

B-M-PRESS MAGAZINE

MONTHLY PAPER OF INDIAN INDUSTRY, COMMERCE, PRINTING, STATIONERY

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Christmas 1930

The day of the Child! Does it not carry you back to your own childhood—to those days when all the world was fair and good, when the sunshine was the brightest, when the rain was the gentlest, when the snow was the whitest? Does it not bring a picture of the times—when your own smile was the mirror for the friendly smiles of others, when you awoke with a song and drowsed to sleep with a sigh of contentment? Does it not picture for you again the simple happiness of life that was yours—when laughter was easy, when a trifle was wealth, when common fare was a feast? We can only wish you that on this CHRISTMAS DAY your heart may be renewed as the heart of childhood and that all its blessings may abide with you.

THE MANAGER

B-M-PRESS MAGAZINE—BASEL MISSION PRESS MANGALORE

EDITORIAL

The old contest of quality against quantity goes merrily on in the buying and selling of printing. No, we do not make any mistake in putting quality first, for quality is rapidly gaining in the race. There is more printing sold to-day on the quality basis than ever before, because buyers of printing are beginning to realize that the buyers of their goods who are willing and able to pay profitable prices are more easily attracted to good printing.

A cheaply printed circular, booklet or advertisement on ordinary paper finds no response in the minds of people of taste and refinement, nor has it any attraction to those who want their money's worth. But this does not mean that we should put or waste our money in fancy printing but should put it into the quality of the printed matter. The other kind has very little effect upon the mentality of the average buyer and none at all on the better class of buyers. The printer who is meeting the present demand and is selling his service to the customer will do well to forget the old idea of getting as large an order as possible and, instead, talk of the business-bringing results of smaller editions of better grades of printing.

Sometimes you can secure the coveted press run by suggesting that an extra colour will bring back more than its cost in orders, but the first aim should be to sell quality in the quantity that will bring your customer the largest return per Rupee of his printing investment. If you can do this you will not worry about the repeated orders—they will come without being solicited. Always find out, if possible, how much the buyer can afford to spend per inquiry or sale, how great a percentage of inquiries he received from the last catalogue or booklet, and how many of these resulted in sales. Then figure on selling him something just a little better and with more pull, even though you cannot sell so many. Be sure to let him know that you are figuring on giving him something that will reduce his cost per inquiry. Confer with him as to what particular item he wants to give particular emphasis. If you do this, you will find that it is easier to sell quality, and more of it, the next time. But do not let your customer overload himself in order to get a cheaper price per thousand; if you do it, you will be the one to suffer.

There will always be some propositions that can be put over with a flood of cheap printing which appeals to the masses, but there will always be cheap printers who will scramble for those orders and cut the life out of the prices. To slightly paraphrase a well-known scriptural verse: The poor printer ye will always have with you. But taking the printing market by and large, there is a decided demand for better printing, and that demand is growing more rapidly than the call for cheap volume.

The printing business is coming into its own and it behoves every printer to use his best endeavours to encourage the demand for quality and not for volume. If he will do this, the result will be so good that much of the money that has been diverted to periodical advertising will be turned into the channel of direct advertising, and the printer will profit in increased volume of quality work quantity of quality in the end, though not quantity as against quality in order to get the most pieces for the appropriation.

Quality printing will give the most sales per rupee, even though there are fewer pieces, but these pieces must be mailed to a properly selected list.

F. R.

THE DEVELOPMENT OF BRITISH INDUSTRY

HERE has been much attention focussed on British industry during recent months, on account of the temporary depression which has been felt all over the world, in which facts have not been fairly represented. Even visitors from overseas have been given the false impression that British industry is stagnant. No greater fallacy ever existed, for at the present time almost every available means for the improvement of production and the exploitation of the world's markets is in operation. There is scarcely a branch of British industry which has not plainly demonstrated the large measure of progress which has been made. That the volume of trade is not at present commensurate with the effort put forward by selling organisations, is due in the main, to factors over which the individual has no control. Over-production and economic factors, along with increased competition for trade in the world's markets, are directly responsible for the present depression which is affecting other industries besides textiles, and is common to every country in the world. Consumption of the world's commodities, has not kept pace with production, which tends to grow more rapidly as improved methods and machinery are introduced.

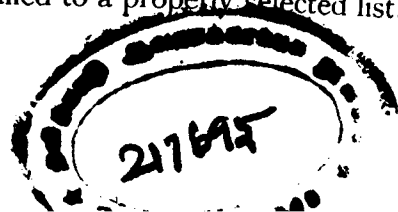
As far as the textile industry is concerned, there has been no effort spared to carefully examine the problems with which it is faced and, although we are often reminded of the trade which has been lost in several markets, we seldom hear of what has been gained, although reference to the export figures will show that increases in trade have been considerable. Nevertheless, the popularity of certain classes of British manufactured woven and knitted goods, in some countries to which we have exported for many years, is well recognised. To attain a higher standard of efficiency and to improve existing machinery is a task which necessitates exhaustive tests and continual research. The measure of success which has been achieved in this direction by British research workers and textile engineers, raises the textile machinery industry to a high standard. This can best be measured in terms of quantity manufactured, and by the fact that more British textile machinery is installed in the world's mills than of any other make. It should be clearly understood that the statement of this fact is not intended to reflect unfavourably on the research which is being carried on in other countries, but chiefly to emphasise the important position which the British textile machinery industry holds at present. In the Lancashire and Yorkshire textile machinery industry there is probably more research carried on to-day than ever before. The same spirit is to be found in the Midlands, which is the home of the knitting industry in this country. There can be little doubt that the reward will ultimately be found in actual demand for this improved equipment which will naturally come on a larger scale when the world's markets become established, and a firm policy of rationalisation is recognised.

Marketing is undoubtedly a serious business these days; in times of depression it becomes more serious, but unless it is tackled with an optimistic outlook, it is wasted effort. British industry is rapidly expanding, a fact which, singularly, is not generally recognised at home, and therefore we can hardly expect it to be recognised abroad. To qualify this, one only needs to carefully examine the country's employment figures for the past five years. This is surely the most reliable indication one can have, acting as a definite index of the number of workers actually engaged in a productive capacity. It is true that within recent months there has been a decline in the number of operatives engaged in the heavier industries, but, when compared with the enormous number of workers absorbed in different trades during the past five years, some idea of the growth of new industries will be obtained. The unemployment figures issued at the end of last year showed that about 700,000 more people were employed than in 1924. It is encouraging to note that many were engaged in the silk, rayon, and hosiery trades. Similarly, there was a corresponding increase in the consumption of raw materials. Since this time there has been a temporary set-back which calls for strenuous efforts to restore the original position. It is well recognised that the remedy lies in immediate co-operative action rather than lengthy discussion, and although the development of social progress may at present be somewhat retarded, the outlook, whilst not encouraging, is not nearly so gloomy as many of the extremists would have us believe.

A scrutiny of the trade organs representing the different branches of trade and commerce in Great Britain will serve to show the actual position. Furthermore, it will act as convincing proof that the grim determination which has always characterised the British industrialist will be the weapon with which the depression will be surmounted, as others have been. Who can say that either the cotton or woollen trade has neglected to recognise the inevitable changes which they will have to make if they are to compete successfully in the world's market? Reference has already been made in these columns to part of the scheme for rationalisation. The cotton industry has not been content to rely on the findings of the recent Government inquiry into conditions in the industry, although, doubtless many of the suggestions will ultimately be adopted, in the meantime, the industry is helping itself—it is replanning and reorganising. With fearless progress the wool trade has faced its problems in a manner which shows foresight and determination. Never has there been such a progressive spirit demonstrated before—and although there are pessimists who will give way to depression, the progressive trader is constantly striving to bring about an early return to prosperity, which will be his ultimate reward.

Textile Exporter.

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THE FUTURE OF AIR-TRANSPORT

THE main air-routes of the future will be the foundation of international traffic. To-day more than two-thirds of the entire international air-route complex is accounted for by the European air-transport services; but the system will not be really working to its utmost capacity until the transcontinental routes to Africa and the Far East, and the transoceanic routes to North and South America, are in full swing.

People frequently speculate as to whether in the international air traffic of the future the *airship* or the *aeroplane* will be to the fore. In reply one can only say that both means of transport, aeroplane and airship, will exist side by side, and that each will be put to the uses for which its peculiarities best fit it, the two thus supplementing each other to form one harmonious whole. It is true that at the moment the aeroplane is capable of travelling faster than the airship; but the latter has greater carrying-power, and is thus able to offer the passengers unrestricted room and comfort. It is likely that for long trips, chiefly of a transoceanic nature, the airship will be used, whereas urgent mail and valuable goods will probably be carried by aeroplane.

It goes without saying that, in both cases, the safety element, especially above the sea, increases with the size of the vessel. This increase in size has, of course, certain technical and economic limits; but as yet these limits have not nearly been reached.

Basing their ideas on the experiences gathered with the existing large-sized aeroplanes, a number of well-known designers have already submitted suggestions for a giant aeroplane. Two peculiarities are to be observed in every design: firstly, the use of thick, strutless wings, containing the passenger cabins, the baggage-rooms, and the engines, and secondly, the splitting up of the power unit into several independent engine-aggregates.

Without any doubt, one of the most interesting designs is that by *Professor Junkers* for the so-called "All-wing Aeroplane". J. 1000. The vessel will be propelled by four crude-oil Diesel engines, accommodated in the wings, and able to be attended during the flight. The rooms for the crew and the compartments for the passengers will also be in the wings. Another point of great interest to-day is the question of *filling up with fuel without the necessity for landing*. During the 420-hour flight of the American Curtis in his "Robin" the machine was refilled with fuel no less than thirty times from another 'plane. A large-sized aeroplane, then, will in future carry only a moderate supply of fuel, so as to be able to take more passengers and freight; when the fuel-supply runs low, the "tank-aeroplane" will be communicated with by wireless, and will fill up the machine in mid-air.

The extremely interesting *trailing experiments with gliders* are also likely to achieve considerable importance in the near future. The use of air-trailers in aerial transport would no longer seem to be a mere Utopian dream. Captain Frank Hawks, an American, has already succeeded in covering a distance of about 3,000 aerial miles at the end of a tow-rope.

His glider was connected by a rope to an ordinary aeroplane. This "aerial train" flew the enormous distance from San Diego to New York without any trouble at all. Landings were made in 47 large towns *en route*. We must not fail to mention here that such attempts had been successfully carried out by *Raab-Katzenstein* in Germany prior to the American flight.

The goal towards which we are striving in aeronautics is the covering of the longest possible distances without landing; but, at the same time, the smaller intermediate towns also want to have the benefits of an air service. A conceivable way of satisfying both these requirements would be to fly over such towns, and to "slip" the passengers and mail there by means of the trailer-gliders. The gliders would then be transported to the nearest large airport, where they would again be attached to the rear of the large aeroplanes. An important consideration in this connection is the saving effected in fuel and the increased life of the engines.

It is intended very shortly to set to work on the extension of the *night air-routes* and on the creation of a satisfactory flying-ground organization, which will manifest itself first and foremost by good illumination of the airports, the emergency landing-places, and the flying routes themselves.

Most of the flying routes are overland, whilst it is only recently that the transoceanic routes have been further extended. But the saving of time effected by the aeroplane's crossing the ocean is *considerably greater* than on the land-routes. The speed of even the most modern liner is not half so high on the average as that of an express train, with which the aeroplane has to compete on land. To make the long oversea routes safer and more convenient *floating islands* will be anchored at intervals along the route. The aeroplanes will be able to land there and fill up with fuel, and, if necessary, carry out repairs. At night powerful search-lights will make these floating docks visible from afar; they will also serve as a useful guide in stormy weather.

The airship, too, is far from being fully developed. One can even go so far as to say that *the science of aeronautics is still in its infancy*. The requirements of the international airship traffic will be met by the construction of huge vessels whose dimensions will be far greater than those of the present-day ships. These airships will be filled with *non-inflammable* gas, and will be driven by powerful engines; speeds of about 110 miles an hour will be attained, so that, despite contrary winds, the services will always be able to run dead on time. The greatest attention will also be paid to the problem of providing the passengers with comfortable quarters, and, finally, as the airship traffic increases in volume, *airship ports with rotating hangars and mooring masts* are inevitable. Dr. Eckener, the indefatigable propagator of the idea of airship transport, has just completed some extremely important negotiations with England and America, as a result of which one may shortly expect to hear of the opening of an international airship service between Europe and North and South America.

Echo.



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RICE AND ITS TREATMENT

RICE has from the very earliest times been grown in India and China; but, of the two, it is probable that China was the first to become a centre of rice cultivation. The Occident first became acquainted with this food-stuff—according to tradition, at any rate—through the campaigns of Alexander the Great, who found that it was at that time the staple article of diet amongst the peoples inhabiting the banks of the Upper Oxus and the Lower Tigris and Euphrates, just as it is to-day all over the East. From that time rice has been well-known as an article of commerce, despite the fact that the Romans used it not as a food, but for the preparation of a viscous drink which they took as a medicine. The Arabs succeeded in introducing the rice plant into the Nile delta, and in Spain the creation of splendid irrigation systems enabled them to develop the culture of this cereal to an extremely high pitch of excellence. About the year 1530 rice was also introduced into the plain of the Po, and the great profit which was found to accrue from its cultivation caused its rapid spread as far as the Romagna, Piedmont, and further—so much so, indeed, that the Government of the time, induced by considerations of public health (which was seriously threatened by the artificially increased swamp-areas), decided to enforce by law the reduction of the rice culture.

The rice plant—whose botanical name, which includes all varieties, is *Oryza sativa*—is one of those tropical plants which are also able to exist in the more temperate zones, though it is never found further north than latitude 45 deg. N. There is an enormous number of different varieties of the plant; in the Calcutta Museum, for instance, one can see some 1100 varieties from the Indian rice districts alone. The rest of the world has produced, probably, about another 300. Generally speaking, we distinguish between two main sorts of rice—mountain rice and swamp rice. Of the two the swamp rice is the more important, for it is cultivated in rice-growing countries not only for home consumption, but also for export to non-rice-growing countries. Mountain rice flourishes on a dry soil, and only needs irrigation in the severest drought; but every effort to cultivate it in Europe, in order to escape the hygienic drawbacks of the culture of swamp rice, has hitherto been in vain.

The cultivation of swamp rice entails an immense amount of labour. The first essential is a good system of irrigation and drainage. That is why the chief rice-growing districts are to be found along rivers which overflow their banks every year; for it is just at the time when the plants spring up that the rice fields must be covered with a considerable depth of water, which must not retire until the time of the harvest. These requirements are fulfilled in India, and for this reason India is one of the greatest rice-growing countries in the world.

The method of cultivation varies in the individual countries just as does the method of subsequent treatment.

Whereas in China the small wheel threshes the rice in a wooden bucket with a stick, in Lombardy the same result is produced by the hooves of buffaloes or mules.

A striking contrast to these primitive methods of obtaining the rice grain is seen in the modern treatment of rice, in which up-to-date machines and plant are used. The most important thing to bear in mind is that as few grains as possible must be broken, so as to avoid reducing the size of the rice. It is particularly in Germany that we find firms which specialize in machines for the treatment of rice; the products of these firms have earned a most enviable reputation for efficiency in the rice industry.

After the harvest the ears of rice are first separated from the straw by threshing-machines, and if the threshing-machine possesses a hummeller, the awns adhering to the grains are likewise removed. If this is not the case, the rice, after leaving the threshing-machine, is fed through a separate hummeller. This hummeller is at the same time a splendid cleaning-machine; for the mechanical effect of the machine is to rub the grains of rice intensively one against the other, whereby any dirt which may be sticking to them is removed. The threshing-machines used, which are equipped with one or two cylinders, according to the kind of rice plant to be treated,



Indian method of grinding.

thresh the sheaves—when these are properly made—thoroughly in one process, without breaking the healthy grains. Sieves and exhaust fans free the grains from sand, dust, chaff, etc. as they pass through on their way to the hummeller. The grains of rice leave the threshing-machine at two discharge points, where they flow into sacks; the rice straw is discharged at the other end of the machine. The threshing-machines can be of the stationary or of the travelling type, according to the conditions under which they have to work.

The cleaning and sorting of the grains of rice is effected by cylindrical, oscillating, and rotary sieves, pneumatic dust-removers, magnets, and so on. It is an advantage to sort the grains, after they have been cleaned, according to size, so that the grains passing through the husking-mills, which, as the name indicates, remove the husk from the grain, may all be of equal size. The rice which passes into the husking-mills is composed in part of broken grains, which are separated by means of a suitable sieve, which also extracts the husk flour.

The rice with the husks now passes into the husk-separator, working either by suction or by pressure, where the husks are removed in a special container, from which they can be taken and used as fuel for the engine. The rice, which leaves the husking-mills with the small particles of husk, is then conducted to a husking and polishing machine.

The husked grains are separated from those which have not yet been husked by separating machines, and the latter

(Continued on page 73.)



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are then passed once more through the husking-mills. The advantage of the separating-machines is that the grains which have already been husked do not have to be subjected again to the husking process and thus exposed to further danger of breakage. The rice which is broken during the husking process appears on the market as the well-known broken-rice.

The husked rice now enters the smoothing-mill, which consists of a cone-shaped iron body which is faced with artificial stone; this body revolves continuously within a concentric wire sieve, which incorporates several adjustable rubber brakes. The husked grains fall down between the rotating body and the wire sieve, and the friction removes the inconspicuous second skin, which is red or brown in colour. The rubber brakes serve to accumulate and to turn the grains of rice. The gap between stone body and wire-mesh sieve can be adjusted by means of a hand-wheel. The flour which results from the grinding process passes through the mesh into the collecting-chamber, where an automatic flour-collecting ring conveys it to the flour outlet. The upper part of the smoothing-mill is enclosed in a dust-proof housing, and is connected with an aspirator.

The grains are ground from one to four times, depending on the desired quality of the white rice and on the kind of rice. The grinding is often followed by a polishing process, carried out with the polishing-cone. The polishing-cone is of a similar design to the smoothing-mill, the difference being that the cone is faced with a special material, and that the sieve in which it rotates has no rubber brakes.

After leaving the polishing-cone the rice passes over sorting-sieves, where the broken rice—of which there are generally three or four grades—is removed.

Echo.

TEXTILE MACHINES FOR SMALL-SIZED ESTABLISHMENTS

ON a general survey of the machines with which the modern large textile industry is working it will be noticed that they comprise the most intricate and varying types of all the machines of which we are making use to-day. To give only a few instances of this, we may remind our readers of the knitting and embroidering machines and the Jacquard looms.

It must appear all the more strange in view of this fact that in those countries and districts in which industrial concentration has not yet advanced very far, but where the fibre is spun and woven on the spot the working methods adopted are frequently of the most primitive and obsolete kind. It is no uncommon sight in these places to see women taking the thousand-year-old spindles along with them when going into the fields to herd sheep or cattle, or to see them seated at the old spinning-wheel, which can also look back upon a history of many centuries. The material on the distaff is usually subjected only to a preliminary treatment with the hand-card or, at best is driven by a hand-operated simple willow and a simple carding comb.

Manual labour at any rate is playing a decisive role, and the use of machines is resorted to only in rare instances.

Conditions are similar as regards weaving where the simplest hand-looms are still used and where every single operation, shaft movement, lathe drive, and cloth transport is performed separately by hand or foot.

It is needless to point out that the methods indicated are uneconomical in every respect, and that the fabrics produced

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by these means are incapable of competing with industrial manufactures, with the exception perhaps of some very remote districts where difficulties of transport would otherwise render the selling price of the industrial products too expensive. With a view to effectively reducing production costs in such small establishments, the textile-machine builders are marketing machines which enable these small establishments to do all the necessary operations by machine from beginning to end, either individually at home or conjointly on the co-operative system.

To take the subject of spinning for a start, it will not be without interest if we give below an instance of a rustic spinning-mill for wool and kindred fibre.

For a complete conversion of the raw material into the finished thread the following machines will be chiefly required:—

- 1 willow,
- 1 double carding-engine set, consisting of a first breaker and a carding-machine for slubbing, with either ring doffer or divider,
- 1 spinning-machine,
- 1 twining-frame in case doubled yarns are to be produced.

The working process shall be first described for wool, and deviations from this, as they have to be observed when spinning other material, shall be pointed out subsequently.

The wool when coming straight from the sheep has many impurities caused by sweat, dust, etc., and has to be washed first. It would hardly pay, of course, for small establishments to install a wool-washing plant. It will be sufficient, instead, to treat the wool on the following lines: It has to be soaked first in wooden vats and, if possible, in warm water with a little soda in it. It is then placed in wickerware baskets in running water, which will remove the coarsest impurities. After the water has been removed by a hydro-extractor or an ordinary squeezer, the wool should be spread out to dry in the open air.

The subsequent work by machinery has then to proceed in the following manner: The heavily matted wool is first placed on the feeding table of the willow and carried by it between the feeding rollers; from the latter the wool is taken off in flakes by a pin-studded roller and thrown behind. Owing to centrifugal force the coarsest impurities, such as dirt and burdock sticking to it, are removed from the wool, and drop backwards through a sift. If different classes of material are to be handled they can be mixed simultaneously by feeding them either alongside each other or intermixed. After finishing the first operation it is advisable to oil the wool and run it once more through the willow.

The wool is oiled by spreading it out on the floor and sprinkling it with a mixture of one part oil and eleven parts of water, and taking about 6 litres of oil-water for every hundred kilogrammes of wool, or one half litre of oil and $\frac{3}{4}$ litres of water for this quantity of wool. A double passage of the wool through the willow as well as its oiling is a long way towards preserving the carders. It should be emphasized in this connection that only vegetable oils should be used, since mineral oils cannot be removed in subsequent operations.

After the wool has been run through the willow twice, it is carried to the first breaker, where it is fed to the rollers by means of a feed-board or carriage. The rollers are covered with cards, that is, with rubber of felt lining closely studded with steel-wire pins, the rollers revolving in opposite directions and thus combing the wool and laying the separate fibres in parallel directions. The large roller is called the ambour or main cylinder. It takes the wool off the feeding rollers and passes it along four to five pairs of strippers and

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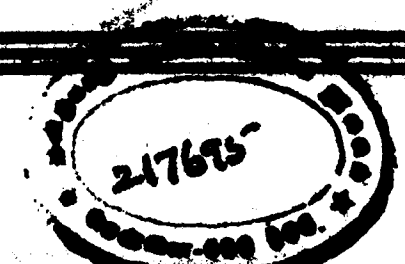
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fancy rollers. The strippers comb against the tambour and perform the principal work, while the fancy rollers or flyers comb the wool carried along by the strippers and replace them on the tambour. On the side opposite to the feed the doffer takes the wool off the tambour, whence it is knocked out by the rapidly reciprocating comb and transferred in a connected fleece to the mortling drum at the end of the machine, round which it settles in the form of a fur. As soon as the fleece has attained a certain thickness it is thrown apart and taken off by hand, folded in the middle, and charged into the second breaker or *carding-machine* for *slubbing*. This must be done in such a way that the former direction of the fibre is at right angles to the new working direction, the object being to handle the material in a more thorough manner. Up to the doffer the slubbing card is constructed exactly like the first breaker. But instead of the fleece drum it is provided with a device for dividing the fleece into small strips and for rounding the same for roving. There are two constructional types. In the one instead of the compact carding cover it is lined with separate carding-rings, so that the comb will take off the wool in the form of separate ribbons. These are then passed through a squeezing-mechanism and rounded off, though not as yet twisted, by them. The squeezers are two continuous leather belts of the width of the machine, which run flat over two rollers each. Their motion is twofold, firstly continuous in the working direction, whereby they move the ribbons forward, and secondly, transversely to the working direction—moving against each other to and fro, whereby the flat ribbons are squeezed or, in other words, rounded off. The ribbons obtained in this manner, the roving, consist of parallel reversed fibre lacking as yet any close cohesion. The other type of machine has the doffer covered completely with cards, while the division of the *crape* is performed by a special *divider*. The latter is equipped with the system of continuous endless leather straps of 10 to 25 mm. width passed over the rollers alternately upwards and downwards, with the result that they divide the fleece on arrival into ribbons and convey them then to the squeezer. The divider has two pairs of squeezers, one for the ribbons running upwards and one for those running in a downward direction. The roving is wound on to two roving spools and by them reeled off the slubbing card. It will be easily understood that the degree of utilization in the machine of the latter type is about double that of the ring doffer, since the divider is making use of the full working width, while the ring doffer takes charge of only part of the wool. The more complicated character of the machine number 2 necessitates a higher initial outlay. But it will soon pay for itself on account of its higher output.

The size of the roving threads must naturally influence the size and strength of the finished yarn. In order that the yarn be always perfectly even, care must be taken that the fleece when leaving the fleece-drum have always the same thickness. In order to attain this end, the wool-carder should always be fed with quantities of exactly measured weights and worked in successive sections.

The best machinery used for spinning proper is the ring spinning-machine, as it is simple in construction, easy to operate, requires very little power, and takes up little room. The machine works on the continuous drawing and twisting method. The roving spool is either placed on the spinning-machine directly from the slubbing card, or the roving is divided into separate sections, with one thread per section. These are then placed on the travellers, which run on a point and whence the yarn is drawn off. The first method has the advantage that it does away with the necessity for

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dividing the work into sections, an operation requiring much skill and training on account of the sensitive nature of the roving.

The roving is passing under pressure rollers over a number of fluted cylinders of which every succeeding roller has a higher speed than the one which precedes it. By these means the yarn is drawn or stretched, while at the same time it is provided with an extra thread with the object of equalizing the speed differences and making the thickness of the thread more even. After this the thread passes over the thread guide through the runner on the spindle-ring to the paste-board spool on the spindle. The spindle is driven at a speed of 3,000 to 6,000 revolutions per minute, and simultaneously twists and reels the yarn.

The yarn after leaving the ring spinning-machine is ready for weaving or other types of work. But if stronger threads are to be produced it will have to be twisted first. This is done on the ring twining-machine, on which any desired number of yarn threads (six, as a rule) are twisted together into a single thread. The ring twining-machine operates similarly to the spinning-machine, but with this simplification that is has no drawing-gear.

The strength of the thread obtained depends in the first place, as will be evident from the foregoing remarks, upon the quantity of material placed on the board of the first breaker. This is regulated by the proportion of the speeds of the feed-board and the tambour of the slubbing-card as well as of the speed conditions in the drawing-gear of the ring spinning-machine. The twist of the yarn stipulates the spinning speed, and the conditions most suitable for the desired end-products are regulated by the adjustment of gear-wheels. In this manner it is possible to obtain threads of different size and strength suitable either as hard twisted warp thread or as the softer class of weft threads.

The machines are built for various trade widths or with different numbers of spindles according to the finished product required. As a basis for the daily output of a ring spindle may be taken one kilogramme at a fineness of yarn of 4 to 5 m.

A plant such as those indicated above can be handled very easily, and can be attended by female labour under the supervision of a foreman or leading hand, who can be taught the mode of operation within a comparatively short time. Generally speaking, one person is sufficient for every machine, the divider counting as a separate machine.

As regards the drive of the plant, it will be sufficient as a rule to make use of a drive in groups over a common system of countershafting either by electric motor-orby crude-oil or petrol engine, according to which of the systems may prove cheapest. Small plants can also be driven by hand or by horse gear. Apart from wool, these machines can also be used for spinning camel's hair, cotton, and silk waste. Operating the plant for the production of camel's hair is naturally exactly the same as for wool, whereas cotton has to be ginned before the spinning operation. For this purpose there are mostly simple squeezers obtainable, as they can be produced in the country itself. The cotton-mortling produced on the carding frames can also be used as wadding instead of being spun into thread.

As regards weaving, there are various mechanical looms on the market both for hand and for treadle-drive. The machines have a central drive whence all motions are controlled, and we may point in this connection to the plant shown in our illustration. In this case the loom is operated by hand-crank. It has a width of reed of 95 cm, four leaves which operate by adjustable eccentrics, pickle motion by draw-spring, and automatic cut-out whenever the shuttle

(Continue page 88)

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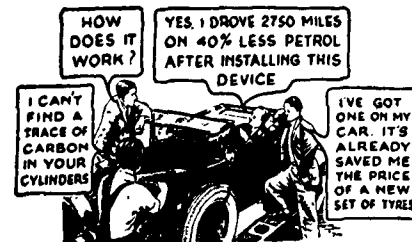
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sticks in the shed. These looms are provided with governor for an automatic feed of the material and are thus, notwithstanding their great simplicity, equipped with all the achievements of modern times. The pattern on the fabric is obtained on the one hand by a stripe warp and on the other hand by a change of the picks according to a certain definite number of shoots. The output amounts to about 15 m. in eight hours. *Echo.*

INK AND ITS MANUFACTURE

It is to the ancient Egyptians that the credit is due for the invention of ink; they used it for hieroglyphics which they painted on rolls of papyrus. The use of ink and paper for writing purposes, however, did not become at all general at this period—we know, for instance, that the Greeks and Romans, who came a long time after the Egyptians, employed tablets of wax, on which they wrote with a metal stylus; nevertheless, it is from this epoch that we trace the gradually increasing use of ink for writing purposes.

The Greeks, the Romans, and the Chinese, nations which at an early stage of their development brought the art of writing to a high pitch of perfection, used ink which consisted of a liquid containing fine soot in suspension. It was only recently that ferro-gallic ink made its appearance. The two principal inks to-day are ferro-gallic ink and logwood ink. Of these ferro-gallic ink is the better; its chief constituents are gallo-tannic acid, extracted from gall-nuts, and iron. Logwood ink is made of logwood extract, and does not keep for very long.

Besides gallo-tannic acid, otherwise known as tannin, ferro-gallic ink contains oxalic acid, iron sulphate, and some colouring substance. Logwood ink, on the other hand, is prepared from logwood—obtained from the Campeachy tree, of West Indian and tropical American origin—aluminium hydroxide, potassium bichromate, and oxalic acid.

The three chief varieties of gall-nut, the chief raw material of ferro-gallic ink, are the Chinese variety, having the general appearance of a plum stone, the Turkish, or Aleppo, variety, and the rough-looking Japanese variety; these three kinds differ greatly from one another not only in their appearance, but also in their content of gallo-tannic acid. But what do we mean exactly when we speak of a gall-nut? Gall-nuts are pathological growths which develop on plants or trees as a result of the attacks of certain parasites; the parasite is stimulated to develop fresh tissue around the parasite, which feeds on the material thus supplied to it. The parasites may belong to either the animal or the vegetable kingdom. These gall-nuts can only make their appearance on the young, not yet fully developed, organs of the plant, such as the tender buds, young roots, stems, and leaves; fully developed organs are immune. Although there are a few parasitic fungi which are capable of causing the formation of gall-nuts, by far the greatest contingent is produced by the action of the gall-fly, *Cynips tinctoria*. The Turkish, or Aleppo, gall-nut is shaped like a bullet, has a short stalk, is rough and uneven in its upper part, and is pale yellow, brownish, or blackish green in colour. The gall-nuts of commerce are mostly the Mosul and Aleppo varieties.

The Chinese gall-nuts generally look like elongated blades, pointed, rough, and twisted in form; they usually attain a length of about 4 in. and a thickness of about 1 $\frac{1}{2}$ in. The walls of these gall-nuts are horny and brittle. When softened in water they form a thick, whitish-coloured, opaque mass which can easily be cut with a knife. The Japanese gall-nuts are similar to the Chinese variety, but are

(Continued on page 88.)

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36

GREAT EASTERN LIFE ASSURANCE CO., LTD.

Total provisions for Bonus made ending the year 1928 Rs. 21,39,600 - 0-0
Assets and Life funds " " " 1929 " 169,72,674 - 2-0
Amount invested in India for safety of Policy holders 1929 " 27,84,542 - 0-0

If you are already a policy holder apply to us
for particulars to increase it

BANGERA & Co.
Chief Agents, Mangalore.

M. V. MERCHANT
Manager, Bombay.

32

Estd. 1892 Tel. "Hirashet"
THE BHARATH JEWELLERY MART
Diamond Merchants and Manufacturing Jewellers. Winners of medal in All-India Congress Exhibition.
Holders of Certificate of H. E. The Governor of Madras. Maidan View MANGALORE
Always hold in stock all sorts of precious stones, such as Diamonds, Emeralds, Rubies, etc. and ornaments such as Necklaces, Brooches, Pendants, Rings and Earrings, etc. All sorts of Jewellery of latest designs.
Manufactured in most Artistic and up-to-date style.
A trial order is solicited. 33

PURE KHADDAR

The Premier House for
Swadeshi Piecegoods

SUJEERKAR BROTHERS

Market Road
MANGALORE

48

LABELS

(Embossed and Gummed)

For all purposes
and of any design
in any colour or
combination of colours

First class execution

Full particulars from

V. V. Krishnier
Big Bazaar
Palghat

45

LOCKS, CHAPRASES HANDCUFFS & BADGES

Catalogue free

Apply to:

Messrs. D. K. & SONS

Govt. and Native States
approved Contractors

ALIGARH (INDIA)

Tel: "CORONATION"

41

G. NUNDY & Co.

14-2, JAMIR LANE, BALLYGANJ P. O.
CALCUTTA

TEAKWOOD MERCHANTS

Manufacturers of Teakwood Work such as Door-frames, Doors and Windows, Sunshades and Partitions, etc. Furniture of all descriptions. Punkha and Cane Furniture. Dealers in all sorts of Building Materials, Netting, Tubewell set, Pumps and Tanks. Furniture and Door Fittings made of Iron or Brass, Carpenter's and Smith's Tools, etc.

51

INDIA'S GIFT TO THE WORLD!

'CHYAVANAPRASHA'

THE PERFECT TONIC FOR ALL

Prepared correct to Eastern Formula and Laboratory Methods.

Rs. 4/- per lb.: Airtight jar.

Packed and delivered free in India.

SRI SAMARTHA AYURVEDIC PHARMACY
Car Street - MANGALORE - South Kanara

60

My Linseed Oil Varnishes

which I supply for graphic purposes
are thin and golden transparent

E. T. Gleitsmann, Dresden-A.16

Printers' Inks

Germany

18

Industrial Art

Advertisement Rates under these columns for 4 lines: Re. 1-0-0 for 1 insertion, Rs. 5-0-0 for 6 insertions and Rs. 9-0-0 for 12 insertions.

Brassware

Gift articles of polished brass. Smokers' sets, smokers' tables, writing table sets, plates, trays, gangs. Karl Füll & Co., G.m.b.H. Münschen 50, Forstenriedersert. 73.

Calendars

Artistic calendar printing in colours will do for you: B. M. Press Mangalore S. K. Ask for estimate.

Clocks

Clocks of every kind. Spec. Advertising clocks in every style. Hermann Wendt, Clock Factory, Bremen P. O. B. 816. Ask for catalogue and Price-list.

Crib Figures

Crib Figures of paper. Rudolf Opel, Oberlind i. Thür. Est. in 1844. Ask for Illustrated Catalogue.

Christmas Cards

Xmas and New Year Cards Indian Views and Sceneries Assorted. Apply - The Manager B. M. Book and Tract Depository Mangalore.

Harmonicas

Ask for special catalogue of Hohner Harmonicas. Matth. Hohner A. G., largest Harmonica factory in the world, Trossingen Germany.

Pianos

Special manufacturer of tropic pianos. H. Kriebel, Berlin. Tel. Add. Kriebelano Berlin. Ask for price-list and catalogue.

Picture Postcards

Picture Postcards, Small Photographs. Michael Meisgen, Silver Bromide Rosary Printing Works, Fürstentrasse 18 a, Berlin 342.

Presents

Presents for ladies and gentlemen. Cigarette boxes, powder boxes, hand mirrors, baskets, vases. Willy Kühne Broncewaren Fabrik, Berlin 542.

Roses

Factory of roses, pendants and brooches of ivory, bone in artistic work. White and coloured. Konrad Woythaler, Cologne 10. Ask for Catalogue.

Screens

Screens for all photo mechanical processes. "Haas", "Efttha", "Koh-i-nor", Raster-Syndikat Frankfurt-München G.m.b.H. Neue Mainzer Strasse 77, Frankfurt a. M.

Woodwork

Artistic woodwork figure calendars, serviette stands and boxes, name card stands, auto-dolls, mats key-boards made from real novel design. Clair März & Co., Breslau 10.

Situations Vacant

Advertisement Rates under these columns for 4 lines: Re. 1-0-0 for 1 insertion, Rs. 5-0-0 for 6 insertions and Rs. 9-0-0 for 12 insertions.

Agents

wanted for the sale of excellent cloths, artistic cottonserviettes, Tuppatties in white and colour, etc., etc. For particulars apply to: West Coast Weaving Estt., Chowa, Malabar.

Compositors

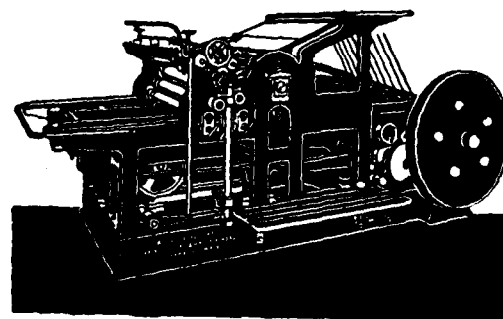
well experienced and trained Job-work Compositors for our fully-equipped Job-work Department. Call on or apply with testimonials stating salary required. The Manager, B. M. Press, Mangalore.

Engraver

to engrave and carve on wood, lead, type-metal and steel. Apply with samples of work done stating salary required. The Manager, B. M. Press, Mangalore.

Printers

having full practical knowledge of three-colour printing work, mixing colours, etc. for "Quality Printing". Apply with testimonials stating salary required. The Manager, B. M. Press, Mangalore.



THE PRINTING MACHINE AND TYPE- FOUNDRY COMP. OFFENBACH a. M.

ACTIENGESellschaft
FÜR SCHRIFTGIESSEREI
UND MASCHINENBAU
OFFENBACH a. M. GERMANY

**Types - Borders - Ornaments, Scripts
Cylinder Printing Machines and Job-
Presses - Platen Presses - Proofpresses**

19

Manufacturers and Exporters

Advertisement Rates under these columns for 4 lines: Re. 1-0-0 for 1 insertion, Rs. 5-0-0 for 6 insertions and Rs. 9-0-0 for 12 insertions.

Advertising Articles

Advertising Articles in celluloid, wood and metal. Special Manufacturers Karl Högg & Co., Nuernberg 3, Germany

Albums

Photo Albums, Post-card Albums. B. M. Press Mangalore, S. K.

Photo Albums, Post-card Albums, Poetry Albums J. Schaeffer, Gruenstadt (Pfalz). Agents wanted.

Anatomical Models

Plastic Anatomical Models made of Gypsum and painted from nature in Oil colours Basel Mission Book and Tract Depository Mangalore S. K.

Aquariums

Novel Apparatus beautifully manufactured Highly recommended for all Elementary and Secondary Schools. Basel Mission Book and Tract Depository Mangalore, S. K.

Barometers

Barometers in wooden metal and ornamental frame. Basel Mission Book and Tract Depository Mangalore, S. K.

Books

Schoolbooks, Dictionaries, etc. Basel Mission Book and Tract Depository Mangalore S. K.

Box Papers.

Hand-made covering papers for fancy Packings. Albums and Book covers. Tegeler & Co., 5 Luppenstrasse, Leipzig W. 33.

Brushes

Shaving Brushes of incomparable quality. Pinselfabrik "Sero" G. m. b. H. Nuernberg Samples from Mks. 5 or equivalent.

Calendar

For artistic calendar printing Ask for B-M-Press Quality-Printing. B. M. Press, Mangalore S. K.

Cases

Specialists in the manufacture of cases and Gift wrappers for small silverware. Agents wanted. Erzgebirgisches Pappstanzwerk G. m. b. H. Annaberg (Sachsen) Germany

Charts

Astronomical Charts, Child-life series, Engleders' object lesson pictures, Indian Views, Geographical Pictures, Basel Mission Book and Tract Depository Mangalore, S. K.

Demonstration Apparatus

Model Aeroplane, Model of Water Mill, Water Turbine, Wooden Models of Oil Pump, Hawards Raingauge, Basel Mission Book and Tract Depository Mangalore, S. K.

Distilled Water

Best quality Distilled water sold at competitive cheap price. Basel Mission Press Mangalore.

Electro-Technical Goods

Special manufacturer of mass articles in metal. Pressed and punched articles for the lighting and all other technical

industries. Made after sample or drawing. Sauerlaendische Metallwarenfabrik Schmitz & Co., K.-G., Neheim-Ruhr, Germany.

Fire-Extinguishers

Wintrich the reliable Fire Extinguisher for all fires. Gold Medal of the "Gesolei" Deutsche Feuerloescher-Bauanstalt Wintrich & Co., Bensheim 25 (Hessen), Germany.

Furniture

Novelty! Dinner-Wagons of first class workmanship. Specially suitable for export to the colonies. Made "Knock down" to effect economies in freight and packing. Net weight about 10 lbs. Made in solid oak and in solid mahogany. E. Eichler and Lucius, Linderode N.-L., Germany. Manufacturers of furniture and furniture decoration.

Glass and Pottery

Glass cutters H. G. W. fitted with finest quality steel wheel all sorts of approved types. Novelty: Diamond Roller Glass cutter H. G. W. Glaziers diamonds, all sorts of diamond working tools. Fa. Hans Gries, Weiden 5, Bavaria Germany.

Glasses for chemical, medical and technical purposes. Funnel, Tubes, Graduated measures. Glassfabrik Lieberg-huette G. m. b. H., Schmiedefeld, Kreis Schleusingen, Germany.

Globes

Cheap and Good Terrestrial Globes, Basel Mission Book and Tract Depository Mangalore, S. K. Ask for price-list and catalogues.

Keys

Keys for every use. Special Key Factory. Julius Ellenbeck, Veibert 8 (Rhld.) Est. 1874, Germany.

Lighters

Special Manufacturer of lighters, match boxes and pocket lamps. Paul Grunwald, 15 Wusterhausener Strasse Berlin S O 16.

Maps

Philips' Wall Maps. Size of each map 43x33 inches. Mounted on cloth with rollers varnished, Price Rs. 5-4-0 each. Basel Mission Book and Tract Depository Mangalore, S. K.

Ruling Work

Accurate ruling done by our newly imported ruling machine (latest model) work guaranteed. B. M. Press, Mangalore.

Stamps

Wanted Indian Native States stamps in exchange for foreign stamps. K. Weichselbaum, Balmatha, Mangalore.

Underwear

INDIAN INDUSTRY Manufacturers of Indian Gunge, Rib and Network. Kornthal Knitting Works, Balmatha, Mangalore, S. K.

Writing Pads

Superior quality writing pads available at cheap price. Cover design beautiful. To wholesale buyers liberal trade discount allowed. B. M. Press, Mangalore.

frequently smaller, and are less opaque when softened in water. The tannic acid is extracted with alcohol in a series of copper cylinders. When this process has been completed the alcohol is recovered by distillation in a vacuum, and the tannin is separated from the lye.

It may not be amiss to give a few more details about the most important of the remaining constituents of ink. Oxalic acid is to be found almost everywhere in the vegetable kingdom, and can be produced by the action of carbonic acid on melted sodium; in Nature it is generally formed by the oxidization of carbon compounds, such as cellulose, sugar, starch flour, and so on. Iron sulphate is a sulphur compound. It can be produced artificially in various ways, such as by heating craps of sheet-iron with sulphur, and so on. The Campeachy wood, or logwood, so essential to the preparation of logwood ink, gets its name from the Bay of Campeachy in Mexico, from which it was formerly exported. It appears on the market in the form of large blocks, from which the bark and the sap-wood have been removed. The deeply furrowed exterior surface is reddish or blackish brown in colour, the freshly cut inner surface yellowish brown. The wood of the Campeachy tree contains hæmatoxylin, which is converted into hæmatin, a dark-red substance, in a moist atmosphere in the presence of ammonia. In consequence of this, the colouring properties of Campeachy wood are greatly increased by rasping it, moistening it, spreading it out in thin layers, and letting it lie some six or eight weeks long, turning it over thoroughly at frequent intervals.

When the different raw materials have been prepared they are mixed together and then boiled, being kept well stirred during the latter process. When the boiling process has gone on for the necessary length of time the liquid—which is now ink in the crude state—is poured into large barrels, where it is left for some time to allow solid matter held in suspension to sink to the bottom. Before being transferred to other vessels the ink must be filtered, in order to remove any solid elements which may still be floating about. The bottles and jars are filled by means of siphons from small barrels, which, in their turn, are kept supplied from large stationary storage-barrels.

The most important kinds of ink are the blue ferro-gallic ink, which dries black, the logwood copying-ink, known as double copying-ink, and the blue ferro-gallic copying-ink, which dries black. The darkening of ferro-gallic ink is due to the conversion of the red iron-oxide salts into black iron-oxide salts by the oxygen in the air. Copying-inks owe their peculiar properties to certain substances which they contain, which enable the ink to remain soluble for a certain length of time after drying.

Echo.

NEWS IN BRIEF

Rapid Increase of Motor-Ships.

Despite the prevailing depression, it is already evident that the production of motor-ships in 1930 will exceed that in any previous year, states "The Motor Ship". In 1929 there were 181 large motor-ships built, totalling 1,130,475 tons gross. During the first six months of 1930, 105 motor-vessels of 666,000 tons gross have been placed in commission, and it is estimated that the number completed by the end of the year will be between 200 and 220, with a tonnage of from 1,400,000 to 1,500,000 tons gross.

A Railway Staff College.

On April 3, was opened a new Railway staff college at Dehra Dun by His Excellency Sir Malcolm Hailey, Governor of U. P. The purpose was "the teaching of safe, efficient and economic carriage of public traffic".

Construction of New Kabul.

King Nadir Shah has set aside 17 lakhs of rupees in the Afghan budget for the construction of Darulaman or New Kabul.

88

JC
AS M2, N B O B M
M30-1-3



B-M-PRESS MAGAZINE

MONTHLY PAPER OF INDIAN INDUSTRY
COMMERCE, PRINTING, STATIONERY

Published monthly by FR. RAULEDER
Manager, Basel Mission Press Mangalore S. K. (Br. India)

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Address all communications to the Manager, B. M. Press Mangalore S. K.

Vol. I December 1930 No. 3

The B-M-Press Magazine is issued precisely on the fifth of each month. Single copies may be obtained from Basel Mission Press Mangalore S. K.

Subscription Rates. One year Re. 1-8-0; six months Re. 1-0-0 including postage; payable always in advance. When subscription period expires timely notice of non-renewal must be given, otherwise subscription will be regarded as having been extended for another year. Subscribers will avoid delay in the receipt of the first copy of their renewal by remitting promptly.

Foreign Subscription. To Europe Rs. 3-0-0 for one year; Rs. 2-0-0 including postage for six months. Make foreign money orders payable to Missions-Verwaltung Basel, Switzerland or Leopoldshoehe (Baden) Postfach 14. Confirmation of order to us and copies to Basel (Leopoldshoehe).

Advertising Rates.— The following are the Rates for				
	1 Year	6 Months	3 Months	1 Month
1 page	Rs. 150/-	Rs. 90/-	Rs. 50/-	Rs. 18/-
1/2 "	80/-	50/-	30/-	11/-
1/4 "	60/-	40/-	25/-	9/-
1/8 "	45/-	30/-	18/-	7/-
1/16 "	25/-	18/-	10/-	4/-
1/32 "	15/-	10/-	6/-	2-4/-

For inside cover page (in two colours)

1 page	Rs. 200/-	Rs. 120/-	Rs. 65/-	Rs. 25/-
1/2 "	110/-	65/-	38/-	15/-

For outside cover page (in three colours)

20 per cent. more than the above. Only full page accepted.

1. Payments must be made in advance, except when approved accounts are opened. When such accounts are opened, bills are rendered monthly, and must be paid within 15 days of presentation. Foreign Advertisements: Make foreign money orders payable to Missions-Verwaltung Basel, Switzerland or Leopoldshoehe (Baden) Postfach 14. Confirmation of order with advertising matter and blocks if wanted to us and copies to Basel (Leopoldshoehe).
2. Special position for the advertisement cannot be guaranteed.
3. If no time is mentioned, the advertisement will be continued till further instructions.
4. Each advertiser will get a copy free till discontinuation of advertising.
5. Inadmissible insertions: We reserve the right to refuse or suspend the publication of any advertisement without stating reasons.
6. The Manager invites contributions to this Magazine. Such contributions may vary from technical papers to humorous articles. Photographs of matters of interest will also be considered and paid for if published. Rejected manuscripts and photographs will be returned, provided the necessary postage stamps are enclosed.

The value of the B-M-Press Magazine as an advertising medium is unquestioned. The character of the advertisements now in its columns and the number of them tell the whole story. Circulation considered, it is the cheapest Magazine in whole India to advertise in. Advertisements for insertion in the issue of any month should reach this office not later than the fifteenth of the month preceding.

Selling price: single copy one anna six pies.

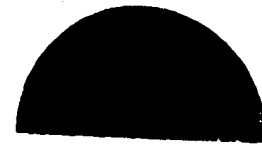


QUALITY-QUESTION

This question of printing quality, is dependent primarily, upon the skill necessary to do quality work; but, coupled with that skill, there must be the complete equipment that makes the exercise of skill possible. It is this combination of superior skill and superior equipment, that makes the B - M - P R I N T I N G stand out as exceptional in quality. If you have entertained the idea that B-M-Quality means high cost, you have made an error that can easily be corrected. The B-M-Press Mangalore S.K., will be glad to show you many samples if you call. You will then see clearly, that the cost of B - M - Q U A L I T Y Printing is not a question of price, but rather of these necessary elements of skill and equipment. Ask for samples.

**BASEL MISSION PRESS
MANGALORE S. K.**

BERGER & WIRTH INKS



Letterpress. High quality Inks for finest Illustrations. Black Cut-, Job- and News Inks. First-class approved quick drying Blacks, to work without interleaving. Largest collection of coloured Inks. **Litho and Offset.** "Radial" Inks, highly concentrated, brilliant, permanent, especially adapted for long runs.—**Intaglio.** Any shade for Flat-Bed- and Rotary Press, by means of approved recipes. Extensive Test-Printing office furnished with the most modern systems of machines. Laboratories equipped and furnished with the most up-to-date apparatus. Give us an opportunity to assist you with our vast and manifold experiences; you will save time and trouble.

Farbenfabriken Berger & Wirth / Leipzig

BERLIN, BARMEN, HAMBURG, AMSTERDAM, BUDAPEST, LENINGRAD, PRAG, RIO DE JANEIRO