

One of the most pressing problems which requires to be solved is that of butcher strain. This has been widely discussed both in relation to its prevention as well as its cause. Opinions differ, but data have been collected which appear to demonstrate that a great deal of the trouble is avoidable, provided conditions could be so economically altered as to enable a more reasonable amount of care to be given to flaying. The experimental work carried out in the processing of skins has demonstrated that better methods are available. Where the results obtained have been applied on a practical scale a keener demand for the product has been experienced. As a result of the improvement in the quality of New Zealand pickled pelts in the last few years, already one new market has been obtained. With additional improvements the existing markets are capable of being expanded much further.

RADIO RESEARCH.

Advisory Committee: Mr. A. Gibbs (Chairman), Professor R. Jack, Professor P. W. Burbidge, Mr. J. M. Bingham, Dr. M. A. F. Barnett.

Due to the difficult financial conditions, no extension has been made in the programme of radio research. During the year work has been continued at Auckland University in the study of "atmospherics." A continuous recorder has been developed from the records of which information is being obtained regarding the diurnal and seasonal variations in the incidence of atmospherics.

A fairly extensive programme of reception tests was organized in connection with the total solar eclipse in October, 1930, with the object of studying the effect of the eclipse on the propagation of wireless waves. Special transmissions were arranged from stations in New Zealand, Fiji, Samoa, and Tahiti, and, in addition, use was made of the regular transmissions from stations in Hawaii and California. Reception was arranged at a number of stations in New Zealand and in the islands of the Pacific, and the tests covered long-, medium-, and short-wave lengths. The results obtained, which have been described in detail in the *Journal of Science and Technology* (Vol. 12, No. 6, page 321), clearly indicated that the effect of the eclipse on wireless waves was equivalent to a partial transition to night-time conditions in areas adjacent to the path of totality.

STANDARDS AND STANDARDIZATION.

Proposed Standards Laboratory.—Due to the present financial depression, no advance has been made in connection with the building and equipment of a Dominion Physical Laboratory.

Standardization.—The Secretary of the Department attended the meeting of the Committee on Standards and Standardization of the Imperial Conference of 1931, at which a number of important recommendations were adopted in connection with problems of standardization throughout the Empire. Further discussions on the subject have been held in New Zealand, and arrangements are being made for Mr. le Maistre, the chief executive officer of the British Industrial Standards Association, to visit this country towards the end of the year. The growing importance of some reasonable measure of standardization in New Zealand has long been recognized, but it is proposed to postpone the setting-up of a local Standards Association until after the visit of Mr. le Maistre.

FOREST BIOLOGICAL RESEARCH.

Advisory Committee: Mr. C. E. Foweraker (Chairman), Messrs. N. G. Gribble, A. J. Seed, F. W. Foster, Owen Jones, C. M. Smith, Professor T. H. Easterfield. Director of Research: Dr. D. Miller.

The forest biological research scheme has been financed by grants received from the New Zealand Timber-growers' Association (£800 per annum), the State Forest Service, and the Department of Scientific and Industrial Research. Work on entomological and mycological problems affecting the exotic timber species of New Zealand was commenced during the year, the work being directed by Dr. D. Miller, of the Cawthron Institute.

The Cawthron Trust Board erected buildings at Nelson to provide laboratory and office accommodation for the entomological staff, and arrangements have been made by the Department for the lease of these premises.

The Forest Biological Research Station was officially opened by the Hon. H. Atmore on the 18th February, and the accommodation has proved eminently suitable for the purposes for which it was intended.

The entomological work during the year was concerned largely with studies of various species of bark-beetles, the chief among which was *Hylastes ater*, a pest recently discovered in various districts, especially where *Pinus* plantations had been partly destroyed by fire or by indiscriminate cutting. The studies of this insect have been in the direction of ascertaining measures whereby its spread could be restricted, and its ultimate complete destruction envisaged.

Further investigations have been concerned with the control of the horntail borer, *Sirex*, by use of the parasite *Rhyssa persuasoria*. The work with *Rhyssa* has not proceeded sufficiently far to give any indication as to its effect in controlling *Sirex*, as at present acclimatization problems with this insect have not been completely overcome. In addition, a further parasite, *Ibalia*, is being imported for trial against horntail borer in New Zealand.

Importations of parasitical species also are being made from Australia in an endeavour to control eucalyptus gall insects and weevils. During the year an insect survey of the exotic plantations of the North Island was completed, and an estimate obtained of the relative numbers and spread of both useful and harmful species. Attention was also given to the relation of bird-life to the insect fauna of both our indigenous and exotic forests, and as a result endeavours will be made to encourage increases in the numbers of such birds as play a useful part in forest development.