

- (21.) The executive of the Department should consist of a permanent Secretary of administrative experience and capacity, and of such subordinate staff as may be necessary. The secretaries of the special supervisory committees of laboratories, services, and institutes, and their executive officers, should be members of the executive staff of the Department. (Paragraphs 59, 60.)
- (22.) The funds now available for National Research Scholarships should be transferred to the Department as part of a total provision of £2,000 a year for grants to students training in research and for grants to assist independent research work. (Paragraph 66.)
- (23.) A National Research Council of New Zealand should be established and affiliated to the International Research Council, and a grant should be made to the National Research Council by the Government towards the cost of the necessary subscription on affiliation. (Paragraph 69.)
- (24.) The present grant to the New Zealand Institute should be continued, and they should be assisted to pay off their overdraft to the Government Printer and be required thereafter to make their own arrangements for printing. Arrangements should be made between the Department and the Institute to prevent overlapping in the award of grants to individuals. (Paragraphs 67, 68.)
- (25.) Two technical field officers should be attached to the Department of Industries and Commerce. (Paragraphs 37, 49.)
- (26.) A well-qualified scientific man should be attached to the High Commissioner's Office in London, to act as liaison officer between the official research organizations at Home and the new Department here. (Paragraph 71.)

73. In conclusion I desire to record my indebtedness to my private secretary, Mr. T. J. Sherrard, of the Department of the Public Service Commissioner, whose willing and quiet service has been of the greatest assistance to me not only throughout my journeys but also in the preparation of this report.

I have, &c.,
H. FRANK HEATH.

APPENDIX A.

(1.) Organization of Scientific and Industrial Research in New Zealand: Report by Dr. J. Allan Thomson, 20th July, 1916.

In England, a large part of the failure to appreciate the value of research is ascribed to the classical education of permanent officials and politicians.

The belief that the expert—whether scientific or industrial—has to be controlled or guided by permanent officials having no special knowledge of the particular subject in hand is typical of our executive system. While such a state of things exists, most of the advantages of enlisting men of science for national services must remain unfulfilled. The various scientific committees which have been appointed have been able to give valuable aid in connection with problems submitted to them, but they would be far more effective if the chiefs of the Departments with which they are associated possessed a practical knowledge of scientific works and methods. Without such experience the executive is at the mercy of every assertive paradoxer, and cannot discriminate between impracticable devices and the judgment of science upon them. While, therefore, the country has at its disposal the work—either voluntary or nearly so—of experts in all branches of applied science, it cannot use these services to the best advantage unless the Department concerned with them have scientific men among the permanent officials, and this is not the case at present. . . .

Unless the national attitude to scientific investigation can be improved much more greatly than it promises to be, any scheme for the Government organization of research and its application to our primary industries and manufactures is doomed to poor success. It is easy for the Government by the provision of sufficient money to organize research, alike on the improvement of existing methods, on the utilization of raw materials and by-product at present going to waste, and on the creation of new methods and products, but without a body of industrialists prepared to co-operate with the scientific inventors the research will be wasted. . . .

Research in relation to industry differs from purely scientific research only in the nature of the problems to be solved and in the scale on which experiments must be conducted. Otherwise the methods are exactly the same. It cannot be too strongly insisted that the discoveries of pure science may at any time prove to have an economic value, and that the prosecution of industrial research cannot outrun the prosecution of pure science, but generally follows it at a distance. The German success has lain largely in the fact that her industrial scientific men have had a training in, and can appreciate, pure science, and have been able to keep the distance between the discoveries of pure science and their industrial application at a minimum.