated upon, 5,000 lbs.			
Enter quantity treated as -	100·00	per cent.	
Impurities removed - -	·8	,,	
	99·2	,,	
Water absorbed to render mellow - - -	2·4	,,	
	101·6	,,	
Yield: flour - -	70·7	,,	(Yield not as high as expected; colour with much yellow bloom).
,, dark ditto - -	1·3	,,	
	72·0	,,	
,, middlings - -	9·6	,,	
,, pollard - -	12·1	,,	(Higher than expected).
,, bran - - -	5·0	,,	
	98·7	,,	
Evaporation and loss -	2·9	,,	(See Notes, page 24.)
	101·6	,,	
Gluten, by water test, when damp - - -	47·0	,,	(Very high).
Ditto, ditto, when dry -	15·6	,,	

Lot 13.—*Egyptian, Buhi.*

Quality—Buhi. (Large white and red grains; thick skin; contained 10 per cent. barley, and dry mud freely; required washing; only one degree better than the Saida wheat. See No. 14.)
Value in Liverpool, 47*s.* per 496 lbs.
Weight per bushel, 58 lbs.
Weight of 100 separate grains of the wheat, 50·1 grains avoirdupois.

1. *System.*—Grinding under millstones.
Quantity operated upon, 5,000 lbs.

Enter quantity treated as -	100·00	per cent.	
Impurities removed - -	2·7	,,	
	97·3	,,	
Water absorbed to render mellow - - -	3·1	,,	
	100·4	,,	
Yield: flour - -	72·9	,,	(Medium yield, colour poor and murky, no strength, very inferior.)
,, middlings - -	1·0	,,	
,, pollard - - -	11·0	,,	(Yield low).
,, bran - -	10·0	,,	
	94·9	,,	
Evaporation and loss -	5·5	,,	(See Notes, page 24.)
	100·4	,,	
Gluten, by water test, when damp - - -	11·5	,,	
Ditto, ditto, when dry -	4·4	,,	

2. *System.*—Crushing between rollers.
Quantity operated upon, 5,000 lbs.

Enter quantity treated as -	100·00	per cent.	
Impurities removed - -	2·7	,,	
	97·3	,,	
Water absorbed to render mellow - - -	3·1	,,	
	100·4	,,	
Yield: flour - -	70·8	,,	(Medium yield, colour poor, no strength, very inferior.)
,, dark ditto - -	1·8	,,	
	72·6	,,	
,, middlings - -	10·4	,,	
,, pollard - -	8·5	,,	(Yield small).
,, bran - - -	3·5	,,	
	95·0	,,	
Evaporation and loss -	5·4	,,	(See Notes, page 24.)
	100·4	,,	
Gluten, by water test, when damp - - -	20·2	,,	
Ditto, ditto, when dry -	7·9	,,	

Lot 14.—*Egyptian, Saida.*

Quality—Saida. (Deservedly ranks as the poorest wheat in the market; medium, hard white grain, with a few darker; skin thick; some rape seed, and large quantity of small pieces of mud; required much washing before use.
Value in Liverpool, 43*s.* 6*d.* per 496 lbs.
Weight per bushel, 57½ lbs.
Weight of 100 separate grains of the wheat, 61·4 grains avoirdupois.

1. *System.*—Grinding under millstones.
Quantity operated upon, 5,000 lbs.

Enter quantity treated as -	100·00	per cent.	
Impurities removed - -	12·1	,,	
	87·9	,,	
Water absorbed to render mellow - - -	2·7	,,	
	90·6	,,	
Yield: flour - -	66·9	,,	(Yield exceptionally low, colour poor and murky; has no strength.)
,, middlings - -	0·76	,,	
,, pollard - -	11·4	,,	
,, bran - - -	7·5	,,	(Yield low.)
	86·56	,,	
Evaporation and loss -	4·04	,,	(See Notes, page 24).
	90·6	,,	
Gluten, by water test, when damp - - -	22·7	,,	
Ditto, ditto, when dry -	7·5	,,	

2. *System.*—Crushing between rollers.
Quantity operated upon, 5,000 lbs.

Enter quantity treated as -	100·00	per cent.	
Impurities removed - -	12·1	,,	
	87·9	,,	
Water absorbed to render mellow - - -	2·7	,,	
	90·6	,,	
Yield: flour - -	66·0	,,	(Yield exceptionally low, colour poor and murky; has no strength.)
,, dark ditto - -	1·8	,,	
	67·8	,,	
,, middlings - -	7·2	,,	
,, pollard - -	6·5	,,	
,, bran - - -	4·9	,,	(Yield low.)
	86·4	,,	
Evaporation and loss -	4·2	,,	(See Notes, page 24.)
	90·6	,,	
Gluten, by water test, when damp - - -	17·1	,,	
Ditto, ditto, when dry -	6·6	,,	

Synopsis and Comparison of Results obtained from Indian and other Wheats, by two Systems of Milling, by McDougall Brothers, at their Wheatsheaf Mills, London.

Figures in Roman.—System: Grinding under millstones. Figures in *Italics*.—System: Crushing between rollers.

No.	Wheat.	Value in London per 496 lbs. net weight on day of valuation.	Weight per Bushel.	Weight of 100 separate grains of the Wheat.	Quantity used.	Impurities removed.	Water absorbed to render mellow.	Yield. Flour.	Yield. Middlings.	Yield. Pollard.	Yield. Bran.	Evaporation and Loss.	Gluten, by Water Test.
		s. d.	Lbs.	Grs. avdps.	Lbs.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
1	Indian (fine soft white)	49 0	64	55·4	5,000	1·52	2·0	77·46	·82	8·8	12·0	1·40	6·4
		49 0	*64*	*55·4*	*5,000*	*1·52*	*2·0*	*77·10*	*1·0*	*8·7*	*4·0*	*2·68*	*6·8*
2	" (superior soft red)	45 0	62¾	51·8	5,000	·72	3·6	78·40	1·68	9·8	9·4	3·6	9·3
		45 0	*62¾*	*51·8*	*5,000*	*·72*	*3·6*	*74·4*	*7·7*	*13·5*	*5·3*	*·98*	*10·5*
3	" (average hard white)	44 0	60	68·3	5,000	·72	8·4	80·52	·78	10·0	8·3	5·1	11·7
		44 0	*60*	*68·3*	*5,000*	*3·7*	*8·4*	*73·2*	*10·3*	*14·3*	*3·1*	*3·8*	*12·6*
4	" (average hard red)	43 0	61¼	77·7	5,000	1·2	7·6	79·88	·78	13·20	8·50	4·04	13·4
		43 0	*61¼*	*77·7*	*5,000*	*1·2*	*7·6*	*74·2*	*10·3*	*13·8*	*3·0*	*5·1*	*13·1*
5	English "	49 0	60¾	57·4	5,000	1·5	None	65·2	1·1	9·7	17·7	4·8	10·6
		49 0	*60¾*	*57·4*	*5,000*	*1·5*	"	*70·3*	*7·6*	*7·2*	*9·2*	*4·2*	*11·4*
6	Australian	50 6	62¾	80·5	5,000	1·0	"	75·8	1·1	7·4	14·4	·3	11·6
		50 6	*62¾*	*80·5*	*5,000*	*1·0*	"	*75·1*	*8·0*	*9·3*	*5·5*	*1·4*	*12·2*
7	New Zealand	48 0	62¾	67·6	5,000	·3	"	76·1	·96	8·8	11·5	2·34	10·2
		48 0	*62¾*	*67·6*	*5,000*	*·3*	"	*76·1*	*7·8*	*6·6*	*5·6*	*3·6*	*9·0*
8	Californian	48 0 (in Liverpool).	59¼	47·7	5,000	1·7	"	71·1	·72	9·2	15·3	1·98	10·5
		48 0 (in London.)	*59¼*	*47·7*	*5,000*	*1·7*	"	*70·1*	*14·5*	*6·3*	*3·9*	*3·5*	*8·7*
9	American (winter)	49 6	61¾	49·6	5,000	·5	"	73·8	·38	7·9	16·4	1·02	11·0
		49 6	*61¾*	*49·6*	*5,000*	*·5*	"	*71·5*	*10·3*	*11·2*	*3·1*	*3·4*	*11·7*
10	" (spring)	48 0	61	35·5	5,000	·9	"	72·2	·24	7·2	14·7	4·76	15·3
		48 0	*61*	*35·5*	*5,000*	*·9*	"	*69·5*	*12·1*	*10·4*	*3·8*	*3·3*	*14·6*
11	Russian (Saxonska)	52 0	60½	37·3	5,000	·9	"	73·0	1·2	11·6	12·6	·7	22·1
		52 0	*60½*	*37·3*	*5,000*	*·9*	"	*74·4*	*12·5*	*11·7*	*3·3*	·2	*23·2*
12	" (hard Taganrog)	49 0	61½	54·7	5,000	·8	2·4	76·2	1·2	12·7	8·1	3·4	17·6
		49 0	*61½*	*54·7*	*5,000*	*·8*	*2·4*	*72·0*	*9·6*	*12·1*	*5·0*	*2·9*	*15·6*
13	Egyptian (Buhi)	47 0 (in Liverpool).	58	50·1	5,000	2·7	3·1	72·9	1·0	11·0	10·0	5·5	4·4
		47 0	*58*	*50·1*	*5,000*	*2·7*	*3·1*	*72·6*	*10·7*	*8·5*	*3·5*	*5·1*	*7·9*
14	" (Saida)	43 6	57½	61·4	5,000	12·1	2·7	66·9	·76	11·4	7·5	4·01	7·5
		43 6	*57½*	*61·4*	*5,000*	*12·1*	*2·7*	*67·8*	*7·2*	*6·5*	*4·9*	*1·2*	*6·6*

When the manufacture of the wheats into flour was completed, we proceeded to convert into bread a given quantity of each flour from the Indian wheats by both systems of milling, and from the remaining wheats by the roller system, and the results obtained are stated in the following tables, with a tabular synopsis for convenience of ready comparison:—

Bread.

No. 1.—From Indian fine soft white Wheat.

1. *System.*—Grinding under millstones.

Flour used	280 lbs.	
French yeast	1 "	
Liquid potato ferment	30 "	
Salt	3½ "	
Water used	141·4 "	
Yield of bread when cold	364 "	(High.)
Percentage of bread to flour	130·0	(Ditto.)
" water to flour	50·5	(Ditto.)

Taking 10 as standard of fair average London bread,—

Colour, exterior	10	
Colour, interior	11	
Flavour	7	
Texture	8	(Rather dense.)
General characteristics	11	(Loaf small.)

2. *System.*—Crushing between rollers.

Flour used	280 lbs.	
French yeast	1 "	
Liquid potato ferment	30 "	
Salt	3½ "	
Water used	149·6 "	(Very high.)
Yield of bread when cold	367·5 "	(Ditto.)
Percentage of bread to flour	131·2	(Ditto.)
" water to flour	53·4	(Ditto.)

Taking 10 as standard of fair average London bread,—

Colour, exterior	13	
Colour, interior	13	
Flavour	9	
Texture	9	(Rather dense.)
General characteristics	12	(Loaf small.)

No. 2.—From Indian superior soft red Wheat.

1. *System.*—Grinding under millstones.

Flour used	280 lbs.	
French yeast	1 "	
Liquid potato ferment	30 "	
Salt	3½ "	
Water	141·6 "	(High.)
Yield of bread when cold	372 "	(Very high.)
Percentage of bread to flour	133·0	(Ditto.)
" water to flour	50·6	(High.)

Taking 10 as standard of fair average London bread,—

Colour, exterior	8	
Colour, interior	10	
Flavour	7	
Texture	9	(Rather dense.)
General characteristics	10	(Loaf small.)

2. *System.*—Crushing between rollers.

Flour used	280 lbs.	
French yeast	1 „	
Liquid potato ferment	30 „	
Salt	3½ „	
Water	148 „	(Very high.)
Yield of bread when cold	362 „	(High.)
Percentage of water to flour	52·8	(Very high.)
„ bread to flour	129·3	(High.)

Taking 10 as standard of fair average London bread,—

Colour, exterior	12	
Colour, interior	13	
Flavour	9	
Texture	10	(Rather dense.)
General characteristics	11	(Loaf small.)

No. 3.—From Indian average hard white Wheat.

1. *System.*—Grinding under millstones.

Flour used	280 lbs.	
French yeast	1 „	
Liquid potato ferment	30 „	
Salt	3½ „	
Water	141·0 „	(High.)
Yield of bread when cold	370·5 „	(Very high.)
Percentage of bread to flour	132·4	(High.)
Percentage of water to flour	50·3	(Ditto.)

Taking 10 as standard of fair average London bread,—

Colour, exterior	6	
Colour, interior	7	
Flavour	7	
Texture	10	(More elastic than Nos. 1 and 2.)
General characteristics	7	(Loaf small.)

2. *System.*—Crushing between rollers.

Flour used	280 lbs.	
French yeast	1 „	
Liquid potato ferment	30 „	
Salt	3½ „	
Water	149·6 „	(Very high.)
Yield of bread when cold	365· „	(High.)
Percentage of bread to flour	130·3	(Ditto.)
Percentage of water to flour	53·4	(Very high.)

Taking 10 as standard of fair average London bread,—

Colour, exterior	10	
Colour, interior	9	
Flavour	9	
Texture	10	(More elastic than Nos. 1 and 2.)
General characteristics	9	(Loaf small.)

No. 4.—From Indian average hard red Wheat.

1. *System.*—Grinding under millstones.

Flour used	280 lbs.	
French yeast	1 „	
Liquid potato ferment	30 „	
Salt	3½ „	
Water used	145·2 „	(High.)
Yield of bread when cold	376·6 „	(Exceptionally high.)
Percentage of bread to flour	134·5	(Ditto.)
Percentage of water to flour	51·8	(High.)

Taking 10 as standard of fair average London bread,—

Colour, exterior	5	
Colour, interior	7	
Flavour	7	
Texture	10	(More elastic than Nos. 1 and 2.)
General characteristics	6	

2.—*System.*—Crushing between rollers.

Flour used	280 lbs.	
French yeast	1 „	
Liquid potato ferment	30 „	
Salt	3½ „	
Water	147·4 „	(Very high.)
Yield of bread when cold	365·0 „	(High.)
Percentage of bread to flour	130·3	(Ditto.)
Percentage of water to flour	52·2	(Very high.)

Taking 10 as standard of fair average London bread,—

Colour, exterior	9	
Colour, interior	9	
Flavour	8	
Texture	10	(More elastic than Nos. 1 and 2.)
General characteristics	8	(Loaf small.)

No. 5.—From English Wheat.

System.—Crushing between rollers.

Flour used	280 lbs.	
French yeast	1 „	
Liquid potato ferment	30 „	
Salt	3½ „	
Water	130·0 „	(Rather low.)
Yield of bread when cold	352·0 „	(Ditto.)
Percentage of bread to flour	125·7	(Ditto.)
Percentage of water to flour	46·4	(Ditto.)

Taking 10 as standard of fair average London bread,—

Colour, exterior	13	(Good.)
Colour, interior	12	(Ditto.)
Flavour	13	(Very good.)
Texture	10	(Silky and good.)
General characteristics	10	(Loaf medium. Bloom not equal to best English after good harvest.)

No. 6.—From Australian Wheat.

System.—Crushing between rollers.

Flour used	280 lbs.	
French yeast	1 „	
Liquid potato ferment	30 „	
Salt	3½ „	
Water	134·2 „	
Yield of bread when cold	355·4 „	
Percentage of bread to flour	126·9	(Medium.)
Percentage of water to flour	48·0	(Ditto.)

Taking 10 as standard of fair average London bread,—

Colour, exterior	12	
Colour, interior	12	
Flavour	12	
Texture	10	(Good.)
General characteristics	11	(Medium in size.)

No. 7.—From New Zealand Wheat.

System.—Crushing between rollers.

Flour used	280 lbs.	
French yeast	1 „	
Liquid potato ferment	30 „	
Salt	3½ „	
Water	132·0 „	
Yield of bread when cold	349·0 „	
Percentage of bread to flour	124·6	
Percentage of water to flour	47·1	

Taking 10 as standard of fair average London bread,—

Colour, exterior	12	(Very good.)
Colour interior	12	(Ditto.)
Flavour	12	(Ditto.)
Texture	9	(Rather weak.)
General characteristics	10	(Loaf medium in size.)

No. 8.—From Californian Wheat.

System.—Crushing between rollers.

Flour used	280 lbs.	
French yeast	1 „	
Liquid potato ferment	30 „	
Salt	3½ „	
Water	136·8 „	
Yield of bread when cold	364·0 „	
Percentage of bread to flour	130·0	
Percentage of water to flour	48·9	

Taking 10 as standard of fair average London bread,—

Colour, exterior	12	(Very good.)
Colour, interior	12	(Ditto.)
Flavour	12	(Ditto.)
Texture	9	(Rather weak.)
General characteristics	10	(Loaf medium in size.)

No. 9.—From American winter Wheat.

System.—Crushing between rollers.

Flour used	280 lbs.	
French yeast	1 „	
Liquid potato ferment	30 „	
Salt	3½ „	
Water	130 „	
Yield of bread when cold	346 „	
Percentage of bread to flour	123·5	
Percentage of water to flour	46·4	

Taking 10 as standard of fair average London bread,—

Colour, exterior	13	(Very good.)
Colour, interior	12	(Ditto.)
Flavour	12	(Ditto.)
Texture	10	(Good.)
General characteristics	11	(Loaf medium in size.)

No. 10.—From American spring Wheat.

System.—Crushing between rollers.

Flour used	280 lbs.	
French yeast	1 „	
Liquid potato ferment	30 „	
Salt	3½ „	
Water	130 „	
Yield of bread when cold	354 „	(Good average.)
Percentage of bread to flour	126·4	
Percentage of water to flour	46·4	

Taking 10 as standard of fair average London bread,—

Colour, exterior	8	(Too red.)
Colour, interior	10	
Flavour	10	
Texture	12	(Very good, elastic.)
General characteristics	9	(Loaf lofty.)

No. 11.—From Russian Saxonska Wheat.

System.—Crushing between rollers.

Flour used	280 lbs.	
French yeast	1 „	
Liquid potato ferment	30 „	
Salt	3½ „	
Water	130 „	
Yield of bread when cold	356 „	(Good average.)
Percentage of bread to flour	127·1	
Percentage of water to flour	46·4	

Taking 10 as standard of fair average London bread,—

Colour, exterior	8	(Too red.)
Colour, interior	9	
Flavour	9	
Texture	13	(Very good, elastic.)
General characteristics	9	(Loaf very lofty.)

No 12.—*From Russian hard Taganrog Wheat.*

System.—Crushing between rollers.

Flour used	280 lbs.
French yeast	1 „
Liquid potato ferment	30 „
Salt	3½ „
Water	145·4 „
Yield of bread when cold	354·5 „
Percentage of bread to flour	126·6
Percentage of water to flour	51·9

Taking 10 as standard of fair average London bread,—

Colour, exterior	10	(With fine bloom.)
Colour, interior	11	(Ditto.)
Flavour	9	
Texture	12	(Very good, elastic.)
General characteristics	9	(Fair loaf, but smaller than expected.)

No 13.—*From Egyptian (Buhi) Wheat.*

System.—Crushing between rollers.

Flour used	280 lbs.
French yeast	1 „
Liquid potato ferment	30 „
Salt	3½ „
Water	136·8 „
Yield of bread when cold	362·0 „
Percentage of bread to flour	129·3
Percentage of water to flour	48·9

Taking 10 as standard of fair average London bread,—

Colour, exterior	7	(Very inferior.)
Colour, interior	6	(Ditto.)
Flavour	6	(Ditto.)
Texture	7	(Ditto.)
General characteristics	5	(Loaf very small and heavy, possessed no good points.)

No. 14.—*From Egyptian (Saida) Wheat.*

System.—Crushing between rollers.

Flour used	280 lbs.
French yeast	1 „
Liquid potato ferment	30 „
Salt	3½ „
Water	144·4 „
Yield of bread when cold	358·0 „
Percentage of bread to flour	127·7
Percentage of water to flour	51·6

Taking 10 as standard of fair average London bread,—

Colour, exterior	6	(Very inferior.)
Colour, interior	4	(Ditto.)
Flavour	4	(Ditto.)
Texture	6	(Ditto.)
General characteristics	4	(Loaf small and heavy, and a degree worse than from the Buhi wheat, Lot 13.)

SYNOPSIS.

THE FLOURS AND BREADS.

Results obtained in converting the Flours into Bread.

NOTE.—Of Lots 1, 2, 3, 4, Indian Wheats, the stone flours and roller flours were made into Bread. Of Nos. 5 to 14 inclusive the roller flours only were made into Bread.
Figures in Roman.—System: Grinding under millstones. Figures in *Italics.*—System: Crushing between rollers.

No.	Wheat.	Quantities used.					Yield of Bread when cold.	Percentages.		Colour, Taste, and Texture. (Taking 10 as the standard of fair average quality of London Households Bread made from London Flour, Households and Whites in equal proportions.)					Remarks.
		Flour.	French Yeast.	Liquid Potato Ferment.	Salt.	Water.		Per centage of Bread to Flour.	Per centage of Water to Flour.	Colour, exterior.	Colour, interior.	Flavour.	Texture.	General Characteristics.	
		Lbs.	Lb.	Lbs.	Lbs.	Lbs.	Lbs.								
1	Indian (fine soft white) - -	280	1	30	3½	141·4	364·0	130·0	50·5	10	11	7	8	11	Loaf small and rather dense.
		250	*1*	*30*	*3½*	*149·6*	*367·5*	*137·2*	*53·4*	*13*	*13*	*9*	*9*	*12*	*Ditto.*
2	„ „ (superior soft white)	280	1	30	3½	141·6	372·0	133·0	50·6	8	10	7	9	10	Ditto.
		250	*1*	*30*	*3½*	*148·0*	*362·0*	*129·3*	*52·3*	*12*	*13*	*9*	*10*	*11*	*Ditto.*
3	„ „ (average hard white) -	280	1	30	3½	141·0	370·5	132·4	50·8	6	7	7	10	7	Ditto; texture more elastic.
		250	*1*	*30*	*3½*	*149·6*	*365·0*	*130·3*	*53·4*	*10*	*9*	*9*	*10*	*9*	*Ditto, ditto.*
4	„ „ (average hard red) -	280	1	30	3½	145·2	376·6	134·5	51·8	5	7	7	10	6	Ditto; too ricey.
		250	*1*	*30*	*3½*	*147·4*	*365·0*	*130·3*	*52·2*	*9*	*9*	*8*	*10*	*8*	*Ditto, ditto.*
5	English „ - „ -	280	1	30	3½	130·0	352·0	125·7	46·4	13	12	13	10	10	Loaf medium. Bloom not equal to best English after good harvest. Flavour very good. Fine silky texture.
6	Australian - -	250	1	30	3½	134·2	355·4	126·9	48·0	12	12	12	10	11	Loaf medium size. Texture good; silky.
7	New Zealand - -	250	1	30	3½	132·0	349·0	124·6	47·1	12	12	12	9	10	Loaf medium size. Texture little weak. Dough of putty nature.
8	California - -	250	1	30	3½	136·8	364·0	130·0	48·9	12	12	12	9	10	Loaf medium in size. Texture a little weak. Crust too pale.
9	American (winter) -	250	1	30	3½	130·0	346·0	123·5	46·4	13	12	12	10	11	Loaf medium in size. Texture good.
10	„ (spring) -	250	1	30	3½	130·0	347·0	126·4	46·4	8	10	10	12	9	Loaf lofty. Elastic texture. Handles kindly.
11	Russian (Saxonska) -	250	1	30	3½	130·0	356·0	127·1	46·4	8	9	9	13	9	Loaf very lofty. Very elastic texture; so strong operatives complained required too much strength in handling it.
12	„ (hard Taganrog)	250	1	30	3½	145·4	354·5	126·6	51·9	10	11	9	12	9	Loaf lofty. Fine bloom. Texture good. Red crust.
13	Egyptian (Buhi) - -	250	1	30	3½	136·8	362·0	129·3	48·9	7	6	6	7	5	Loaf possessed no good points.
14	„ (Saida) - -	250	1	30	3½	144·4	358·0	127·7	51·6	6	4	4	6	4	Ditto; a degree lower than above.

NOTES.

The Evaporation and Loss in milling.—The percentages under this heading, it will be noticed, vary considerably from—

No. 11, Russian Saxonska,	stones	0·7
	rollers	0·2 to
No. 13, Egyptian—Buhi,	stones	5·5
	rollers	5·4

These variations must not be attributed chiefly to the differences in qualities of the wheats, as they arise mainly from the waste and loss that is inseparable from working small quantities on a practical scale; about ten quarters of each wheat was operated upon in these experimental workings, whereas in ordinary milling a "grist" will run from one thousand to several thousand quarters. This will be readily understood, when it is borne in mind that, after the working of each separate wheat by either process, the stones or rollers, hoppers, elevators, dressing silks, &c., have to be swept out, and it is impossible to avoid some waste from this cause. In milling operations it is found there is a larger loss, &c., "unaccounted for" on inferior wheats than upon good wheats, but it does not exceed a total of 1 to 2 per cent. For practical purposes, the items Evaporation and Loss should be taken as obtained by competent millers, viz.:—

From stones	1 to 2 per cent.
From rollers	1 to 3 per cent.

according to the qualities of the wheats.

Water used in Bread making.—The differences in the quantities of water required by each of the flours from Indian wheats per 280 lbs. flour in making them into bread (ranging from 149·6 lbs. to 141·0 lbs. water) is partly accounted for by the fact of somewhat similar variations in the water absorbed in rendering the wheats mellow for milling.

Weight per bushel of Wheats.—These experimental workings have brought to light a fact well worth noting, viz., that the rule so generally held amongst wheat sellers and buyers, and thought to be without an exception, that the greater the weight of a bushel of wheat so much higher must it rank as a flour yielder, and consequently in value, must now be regarded as true only within a strict limit. A high standard of weight for any given cubical measurement is, no doubt, a good criterion as to dryness of condition and soundness of the grain, for any dampness in grain causes it to weigh *lighter* per bushel or quarter of measurement instead of heavier (a fact which will surprise the uninitiated). But experienced parties will study with interest the three columns in the synopsis of the wheats showing "weight of 100 separate grains" of each wheat, "weight per bushel," and "yield of flour." Taking equal weights of the four Indian wheats, it will be found that No. 3, weighing 60 lbs. per bushel, yielded more flour than No. 1, weighing 64 lbs.; also, that No. 4, weighing 60 lbs. per bushel, yielded more flour than No. 2, weighing 62¾ lbs. The reason of this is evident. The four wheats were equally and perfectly dry, and probably would have weighed the same per bushel had the size and shape of the grains of each wheat been the same, but they differ widely in this respect, Nos. 1 and 2 being medium or small, and Nos. 3 and 4 long and arched. Hence the latter will not fill into a measure as closely as the former, leaving larger spaces unoccupied, and causing any given measure to weigh less in consequence. The old rule holds good for wheats the grains of which in size and shape are similar, but it will only mislead if applied to Indian wheats like Nos. 3 and 4. It was, doubtless, adopted at a period when it was the custom for all wheats to be sold by measure, and for sales by measure it is still a correct guide, but as sales are now made by weight rather than by measure, the rule can only safely be applied within the limits indicated.

After a careful examination of the wheats, of the flours and offals, of the bread obtained from the flours, and the records of the workings of each process, we have further to report:—

The four lots of Indian wheats were delivered to us, packed in the ordinary gunny bags, and all in good condition. None of them were sea damaged, nor had they suffered in any way from storage in the ship.

We examined the wheats, and found them to be good representative samples of—

No. I. Indian fine soft white.
No. II. Indian superior soft red.
No. III. Indian average hard white.
No. IV. Indian average hard red.

but were, with the exception of No. 3, much cleaner and freer from impurities than these wheats generally are.

The leading characteristics of these wheats, details of which are in the tabulated statement, are as follows:—

The fine soft white (*Lot* 1).—Grains white, medium sized, and regular; fairly mellow; skin thin; handled exceedingly well; weight per bushel, 64 lbs., which is only equalled by specially fine samples of any wheat. Clean and free from seeds; contained 2 per cent. of wevilled grains.

Results of the milling and bakings prove it is an exceedingly good and useful wheat; the flour being great in quantity, of pure white colour and superior bloom, and with a slight beany flavour. It is more suitable for markets requiring *white* flours rather than strength, owing to its containing an exceptionally low percentage of gluten. The yield of bread from it is very large.

Superior soft red (*Lot* 2).—Grains dull light-brown, with about 5 per cent. white wheat. In size, half medium and half small; semi-hard; skin thin; handled very well; weight per bushel, 62¾ lbs., which is only reached by fine wheats. Clean and free from seeds; contained only a trace of weevil.

Results of the milling and bakings prove it is a good and useful wheat; the flour being great in quantity and of medium colour and strength, with a slight beany flavour, and containing an average of gluten. Suitable for markets requiring flours of medium strength and colour. The yield of bread is exceptionally large.

Average hard white (*Lot* 3).—Grains light yellow and semi-transparent, with a little hard red; skin thin; in shape long and arched. The wheat itself was clean, but intermixed there was about 3 per cent. hard dry bits of mud (which spoiled the handling), otherwise free from admixture. Weight, 60 lbs. per bushel. Weevils only a trace.

Results of the milling and bakings prove it is a useful wheat for markets requiring strength; flavour, beany; the gluten (by water test) averaging 12 per cent. This wheat (and No. 4) are probably unsurpassed by any other wheats in the world as regards the quantity of flour yielded. In colour, medium. Specially useful for mixing with very damp English wheats to bring them into condition for milling. It is also a profitable wheat for millers, owing to its requiring 8·4 per cent. water to render it sufficiently mellow for use.

To this wheat, and to the Indian average hard red (Lot 4), must be awarded the distinction of *producing more bread than any other flour*, making it a "baker's" flour as well as a "miller's." The yield of bread is exceptionally large.

Average hard red (*Lot* 4).—Grains very large and coarse, long arched and pointed; in colour dull brown, and semi-transparent, with an admixture of 10 per cent. fine soft white; skin thin; handles well; contains a little gram, seed, linseed, and barley. Weight, 61½ lbs. per bushel. Weevils only a trace.

Results of the milling and bakings prove it produces a common and dry strong flour, in almost unequalled quantity. In colour, inferior. A profitable wheat for millers, as it takes 7·6 per cent. water to render it sufficiently mellow for use. The yield of bread is exceptionally large, making it a "baker's" flour as well as a "miller's." (See remarks on Lot 3).

For characteristics and particulars of the other wheats and flours obtained from them, we beg to refer back to the tabulated statements, and need here only further remark respecting them.

No. 5, English.—The yield was poor, undoubtedly owing to these wheats this season being in poor condition, and colour of flour not equal to that from this wheat when in prime condition.

No. 6, Australian, and No. 7, New Zealand.—High yields. Colour and bloom of flours superior, and other characteristics very similar, except that Australian is decidedly stronger.

No. 8, California.—These wheats would be improved if the small quantity of barley and oats they so frequently contain could be kept out, which cannot be entirely removed by any separating machines, as they slightly depreciate the flour. Whilst below Australian and New Zealand in yield and strength (the former arising from its somewhat thicker skin), perhaps in the special points of colour and bloom this flour, and that from American red winters (No. 9), are unequalled.

No. 9, American red winter.—The same remarks as on Lot. 8 as to yield and quality of the flour.

No. 10, American spring.—Medium yield, arising from thickness of the skin, and the cockle and the buckwheat present. The flour is of good colour and superior strength.

No. 11, Russian, Saxonska.—Medium yield of flour, good in colour, and in strength quite unequalled. An invaluable wheat for mixing with weaker ones to add strength to the flour. Of gluten it contains (by the water test) 22·1 per cent. (dry), or double of that contained in the English lot.

No. 12, Russian, Taganrog.—Good yield, colour of flour good, with much yellow bloom, and for strength ranks next to Saxonska (No. 11).

No. 13 Egyptian, Buhi.—Ranks only one degree above Saida (Lot. 14).

No. 14, Egyptian, Saida.—Deservedly ranks as the poorest wheat in the market; possesses no good qualities, and is not nearly worth its price.

The two Systems of Milling.

That of *grinding under millstones* has been in operation from time immemorial, and with but slight improvements, those of recent years relating chiefly to the dress or separation of the offals from the flour by the employment of cylinders lined with silk, instead of wire, within the dressing machines. This system produces flour of one "run" or quality, and does not offer facilities for the production of flours of high, medium, and low grades from the same wheat. Unless care is taken in the grinding to keep the stones sufficiently high, the flour is apt to be "dead" or "killed," that is, to lack anything approaching to granular character, owing to the stones having been employed too close together. On the other hand, if the stones are worked too "high," a loss results from all of the flour not being removed from the bran. It is inseparable from this grinding system that some of the outer skin or bran is also torn or ground into flour, so preventing the attainment of perfection of colour. It is well adapted, however, for the production of common ordinary flours, for, as will readily be seen, it must produce a *greater quantity* of flour than a system which more thoroughly separates the offals.

By the roller system flour is produced by flattening or squeezing the grain through a series of rollers, as distinguished from the tearing or grinding of millstones. The wheat is first cracked through a first set of rolls and its sieve, so separating a small quantity of flour and dirt, the latter being liberated out of the crease of the wheat, and is not removable by any system of brushing or blowing. It is important to get rid of this impurity at the initial step of the process, as it then does not get incorporated with the subsequent flours. The cracked and purified wheat is then passed on through other sets of rolls and sieves, and rendered into middlings and flour. From these middlings the higher grades of flour are made; they are first freed from all light particles of the skin by being passed through "purifiers," and then through several successive sets of rolls and silks, each set yielding flour of a different grade. Each grade may be kept separate, or caused to run together into a mixing worm and so become one run of flour. (The wheats operated upon by this system in these experimental workings were so rendered into flour of one run or quality.) A leading feature in this system is that the germ of the wheat, in which lies the chief portion of the colouring matter of the grain, is not torn or ground into flour as it is by the system of

grinding under stones, but the action of the rollers is to squeeze or flatten it, and, from its soft and oleaginous nature, to increase its size, so rendering its separation from the flour easy. The outer skin or bran is also freed from its adhering flour by the same pressure. But, inasmuch as hardly any of the bran is crushed into flour, the yield of offals must be larger than from the grinding system. The advantages of the system are, less liability to "kill" or destroy the granular nature of the flour, the removal of the dirt found in the creases of the wheat, and the separation of the germ, so rendering the attainment possible of a high standard in the character, colour and bloom of the flour. It is attended with a slightly increased yield of offals, which of course means the quantity of wheat required to produce a sack of flour must be proportionately increased; as a rough average, say 400 lbs. wheat for rollers against 380 lbs. for stones. Offals of very similar quality are produced by both systems, viz., coarse middlings, pollard, and bran, except that the bran from the rollers is smaller than from stones, and is consequently slightly lowered in value, say about 10*s.* per ton. The percentages of offals yielded by each system are given in the tabulated returns.

In these experimental workings the meshes of the silks through which the flours were dressed were as follows:—

In the grinding process	- -	Silks No. 12.
„ roller „	- -	„ „ 13 (or one shade finer).

The Offals.—This is a subject of minor importance as compared with the yields and qualities of flour and bread, and it is only needful to state that, of the offals included in these returns, the middlings from both systems of milling were worked down to the quality known on the Mark Lane market as "coarse mids., fair average," the bran to "bran from stones" and "bran from rollers," and the pollard to "pollard, fair average."

Gluten in bread.—From an economical standpoint it may be said the nutrition of bread mainly depends upon the gluten, or in other words, the nitrogenous or albuminous compounds or flesh formers, contained in the flour from which it is produced. The starch would be equally important if it could not be obtained from other sources in as suitable a form at a much cheaper rate—as in rice, Indian corn and potatoes. But its gluten is not obtainable from other sources, of equal quality and flavour. Hence its special value as a constituent of wheat. Further, upon the gluten in flour depends the elasticity of the texture of the bread, and consequent freedom from density or heaviness. It is generally believed that upon the percentage of gluten in flour depends the *yield* of bread that may be obtained from it, as illustrated by the Hungarian flours, which are almost unequalled for yield of bread, and rank high in gluten, but this is erroneous, as proved by the experimental workings now under review. It will be found that the flours high in gluten do not produce the most bread, unless, at the same time, they possess a high degree of *dryness*, for it is upon the *dryness* of a flour that the yield of bread mainly depends, and not upon the gluten. The two lots of flour from Russian wheats (Nos. 11 and 12) are those which are highess in gluten, yet they do not yield as much bread as any of the four Indian wheats (Nos. 1 to 4), and the difference in yield from the latter would have been still further increased had they not been previously mellowed with water, as noted, before milling; confirming it is the dryness of a flour that determines the yield of bread.

Another erroneous idea is, that upon the quantity of gluten present depends the height or loftiness of the bread. This would be correct, provided the fermentation of the dough were in all cases carried to a precise degree; but it varies widely, and it will be found the loftiness or height of the bread depends chiefly upon a high degree of fermentation, provided it be not carried to great excess, rather than upon the gluten. This is illustrated by the bread consumed in the London district, which is made from flours rich in gluten, yet is not so high or lofty as the bread consumed in some other districts, which is produced from flours containing much less gluten, the popular taste in London demanding strength, nutrition, and then fair colour, whereas, in the districts referred to, a high degree of whiteness is demanded before nutrition.

The four Indian Wheats.

In addition to the particulars contained in the foregoing returns, we have to report that to any one experienced in the requirements of the wheat and flour markets of the United Kingdom and, indeed, of most other countries, it will be evident there is no probability of these Indian wheats coming into demand for manufacture into flour *without a liberal admixture* of other wheats. They all possess in a marked degree

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the same characteristics of great dryness, and a distinct beany and almost aromatic flavour, inseparable from wheats grown in the climates and soils of the tropics. Also the flours are ricey, the texture of the breads is too close, and the crust is hard and brittle. But these characteristics do not detract from their usefulness in any important degree. As is well known a miller cannot show skill in his craft to greater advantage or profit than that with which he selects his wheats, and mixes his grists, so as to produce to best advantage a flour from which bread can be made of the colour, bloom, strength, and flavour desired, and with all a good yield.

We pronounce them to be exceedingly useful wheats, in fact hardly equalled for what is deficient and wanting in the English markets by any other wheats. Their chief characteristics are just those in which the wheats grown in our variable climate are most deficient. Their great dryness and soundness renders them invaluable for admixture with English wheats that are in any degree out of condition through moisture, and the great proportions of the wheat harvested here have been in that condition for some years past, a condition that must prevail in all other than that of wheats harvested and stored during fine and favourable weather; and this the English farmer knows, greatly to his cost, is a state of climate that is by a long way the exception rather than the rule. Added to their dryness, the thinness of the skins of these wheats and consequent greatness of the yield of flour, must always place them in the front rank as a "miller's" wheat, whenever they are handled with reasonable intelligence and skill.

Such unprecedented yields of flour, as shown by these wheats, ranging (by ordinary grinding) from 77·46 to 80·52 per cent. against English 65·2 and American spring 72·2, speaks volumes in their favour, and their value is still further increased by another point of merit of almost equal importance, viz., a larger percentage of bread may be obtained than from any other of the flours included in this review.

That, for the best of these Indian wheats (the fine soft white), on the day they were valued on Mark Lane Market, a price was offered as high as that for American winters, New Zealand or English (see list of values in synopsis), proves that the great value of the Indian wheats is becoming recognised here, a knowledge that will ere long extend to all our markets. The other lots of Indian (Nos. 2, 3, and 4) were lower in value to the extent of 4*s.* to 5*s.* per quarter, as might almost have been expected from the difference in colour and other characteristics; still, as these latter wheats become better known here, this difference in price will be somewhat lessened. Their beany flavour is not a serious obstacle, as fair average deliveries, when well cleaned and properly dealt with, can be employed in the proportion of 25 per cent. to 50 per cent. along with home-grown or other wheats, such as Americans, possessing a fine sweet, milky, or nutty flavour.

Glancing at all the facts here elaborated, it is evident that these wheats afford a larger margin of profit both to the miller and baker than any other.

We venture to record a conviction we have long held, strongly emphasized by the results of these experimental workings, of the measureless importance of the great resources of the Indian empire being developed to the utmost in producing wheat for this country. Farmers here are finding that to live they must produce beef and mutton rather than grain, hence the greater need of resources of supply under our own control.

It is evident such a conviction is common to the members of your Honourable Council, as testified by their unceasing efforts in this direction. And we desire heartily to congratulate them upon the important fruits arising from their labours. The character and general excellence of the Indian wheats are improving with the deliveries of each successive season. The Indian wheats now specially under review were delivered to us in excellent condition (see details) with freedom from dirt (except Lot No. 3), barley, gram, and other impurities, also with a freedom from weevil, rarely equalled by Indian wheats, except the prime parcels of the past season, and there is no doubt an outlet in this country and the European continent for unlimited quantities at prices that shall prove remunerative to all parties concerned, either in their growth, transportation, or conversion into flour and bread.

We have, &c.,
McDougall Bros.

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