

### The Indian Lac Research Institute.

THE importance of lac in the markets of the world is well known to many; also the fact that at the present time India enjoys practically a world-wide monopoly of the lac industry. Owing to serious fluctuations in the price and output from time to time, speculation is rife and steps are being taken with the object of endeavouring to stabilise the trade. A Government inquiry was carried out by Messrs. H. A. F. Lindsay and C. M. Harlow, their report being published in 1921. An outcome of the report was the formation in the same year of the Indian Lac Association for Research. It was decided to build and equip a Lac Research Institute and to run in conjunction with it a small experimental plantation. The Association is managed by a committee of Europeans and Indians representing all branches of the trade. Funds are obtainable by a small cess imposed by the Government of India on all exports of lac, manufactured and unmanufactured. A report of the work of the four years (to Mar. 31, 1926) has been issued (Calcutta: Thacker, Spink and Co.).

The greater bulk of the lac produced comes from Central India, *i.e.* the Central Provinces and Chota Nagpur. This factor determined the selection of the site for the research institute. Ninety per cent. of the lac produced comes from a fairly compact area comprising Chota Nagpur, the Feudatory States of Orissa, a few adjoining districts of the Central Provinces, and a few adjacent areas in Bengal and the United Provinces. From this area Bihar and Orissa claim more than half the annual production of lac in India. Thus Ranchi, one of the capitals of this Province, was selected as the home of the future Institute. The local government provided a site of 110 acres a few miles out of the town on favourable terms, and construction work was commenced in 1924,

the foundation-stone being laid by the Governor of the Province. The Institute building includes laboratories for biochemistry and entomology and was finished in August 1925. The research staff consists of (1) the director and biochemist appointed in Oct. 1923, (2) three assistants to the biochemist appointed in June 1925, (3) an entomologist and three assistants, all appointed in 1926. The biochemist, who is also director, is Mrs. Dorothy Norris, and she has been in charge since 1923.

Lac production in the past has been either undertaken by the officers of the Indian Forest Department or by local proprietors and others, the material being sold to middlemen for transmission to the big markets. A certain amount of research work has been carried out in recent years by officers of the Department in connexion with improvements in collection and output, studying insect pests of the lac, and so forth.

The main objects of the Lac Association may be taken to be the establishment of the lac industry on such a sound commercial basis that competition need not be feared, owing to "(1) A synthetic product such as affected indigo and would have affected rubber but for the drop in price of the natural product. (2) The establishment in other countries of the lac insect itself as has been done in the case of silk."

The Forest Department in the Province is co-operating with the Institute by affording facilities for experimental work in selected areas of forest, thus supplementing the experiments which are being carried out with species, spacing, and so forth on the Institute's own land. The work of the Institute is being welcomed in the Province. As an example of a purely private and commercial undertaking, even though assisted by Government, its inauguration in India is a striking illustration of modern progress.

### Women in Factories.

ON Jan. 28, Prof. Edward P. Cathcart lectured at the Royal Institution of Great Britain on "The Physique of Women Employed in Industry." He began his lecture by deploring the fact that while a large amount of work has been done on the anthropometry of man, little attention had been given to the determination of the physical measurements of women. He points out that a real necessity for such knowledge exists quite apart from the theoretical scientific value of the facts, for if, as is likely, legislative action is to be taken with regard to protection from overloading, then definite knowledge will be required.

The problem was studied along the following lines:

(1) The determination of the physical characters of the average woman engaged in industry.

(2) The determination in the laboratory of the optional load.

(3) The determination of loads actually carried in the course of ordinary work by women.

Details of the first section of the research were presented in the lecture. Some 3000 factory women were studied, and as controls a group of unemployed women and a group of women students. Records were obtained of the age, weight, height, lumbar pull, grip, and crush. The factories represented a variety of trades. The heaviest work done was in the chemical and brick trades, and Prof. Cathcart paid a tribute to the physical strength and grace of the women, although they were drawn from one of the worst districts of Glasgow.

A good correlation was found to exist between the various strength tests, indicating that there is, if the strength depends mainly on muscle development, a

more or less uniform development of muscle in the different subjects, or, if the strength tests are indicative of more than muscle development, then the factor operative is uniform for all types of muscle activity.

A comparison of the unemployed and the employed showed that the unemployed were of poorer physique than the employed. This did not appear to be due to lack of nutrition or flabbiness of muscle through lack of use. The college women tested exceeded in height, weight, and strength the other two groups, and from the statistical evidence given, this did not appear to be due to bad sampling. Prof. Cathcart thinks the difference is probably due to the fact that the college women had already been selected by medical examination, that they received good physical training, and also that strength is not merely a function of the amount of muscle present but is also related to mental alertness that enables a subject to co-ordinate his powers more successfully when called upon to produce some extra effort. From a practical point of view, he thinks it would be well if women below a certain fitness factor were not employed in hard factory work; also that those employers who encourage physical training are doing work that is valuable both from the point of view of the worker and of the work.

We would also add that if Prof. Cathcart's findings as to a fitness factor can be substantiated, the knowledge will be of very great value to those engaged on vocational guidance. Careful studies such as this are of very great value and are applicable to a wide range of problems.