

At first the main object of visiting the tanneries was to get in touch with local conditions. Various problems were submitted on such subjects as chemical control of tan-liquors, retanning of sole-leather, growth of moulds on leather, and methods of finishing sole-leather. Suggestions to suit local conditions were made, and in most cases the results have been satisfactory.

Analyses have been made of the leather produced in all of the tanneries of members of the Leather Research Association. The chief defect, if it may be called a defect, disclosed by the analyses has been the low yield of leather. By this is meant the amount of leather produced from the actual weight of the hide. A general improvement in this respect has been made, and the result is that the tanner is now receiving a better return on his input and at the same time giving more satisfaction to his customers.

Tests with the wear-testing machine have been carried out. So far these tests have shown that the leather produced in New Zealand compares very favourably with English leather. On each test carried out a New Zealand leather has proved to be the superior article, and average of New Zealand leathers is higher than an imported leather tested.

The water-absorption of New Zealand leathers is much less than that of English leathers, and, at the same time, the water is taken up more slowly. From the wearer's point of view, this is a valuable asset. Also, New Zealand leathers when wet will dry out more quickly.

Samples of wattle-bark, as used in the tanneries, have been analysed. New Zealand wattle-bark is quite up to the average, and investigations are in progress for the development, if possible, of a supply of locally-grown tannin materials.

Each tannery is now equipped with a method of testing the pH (acidity) of the tan-liquors. At any time check tests can be made by the Government Analyst at Auckland or Dunedin. This system of control will have very beneficial results in the future.

Each month a circular letter is sent out dealing with problems of interest to the man who actually controls the processes. These letters are intended for the foremen as well as the managers. Incorporated in them are the results of the latest research published in various journals. In this way contact with other workers is maintained which otherwise would not be the case.

STANDARDS AND STANDARDIZATION.

Weights and Measures.—During the year the Labour Department received the new sets of primary standard weights and measures, and our Department's Physicist has co-operated with officers of the Labour Department in carrying out a verification of the departmental standards. This work at present is in progress.

Proposed Standards Laboratory.—The need for providing basic standards for New Zealand, particularly engineering and electrical standards, has been increasingly felt, and during the year a special committee was set up to consider this question. The personnel of this committee is as follows: Dr. C. C. Farr, F.R.S., Mr. A. Gibbs, Mr. P. R. Angus, Mr. F. T. M. Kissel, Mr. H. Vickerman, Dr. E. Marsden. The committee has recommended the establishment of a Dominion Laboratory for Physical Standards, and has drawn up detailed recommendations and estimates therefor. The New Zealand Manufacturers' Association, the New Zealand Society of Civil Engineers, and the Electric-supply Authority Engineers' Association have strongly supported these proposals; and it is felt that the establishment of a central standards laboratory should make for increased efficiency and economy in the various Government Departments which have to maintain substandards of various types, as well as supplying a public service which is urgently required by providing facilities for tests of manufactured products.

RADIO RESEARCH.

Advisory Committee: Professor P. W. Burbidge, Mr. J. M. Bingham, Mr. A. Gibbs, Dr. M. A. F. Barnett.

During the year a Radio Research Committee was set up with the object of co-ordinating and facilitating radio research work in New Zealand. Steps have been taken to arrange co-operation with the Radio Research Boards in England and in Australia.

Arrangements have been made with the New Zealand Association of Radio Transmitters for the collection of special data relating to the variation in the strength of signals from the Byrd Antarctic Expedition, and it is hoped that valuable information may be obtained in this way. In due course it is intended to initiate further work on the intensity of signals under various conditions.

RESEARCH WORK AT CANTERBURY AGRICULTURAL COLLEGE, LINCOLN.

To enable the prosecution of various forms of agricultural research to be conducted at Lincoln College, an annual statutory grant of £3,700 is made to this institution. The work provided for by this grant embraces plant-breeding, potato-improvement, wheat-manuring, pig-feeding, farm economics, and sheep investigations. Detailed reports of the activities under these various sections are received at half-yearly intervals.

The plant-breeding work at the present time affects wheat, oats, cocksfoot, rye-grass, and red clover.

Wheat investigations are conducted in conjunction with the Wheat Research Institute. In connection with oats, a number of crosses—Algerian $\times$ Gartons and Algerians $\times$ Duns—have been carried on into the third year, while some thirty samples of oats derived from overseas have been tested. One strain of selected Algerians is now available for general distribution, and has shown an improved yield over the previous best strain issued.

Considerable work is being carried out on various strains of cocksfoot, and an area of about $1\frac{1}{2}$ acres of the best strain so far isolated has been vegetatively established and will be used for securing further supplies of this strain. Trial plots of cocksfoot have been established over a wide area on