

Other conditions affecting the processing of the skins, over which the fellmongery has little or no control, are those due to the atmosphere, and the irregular supply of the raw material. The peak load is sometimes much greater than the capacity of the works. The necessity of preventing accumulations of pelts which are easily damaged by putrefaction or by chemical means demands that the skins shall be preserved or pickled as soon as possible.

The object of the fellmonger should be to place the pickled skins in the casks with the fibre structure in as near the original condition as possible. During the year some of the conditions which may affect the fibre structure of the skin during its process through the fellmongery have been investigated. Of these, the following were found to be the most important :—

- (1) Strength of paint used.
- (2) Composition of the lime liquors.
- (3) Speed of the paddles.
- (4) Temperature.

The essential factors to be considered are : (1) Orderly progress in the liming process, and (2) reduce as much as possible the rate of swelling.

An interesting feature has been to watch the effect of the growth of wool on the fat content of the skin. As the wool grows the fat content drops. After shearing the fat content rapidly increases, probably to a maximum, and then gradually decreases. These variations may be expected to exert some influence upon pelt quality.

During the year a conference of fellmongers and works chemists was held to discuss the problems which are familiar to all pelt-producers. This was probably the first meeting of this nature held in New Zealand, and proved to be a great success. The value of practical men meeting and openly discussing their own particular difficulties and the methods adopted to cope with the day-to-day problems cannot be overestimated. Many problems were discussed which may have been somewhat outside the scope of the purely scientific side of pelt research. On the other hand, practical difficulties are always present and practical solutions of them are necessary. It is the broadening of outlook, the interchange of ideas and experiences, rather than the discussion of any specific problem.

The reports from the London Committee on the trial shipments of pelts were very full and comprehensive. It is very fortunate that there is an organization in England who will give so readily of their time and work to the consideration of the problems under investigation. One of the main points of these reports is that attention must be given to every detail in the different processes. A slight alteration in a process, which should not have taken place, may alter the value of the trial, no matter how carefully the test is carried out.

The trial shipments sent to England this season have been very carefully supervised. As far as possible all the conditions have been standardized in the directions required. Unfortunately, as mentioned previously, economic and other conditions will not allow of complete standardization. To illustrate this point, shorn and unshorn animals were being killed at the same time. Shearing affects the quality of the skin to a very great extent, and so the inherent quality of the skins in some of the trials was not strictly comparable. It is hoped that by careful tabulation of such discordant factors some further information may be obtained from what might have appeared to be contradictory results.

Considering the year's work from the commercial aspect, progress has been made, for it was the considered opinion of the tanner members of the London Committee "that the trial shipments under consideration showed definite improvement in quality on those of the previous year." Evidence has again been obtained that better processed pelts are commanding better prices and more ready sales than those of inferior quality. As soon as this fact is more thoroughly realized, then will there be a greater support and desire for information not only of the processing of pelts, but of factors such as the effect of nutrition and seasonable variations on the quality of the skin.

It is desired once again to record the fact that the grant from the old Empire Marketing Board has made it possible to conduct the work on a larger scale than otherwise would have been possible.

SOIL SURVEY.—FOURTH ANNUAL REPORT.

During the year the chief activities of the soil survey were (1) the continuation of the detailed soil mapping in the Waipa County, and (2) a reconnaissance survey of the plains of the Ashburton County.

The field-work in the Waipa County has been carried out by Messrs. N. H. Taylor and L. I. Grange (in the field for only a short period), assisted by field hands, the majority of whom drew part of their wages from the Unemployment Board. Mr. L. I. Grange carried out the survey of the Ashburton County, where he was assisted by Mr. K. G. Manchester and by several field hands, a portion of whose wages were paid by the Unemployment Board and the Ashburton County Council.

At the commencement of the field season, Messrs. Grange and Taylor mapped the soil types in the area lying between Opunake and Kaponga, thus completing the reconnaissance survey of Western Taranaki.

Messrs. Grange and Taylor made preliminary investigations for one of the dairy companies on flavour in butter in relation to soil types in the Hauraki district.

Mr. Taylor prepared a report on the soils of the suppliers to the Rukuhia Cheese-factory (Waipa County) at the request of the Director of the Dairy Division of the Department of Agriculture.