

(9.) *The advisability of establishing a laboratory for research in connection with kauri-gum and its products, including kauri peat.*

In spite of the magnitude of the kauri-gum industry, and the length of time during which the industry has flourished, no scientific investigation of the nature of kauri-gum has been carried out in New Zealand, and apparently little of any value or importance elsewhere. We consider that in the interests of the industry various scientific researches in connection with kauri-gum and other products of the kauri forests, both past and present, should be commenced without delay. Such researches should be, in the first instance, laboratory investigations, and could be carried out in one of three ways: (1) By the establishment of a special research laboratory connected with the Kauri-gum Department; (2) by the establishment of a research branch of the Dominion Laboratory in Auckland; (3) by utilizing the existing facilities at Auckland University College.

The establishment of a special research laboratory would entail large expense, would take a considerable time, and would cost a great deal to staff in an adequate way. Besides, the necessary researches would probably be completed in a comparatively short time. We are strongly of opinion that the laboratory researches should be carried out in Auckland, and for preference at the Auckland University College, where laboratory facilities for such research already exist. Much of the essential reference literature is in the College library, and the direction and co-operation of the staff would be available. From the point of view of the College, it would be a source of inspiration to senior and advanced students for such research to be carried on in the College laboratories. Furthermore, as the work developed assistants could be recruited from advanced students.

We suggest that investigation should be commenced on the following subjects:—

- (1.) The chemical nature and physical properties of kauri-gum, including bled, fossil, and chalky gum.
- (2.) The distillation of kauri peat from various localities, and the chemical investigation of the nature of the products obtained.
- (3.) The distillation of, or extraction of oils from, swamp timber, and the nature of the oils produced.
- (4.) The refuse products of the kauri-timber industry.
- (5.) The method of formation of kauri-gum in the living tree, and the effect of bleeding on the tree.

Of these investigations the first four, and other subjects of research arising from them, would be carried out by the Department of Chemistry. No. 5 is already being investigated by one of the staff of the Department of Biology, with financial assistance from the Government Forestry Department.

Following the laboratory investigation, semi-industrial experiments would in various cases be required. These should be carried out in Auckland, under the direction or with the co-operation of those conducting the laboratory investigations. Arrangements could readily be made for tests to be carried out for kauri-gum exporters at a nominal cost.

If the laboratory investigations and the semi-industrial experiments indicated that profitable industries could be established, private companies would then have little difficulty in raising the necessary funds to establish the industries. It might, however, be desirable for the Government to assist such companies in any further industrial experiments that might be required, provision being made to safeguard the interests of the Crown.

In connection with the various investigations, we consider that in the event of the Government establishing a laboratory, or providing funds for the carrying-out of the necessary researches, regulations should be framed to the effect that all discoveries and inventions arising directly out of work paid for in full by the Government should be the property of the Crown. Any discovery or invention, however, which could not reasonably be regarded as the natural outcome of the particular work for which the investigator is paid should not be regarded as the property of the Crown. We consider that every encouragement should be given to investigators who make useful discoveries, and that even when being paid in full for their work by the Crown they should be eligible for the bonuses recommended in connection with clause 3 of the order of reference.

We recommend that in the first instance a sum of £1,000 a year should be made available for research purposes on a laboratory scale, and that the amount should later on be increased to meet the cost of semi-industrial experiments arising from the laboratory investigations, provided that in assessing such bonus the conditions of the investigator's employment, the salary paid, and the facilities at his disposal for pursuing the investigations should be taken into account.