

subjective, methods. For instance, the author would suggest the frequencies should be actually measured by modern scientific methods similar to those outlined on this note. With a view to avoiding unnecessary controversy, the author would also suggest that the gamakas should be produced for purposes of these experi-

ments by recognised masters of the art of violin play.

1. Helmholtz, "Sensations of Tone-p. 280. Translation" by Ellis.
2. Fox Strangways, "The Music of Hindostan (1914), p. 117 & his article on 'Music' in the *Legacy of India*, p. 311.
3. Ellis, "Helmholtz's Sensations of Tone," pp. 453 and 456.

## INDIAN DAIRY RESEARCH INSTITUTE

THE Indian Dairy Research Institute, Bangalore, celebrated its Silver Jubilee last month. The Institute had a very chequered career during its period of existence, and cannot as yet be said to have crossed the final hurdle. It is the youngest of the central institutes devoted to one of the most important branches of applied agriculture, and started its career at Bangalore as Imperial Institute of Animal Husbandry and Dairying in 1923 under the able guidance of the late Mr. William Smith. The main functions of the Institute were to develop foundation herds of important Indian milch breeds, and train personnel in the modern methods of dairy husbandry. Though a Scotsman by birth, Mr. Smith was a lover of Indian cattle, and in spite of many difficulties and obstacles the young Institute had to face, he succeeded in laying a strong foundation, and inspired his staff and students to the noble ideal of service to the cow. The Institute which was functioning as a section of the Imperial Agricultural Research Institute was reconstituted in 1936 into an independent department and the name of the Institute changed to the Imperial Dairy Institute. The question of expansion of the Institute has been engaging the attention of the Government of India for a long time, and a small beginning was made in 1940 by opening a new Imperial Dairy Research Institute at Delhi with the late Dr. Davies as its first Director. Due to various circumstances it was transferred to Bangalore in 1941, and in course of time the two institutes were combined into one under the name of Indian Dairy Research Institute. The proposal to expand the Institute, so that it will be in a better position to render active help to the country's biggest industry, is still under the consideration of the Government of India, and it is hoped that many suggestions that have been made will bear early fruits.

In course of its work the Institute has been able to develop fine pedigree herds of

Gir and Sindhi cows and Murrah buffaloes, and distribute its surplus stock all over the country. The Institute has also an artificial insemination centre which will no doubt contribute a great deal towards the improvement of local stock. The service is gratis, and so far over 3,000 inseminations have been done with striking success.

Another important activity of the Institute is training of personnel in modern scientific methods of dairying. The Institute gives a two years diploma course, called Indian Dairy Diploma, recruiting nearly 35 students every year. In addition there is a short-course especially useful to man in the trade. Honorary workers are also taken for post-graduate work in dairy husbandry, dairy bacteriology, dairy chemistry and dairy technology. There is now a proposal to open a degree course in dairying.

The Institute has been able to develop its scientific sections considerably since 1941 under its able directors Dr. Zal R. Kothavalla and Dr. K. C. Sen. During this short period some interesting and important problems have been tackled. To cite only a few: study of the variation in the quantity and quality of milk due to different feeds and seasons, utilization of different feeding stuffs and bye-products of industries, chemical composition of milk and milk products, freezing point of milk, enzymes and vitamins of milk, composition of ghee, storage properties of butter and ghee, standardisation of methods of manufacture of dairy products, standardisation of chemical and microbiological methods of analysis of milk and milk products, nutritive value of milk and milk products, bacteriological quality of market milk, keeping quality of milk, microflora of dahi and butter, etc., etc.

With this brief description of the manifold activities of the Institute we wish it many useful years of active service for the benefit of our country, and its premier industry—dairying.