

and formed an important part of the tribute paid to the Mexican Emperor before the conquest of Mexico by the Spaniards. Under the colonial régime, the policy observed by Spain towards Mexico, as towards her dependencies, was to check industrial enterprise in those directions in which it might interfere with the trade or industries of the mother country, so that it was not till after the Independence that any encouragement was afforded to the manufacture of cotton goods by other than the very primitive methods in use among the Indian population from time immemorial. The first step in this direction was taken by the Mexican Legislature in 1830, when a law was passed for the establishment of a bank, with a capital of 1,000,000 dols., for the purpose of supplying machinery at cost price to persons wishing to start factories, and of advancing money for their working expenses at 5 per cent. The bank did not prove a great success, as the money loaned was often not applied to the purpose for which it was intended, while the funds at the disposal of the bank were constantly being requisitioned by the Government to meet the exigencies of the Treasury. The bank was eventually suppressed by a decree in September, 1842.

The first factory was started in the year 1834, near Puebla, and 10 years later there were 50 factories, mostly small ones, throughout the country, producing annually about 500,000 pieces of cloth and 6,000,000 lb. of yarn. At different times the Mexican Government took various steps to encourage the industry, among which heavy Customs duties and, in some cases, the prohibition of the importation of certain classes of goods, played an important part. The effect of such restrictive measures was soon felt in the immense increase of smuggling, not only over the northern frontier and in the thinly populated districts on the Atlantic and the Pacific coasts, where there was practically no preventive service, but even in the large seaports, where the officials, being poorly paid, were often too ready to connive with merchants in defrauding the revenue. From time to time the duties were reduced, but still they are sufficiently high to favour the native manufacturer; and, according to Mr. Carden, the great increase which has taken place in the number and capacity of the mills is directly attributable to the protection thus afforded them. The present tendency of the Government is to somewhat reduce the imposts on imported cottons, as the home industry is now thoroughly well able to take care of itself, and, favoured as it is by the heavy premium on gold, has practically nothing to fear from foreign competition. The example of Mexico, as well as that of Germany and other Continental countries, seems to strengthen the case of the advocates of protection for infant industries in new countries, where the conditions are of course different to those which exist in older communities.

In the year 1896, 107 establishments paid taxes to the Government as cotton factories. Of these, three were knitting mills, four were spinning mills, 88 were spinning and weaving mills, six were spinning, weaving, and printing mills, and six were for printing alone. The aggregate motive power of these factories amounted to 13,826 horse-power, and the machinery consisted of 13,660 looms, 448,156 spindles, and 24 printing machines. The number of operatives employed was 20,994, between men, women, and children, and the amount of raw cotton consumed was 53,273,397 lb., of which about one-half was imported from the United States and the remainder produced in the country. The output in the same year was 7,116,547 pieces of cloth and 3,858,829 lb. of yarn and coarse thread. Of the cloth about 2,200,000 pieces were printed, a comparatively small amount was bleached, and the remainder, principally of heavy grades, represented the grey cotton which forms the usual dress of the labouring classes. The yarn produced from the factories which was not woven into cloth was intended for the manufacture of a kind of shawl, much worn by the natives, and which is almost invariably woven by hand. The mills are for the most part driven by water power, supplemented in the case of the large ones by steam power, to be used especially during the dry seasons, when the rivers and streams become very much reduced in volume. The price of fuel depends so much on locality that it is not easy to form even an approximate idea as to what the total cost under this head would amount to. Welsh coal, or American coal of similar quality, varies in price, at different points of the railway

THE COTTON MANUFACTURING INDUSTRY IN MEXICO.

THE Lancashire cotton manufacturers have for some time been directing their attention to the development of the cotton manufacturing industry in India, China, and Japan, and to the increasing competition with their own productions. We have from time to time given some particulars regarding that development, and recently we showed that the competition was being intensified by the importation of goods from the United States of America. Industrial problems are, however, becoming more and more complicated, and the number of their factors are increasing. The telegraph and rapid means for the conveyance of goods have shrunk the world to small dimensions, and brought its various countries into close connection, and in great part reduced the advantages derived by the older manufacturing nations from their past experience.

The latest Foreign Office report on Mexico shows such a remarkable development of the cotton manufacturing industry in that country that the subject calls for more than a passing mention. The writer of the report, Mr. Lionel Carden, has had the opportunity of consulting the most trustworthy sources of information, and he has arranged it in a clear and concise manner, and it may be assumed that his facts and figures are to be depended on.

As in other countries with an old civilisation, cotton spinning and weaving were understood and practised by the natives, and cotton cloth, both white and dyed, was the usual dress of the people,

system of the central plateau, between 19 dols. and 22 dols. per English ton (equivalent at the exchange ruling at the end of December 1897 to 38s. to 44s.), the variation depending on the rate of exchange and the distance by rail from a seaport. The price of firewood is far more irregular, but a fair average price for the majority of places outside the capital would be about 6 dols. 50 cents per cord.

It is gratifying to be able to state that the superiority of the English cotton machinery is now fully recognised in Mexico, and that for some years past all the new machinery erected has been of English make. The new spindle now being introduced into Mexico, to the exclusion of all others, is the Rabbeth spindle, which has entirely superseded the Danforth, that was formerly in use. Similarly, the English-made over-pick loom is now universally preferred to the American under-pick loom, which was at one time the favourite. The old-fashioned water-wheels have been for the most part replaced by turbines, either of the Girard or Leffel type.

In the majority of factories the working hours are from 6 A.M. to 9 P.M., with two intervals for meals, amounting altogether to an hour and a half. In estimating the amount of work done in a factory, it is usual to assume 300 working days in the year, though in some districts, where religious festivals are very strictly observed, this number must be somewhat reduced. The wages of factory hands are paid wherever possible by piece-work, the payment of which necessarily varies according to the class of machinery used. In mills where the spindles and looms are of modern and improved make, the following may be taken to represent the average daily earnings of operatives in the principal departments: Card-room hands average earnings per day of men, women, and children, including foremen's wages, about 1s. Spinning-room hands average about 10d., the average in this case being somewhat lower than the other, owing to the larger proportion of children employed. Weavers make about 2s. a day. It is generally supposed that the profits of the cotton industry range from 20 to 30 per cent. on the actual capital invested, and sometimes even higher; but as the great majority of the factories are the property of individuals, who not unnaturally do not wish publicity to be given to their private affairs, the only certain data obtainable are those published by the industrial companies, which, though not very ample, are sufficient to prove the lucrative nature of the business. Moreover, in view of the protection given by Government, we may take it for granted that none of the manufacturers exaggerate their profits; the likelihood is rather in the other direction, so that the Government protection may be continued.

Most people are of opinion that the recent development of the manufacturing industry of Mexico is attributable directly and almost entirely to the great fall in silver; but Mr. Carden is satisfied that the benefit is not nearly so large as is generally supposed, while in so far as regards the erection of new factories, or the improvement of the machinery in old ones, the depreciation of the currency entails a positive loss. It must, moreover, be borne in mind that the benefit to the home industry, whatever it may be, is relative rather than positive, and consists in the fact that the ratio of increase in cost of imported cottons, consequent on a reduction in the value of the Mexican dollar, is greater than that of the domestic article, thus constituting an additional protection against foreign competition. Taking everything into account, Mr. Carden is of opinion that the depreciation of silver has had very little to do with the rapid development of the manufacturing industry, and that this must rather be ascribed to the accumulation of capital, due to the growing prosperity of the country, and to the necessity of finding a safe and profitable field for its investment.

The general conclusion at which he arrives is that the conditions under which cotton goods are manufactured in Mexico are so favourable, that even with a smaller degree of protection than they at present enjoy, it would be very hard, if not impossible, for English cottons to compete with them. The price of the raw material, except for the import duty, which is not quite 1d. per lb., is practically the same as in England; although fuel is dear, the gross expenditure under this head is not large, owing to the extensive use of water for motive power, taxation is light, and finally, labour, which, though not of a high order, is good enough for the manufacture of the class of

goods for which there is the largest demand in Mexico, is extremely cheap. Under these circumstances, it is only because the output of the Mexican factories has never yet been sufficient to supply the local demand, that it has been possible to continue the importation of low-grade English piece-goods into the Mexican market; but there are strong grounds for believing that this state of things will not last long. At the present rate of development it cannot be long before the Mexican factories will be in a position to produce all the plain and coloured cotton goods of ordinary qualities required for home consumption. Mr. Carden says that it is useless to disguise the fact that this will be a severe blow to English trade, as more than half the value of the English cotton goods exported to Mexico consists of cheap cloth, which must eventually be excluded from the market. He, however, points out that English manufacturers should bear in mind that the capacity of the ordinary Mexican operative is limited, and that in order to produce goods of superior fineness or of a variety of textures, skilled labour, usually foreign, has to be employed, which, while often unsatisfactory, is always expensive, and adds very materially to the cost of production. In such materials, then, a field as yet but little explored is open to British enterprise; and if merchants, instead of being content merely to supply goods for which there is already a demand, were to exert themselves to introduce new articles direct to the customers, and especially those of the poorer class, it might well happen that the resulting trade would prove far more important than that at present existing. In short, in this, as in many other departments, British manufacturers should not enter into the competition for the production of cheap articles, but rather for those of special design and construction and of superior quality.