

dozen pairs. It is an interesting experience to visit the godown of a large bangle factory at night. By the light of a lantern the godown with its thousands of richly coloured bangles, strung together and piled in glistening heaps on the floor, is like some fabled Alladin's cave.

Subsidiary to the Firozabad bangle factories are the bangle cutting and decorating works. Here glass bangles are decorated with patterned facets cut on small grinding wheels. After cutting, the facets are painted with liquid gold, or 'china glass', an opaque glass which is powdered, mixed with water and applied as a paint, and the bangles are then dried in small muffle furnaces. Bangle decorating is also carried on at Firozabad as a cottage industry on a considerable scale, and some of the bangle factories do their own decorating.

So much for the ancient branches of the Indian glass industry. What of the modern?

#### The Modern Glass Industry of India.

The manufacture in India of glass utensils by methods comparable with those at present practised in industrial countries commenced in 1892. Between that date and the outbreak of the Great War in 1914, when there were three factories in existence, a number of works were operated for short periods without much success, and the industry did not enjoy any real prosperity until the War prevented the importation of glassware from Germany and Austria. Under the stimulus of high prices and

immunity from competition the industry flourished for a space, and in 1918 twenty factories were working. But other countries had also been developing their glass industries during this period, and soon after peace was signed the Indian glass industry was feeling the effects of keen competition, particularly from Belgium, Czechoslovakia, and the rapidly industrialising Japan.

The early factories were under European management, and some employed European trained executives, but few of the latter adapted themselves successfully to Indian conditions, and their places in the industry were taken by a number of Japanese blowers and 'experts'. The industry, which has never been properly organised nor attained the degree of perfection on the technique of glass manufacture achieved by the importing countries, bears to day the stamp of the Japanese more clearly than any other influence, and nearly every glass works contains what are colloquially called 'Japanese' furnaces, direct fired pot furnaces provided with chimneys.

At present the industry is located in five main areas, the United Provinces, Bengal, the Bombay Presidency, the Central Provinces, and the Punjab, and there are about forty factories in existence for the manufacture of blownware, as distinct from the twenty or more bangle factories and numerous cottage bangle furnaces at Firozabad.

(To be continued.)

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### Indian Science Abstracts.

THANKS to the efforts of the National Institute of Sciences, India, the publication of an annotated Bibliography of scientific work done in India has been accomplished. The Bibliography for 1935 was published in two parts, the last part appearing in May last. The success attained in this venture is as much due to the commendable organising ability of the General Editor, as to the co-operation of the scientific workers in India.

In any effort of such a magnitude especially, if it be the first one, some omissions are inevitable. The General Editor informs us

that references to a large number of papers published in Mathematics, Dairy Science, Engineering Science and probably some other sciences also, do not appear to have been included in the publications. Scientific workers are requested to look through the two parts that have already appeared and send abstracts of such of the papers published in 1935 as have not already found mention to the General Editor. It will be appreciated that for making this work complete, the co-operation and help of the scientists in India is essential.

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