INDUSTRIAL OUTLOOK.

Problems of the Paper Industry in India.

By M. P. Bhargava.
(*Forest Research Institute, Dehra Dun.*)

THE total annual consumption of all kinds of papers and boards in India in 1935-36 was 216,356 tons, as compared with 115,636 tons in 1925-26. In one decade, therefore, the annual consumption rose by about 188 per cent. The attached tabular statement summarises, under the main headings adopted in the trade returns, the quantities of the various kinds of papers and boards made in this country and those imported from abroad in the two years, 1925-26 and 1935-36.

An examination of the table brings out the following interesting facts :—

(1) That the production of Indian mills in the past has been confined mainly to writing and printing papers. In 1935-36, these mills supplied almost 65 per cent. of the country's requirements of these papers.

(2) That the annual consumption of news-prints (papers for printing newspapers) increased from 13,672 tons in 1925-26 to 34,328 tons in 1935-36, *i.e.*, by nearly 251 per cent. This type of paper is not produced in India at all at present.

(3) That the total yearly consumption of packing and wrapping papers, including kraft papers, increased from 37,073 tons in 1925-26 to 77,857 tons in 1935-36, *i.e.*, by about 210 per cent. The whole of the above tonnage is imported from abroad and about 3/4 of it consists of printed unused newspapers.

(4) That the annual consumption of straw-boards, cardboards, etc., increased from 13,191 tons in 1925-26 to 28,175 tons in 1935-36, *i.e.*, by about 221 per cent. The share of the Indian production of these in 1935-36 was about 4,000 tons, or only about 14 per cent. of the total.

(5) That while the Indian production in 1935-36 was 176 per cent. of that in 1925-26, it was only 23 per cent. of the total consumption in 1935-36, as compared with 24·4 per cent. in 1925-26.

In view of the enormous forest wealth of the country, which can be utilised for paper making and of the "protection" extended to the industry by Government since 1925, the dependence of the country to such a large extent on foreign imports would appear to be rather anomalous. In the following paragraphs, the problems which face the industry to-day and which require to be solved in order to enable it to develop to its full stature, are briefly examined. For the sake of clarity and convenience almost the entire field of the consumption of papers and boards is scanned under the following main groups :—

1. Writing and printing papers (better and medium qualities).
2. Cheap printing papers including news-prints.
3. Packing and wrapping papers including kraft papers.
4. Straw-boards, card-boards, paste-boards, etc.

1. Writing and Printing Papers.

It will be seen from the table that the production of these papers by the Indian mills increased in one decade from 25,203 tons in 1925-26 to 43,530 tons in 1935-36. The increased output was rendered possible entirely as a result of the successful investigations by the Forest Research Institute and the Indian paper mills on the production of chemical pulp from bamboos. Prior to 1925, the industry depended mainly on *sabai* or *bhabar* grass (*Ischœmum angustifolium*) as its staple raw material. The available quantities of this grass were not adequate to permit expansion of the industry on an economic basis. In bamboo the industry has found a material, sustained supplies of which are available in abundance in different parts of the country and from which a large variety of writing and printing papers can be produced at an economic cost. The use of bamboo has enabled the industry, with the aid of "protection" granted by Government, to expand and capture almost the entire increase, in the

last decade, in the demand of writing and printing papers, which would otherwise have been met by foreign imports. It is true that over 12,000 tons of writing and printing papers, consisting of superior quality and special papers, *e.g.*, banks, bonds, art, litho, etc., are still imported into the country. These papers could be made from bamboo and other available raw materials, but as the quantity of each individual variety is too small, its manufacture cannot be taken up profitably by an Indian mill, particularly as the distribution of such manufactures over the vast area of India would be uneconomic. Until, therefore, the demand for the individual papers increases considerably, their manufacture in this country is likely to remain uneconomic. Excepting these papers, therefore, India is now in a position to meet not only her present requirements of writing and printing papers but also to supply the greatly increased demands of the future. To enable her, however, to retain possession of this market, it is essential, that research on bamboo, which has already put the industry on its legs, should continue, so that, in due course, the bamboo paper industry can successfully compete, without the aid of "protection", with the long-established and highly advanced wood pulp industry of the West, in which extensive research is still in progress in full vigour. Investigations to this end and with a view to improve continually the technique and lower the cost of production, form an important part of the programme of work of the Paper Pulp Section at the Forest Research Institute at Dehra Dun.

2. Cheap Printing Papers including Newsprints.

The consumption of these papers increased from about 24,000 tons in 1925-26 to about 46,000 tons in 1935-36, *i.e.*, by about 190 per cent. With the advent of the Reforms and the spread of education among the masses the consumption of these papers is bound to increase at a much higher rate in the coming years. It has not yet been possible to manufacture these papers at competitive prices in this country, as in their production a large proportion (70 per cent.—80 per cent.) of cheap mechanical pulp (*i.e.*, pulp made by mechanical processes of grinding without the use of any chemicals) are required, and the production of this kind of pulp from indigenous materials has not hitherto been attempted. The use of foreign mechanical pulp for the manufacture of these papers has not been feasible on account of the heavy protective import duty. Cheap mechanical pulp must, therefore, be made available to the paper-maker in this country in order to enable him to capture the large and growing market for these papers. The Forest Research Institute has already taken this problem in hand. The erection of suitable machinery for carrying out the experimental work is nearing completion and a systematic investigation on the possibility of using bamboos and woods for the production of mechanical pulp is in train.

3. Packing and Wrapping Papers including Kraft Papers.

The use of kraft paper (strong brown paper used for packing purposes, often glazed on one side and rough on the other) on a large scale has only developed in India within the last few years. In 1935-36 the imports of these papers were 9,544 tons. As the use of this paper is likely to grow considerably in the near future, its manufacture in the country offers bright prospects. Recently experiments have been carried out at the Forest Research Institute on the production of kraft paper fron bamboos, the only raw material which is at present available in sufficiency for the purpose. The results obtained are very promising and it is hoped that the investigations, when completed, may establish the possibility of producing satisfactory qualities of kraft papers from bamboos and that their manufacture will soon be taken up in the country.

A remarkable feature regarding the other cheaper varieties of wrapping and packing papers is the enormous consumption of imported old newspapers. In 1935-36, while the import of ordinary wrapping papers was 10,730 tons, that of old newspapers was 57,583 tons or more than double what it was in 1925-26. These old newspapers are, as is well known, largely used for wrapping foodstuffs, fruits, provisions, etc., in bazaars. Such a use is admittedly very unhygienic and detrimental to public health. The price at which the old newspapers are dumped into the country is so low that it is impossible to manufacture any

paper, even from the cheapest material available, to compete with them. In the interests of public health and of the development of a large and new industry it is obviously necessary that the present undesirable use of old newspapers should be discontinued. The only effective measures which can be taken to bring this about are :—Firstly, the production of very cheap wrapping papers in the country. For this purpose it is indispensable that cheap pulp, both chemical and mechanical, should be available to the paper maker. As has been mentioned above, investigations are in progress at the Forest Research Institute to cheapen the cost of production of chemical pulp, and experiments have already been initiated to explore the possibilities of mechanical pulp from indigenous materials. It is hoped that success will attend these investigations and that the manufacture of cheap wrapping papers will become economically possible in the near future. Secondly, it will be necessary to educate public opinion against the use of old newspapers for wrapping up foodstuffs, and lastly it may be found advisable to put a heavy protective duty on the imports of old newspapers, once the possibility of producing cheap wrapping papers in India is fully established.

4. Straw-boards, Card-boards, Insulation-boards, etc.

The consumption of boards has more than doubled in the decade ending 1935-36. The Indian production of these products is barely 14 per cent. of the total demand. The smallness of the aggregate demand, and the non-availability of cheap materials such as mechanical pulp or agricultural wastes have principally been responsible for the very slow growth in the manufacture of these products in the country. The phenomenal growth of the sugar industry in the last few years has, however, raised the problem of profitably disposing of surplus bagasse (crushed sugarcane). The Imperial Council of Agricultural Research has recently made a grant to the Forest Research Institute for investigating the possibility of utilising bagasse for the production of wrapping papers, insulation-boards, straw-boards, etc. These investigations are on the point of being started. The availability of mechanical pulp and the utilization of agricultural wastes will, it is hoped, render practicable the establishment of a board manufacturing industry in India, particularly as with the industrial and commercial development of the country, the demand for boards of various kinds is likely to become large enough to enable their manufacture to be taken up on a profitable basis.

To sum up, during the last ten years the consumption of papers and boards in India has increased on the average by about 10,000 tons per annum. With the industrial and economic development of the country and the widespread diffusion of literacy among the masses, the demand for papers, particularly of the cheaper variety, is bound to increase more rapidly in the future. The present *per capita* consumption of paper in this country is hardly 1¼ lbs. as compared with 150 lbs. in the United States of America, and is the lowest of all countries in the world, except perhaps China. There is thus an enormous scope for the growth and development of the paper industry in India. A well-organised plan, enterprise and sustained and intensive research are needed to exploit the natural resources and render the country self-sufficient with regard to her requirements of a commodity of vital importance for national development and for the progress of civilisation. Investigations on subjects of immediate industrial importance are, as has been shown above, in progress at the Forest Research Institute. If some other technical institutions and universities in this country, where facilities for applied chemical research exist, also interest themselves in problems connected with these subjects and work in liaison and co-operation with the Forest Research Institute, it would help towards the sound and more rapid progress of one of the major industries of the country. The industry at present employs more than 6,000 hands and the total value of its imports amount to about 3 crores of rupees. If the major portion of these inports is manufactured in India, employment would become available to a considerably greater number of people, and the natural resources of the country would be utilised to the fullest advantage.