Serpentine.—Known outcrops of serpentine in the Kaukapakapa district and some in the Wellsford district were geologically surveyed and bored to obtain information as to the available quantity of serpentine suitable for serpentine superphosphate. To date this work has disclosed that some 100,000 tons of suitable rock is available from reasonably accessible and workable deposits.

Clays.—Prospecting of ceramic and other refractory clays and of Fuller's earth was continued in North Auckland, Canterbury, Otago, and the West Coast under the direction of a geologist. By arrangement with the National Service Department, the services of University students were made available during the vacation to enable the field-work to be expedited.

A report on the fireclays of New Zealand by the Director of the Geological Survey was published as a departmental bulletin.

Limestone.—As opportunity offered, a geologist has been quantitatively examining and sampling limestone quarries and deposits in Southland. This work was undertaken at the request of the Limestone Controller to provide information as to the available resources of agricultural lime in that province. Limestone deposits in other parts of New Zealand have been reported on for similar purposes.

Chatham Island Peat-wax.—A comprehensive report on the chemical examination of wax extracted from Chatham Island peat was received from the Imperial Institute, London. This report stated that the Chatham Island wax had properties comparable with those of montan-wax, except that it contained a much higher percentage of asphaltic material, which would need to be reduced considerably before the peat-wax could substitute satisfactorily for montan-wax. The results of the quantitative surveys of the Chatham Island peat deposits, together with chemical work at the Dominion Laboratory and the Imperial Institute, have been published.

NEW ZEALAND WOOL MANUFACTURERS' RESEARCH ASSOCIATION

Director: Professor F. G. Soper

Wool Manufacturers' Research Association Committee.—Mr. W. R. Carey (Chairman), Professor E. R. Hudson, Mr. H. Lee, Dr. R. O. Page, Mr. T. C. Ross, Mr. W. L. Wood, Dr. E. Marsden (Secretary).

Non-shrink Treatments of Wool.—Work has continued through the year on improvements to the wet chlorination process for rendering woollen fabrics resistant to shrinkage, a process which has been operative in New Zealand for a number of years. The results which have been obtained by the use of the improved wet chlorination process represent a very great increase in the useful life of garments. Simultaneously with improvements to the existing process, the mills have, through the Research Association, continued to conduct tests on other non-shrink processes, and data have now been accumulated showing the effect of various treatments. Different non-shrink process give slightly different surface finishes to the wool fibre, and some are more desirable for certain uses than others. The work on the dry chlorination plant lent by the Wool Industries Research Association, England, has been extended to include the chlorination of tops, and experience has been obtained of considerable value to those members who intend to operate the dry chlorination process. This process is the one associated with the trade-mark "Woolindras" when the goods are processed in the United Kingdom.

On behalf of members, some hundreds of tests of shrinkage have been carried out through the year using the standard test machine which gives the effect of twenty to thirty average launderings.

Service to Members.—Investigations of interest to members continue. These have included dyeing problems, analyses of soap samples, of worsted lubricants, determinations of grease and of alkali in samples of scoured wool, and examination of wool-scouring effluents. Assistance has been given to the mills in setting up improved wet chlorination equipment, in the preparation of test solutions, and in the designing and equipment of mill laboratories.

Bulletins containing results of recent work are circulated to members.

Allied Research.—The location of the Wool Manufacturers' Research Association in the University of Otago buildings has stimulated research on wool-manufacturing problems by science graduates in the chemistry department. One such research has studied the chemical reactions which occur when mild alkali comes in contact with woollens which have been wet chlorinated and which have not been treated with the anti-chlor sulphite solution. The chemical action is to cause a very rapid splitting of the polypeptide links in the long chains of atoms which are characteristic of the wool structure, and this is paralleled by a loss in strength of the material.

Influence of Hairiness on Processing.—The vertical set-up of the New Zealand wool-manufacturing industry renders manufacturing trials possible which would be difficult in the more highly-specialized and horizontal set-up of Great Britain.

The trial, for which a grant was made to the Association by the New Zealand Wool Council, had as its object the determination of the effect of a known degree of hairiness in wool on its processing properties. A test has been completed using 48's quality, and a report will shortly be published. Wool of 56's quality is now being collected for a further trial.

PLANT CHEMISTRY LABORATORY, PALMERSTON NORTH

Director: Dr. J. Melville, on active service. Acting Director: Dr. B. W. Doak

Vegetable Dehydration.—Research has continued on the suitability of different varieties of vegetables for dehydration. Satisfactory results have now been obtained in the dehydration of peas and beans. Tests are being carried out to determine the storage life of dehydrated vegetables and the vitamin retention on storage, at room temperature and at elevated temperature. Daily samples are received for examination from the dehydration factory at Hastings, which has now been in full production for a year. Particular attention is being paid to the moisture content and the vitamin retention as well as to palatability.