

readier or riper for research work as to waste products, and the scientific study of economical methods.

*Re waste products:* The chemists on the Board would examine each scientifically. Their research would naturally begin where the other fellow has left off. There is no use getting the embryo chemist who would have to plod through the same old road at a paternal Government's expense, and probably reel off elementalisms to an admiring but select audience. If any lecturing is to be done—and I would certainly advocate it—let them be given to the industrial masses, even if members of the Board have to go into the camps and mines to meet them. This is where the very highly trained men—and for whom you must be prepared to pay—are to come in. The chemist would confer with the business end of the Board, and the engineers and the inspectors if necessary, and the very practical members would supply broad details of quantities, &c. I would encourage the scientists to confer with the lowliest members among the sewage or other employees, credit to be given to these latter for valuable suggestions. It is not always the boss of the mill who knows that a tooth is out of the saw. Any progressive manufacturer puzzled over an important problem should be able to seek and get advice and information from the specialists Board. The most informed member would be told off to investigate and advise, or, if the matter were found beyond his province, he would in turn consult his Board generally, and the difficulty probably be overcome by joint investigation. Further details need not here be given; suffice it to say that local bodies to-day very rightly have access to a drainage expert in important works of that nature. Electrical research should receive every encouragement. This Dominion affords a great field for its application to science, industry, and commerce. Any worker, either in Government or private employ, showing marked ability should be encouraged and his efforts stimulated by being given ready access to a laboratory of science at one of the centres. At least two or three laboratories should be established at the earliest possible moment. The research laboratories must be staffed by the best brains procurable, and before the men and women with such qualification are snapped up—for the demand is great in the most important parts of the world to-day for both men and women with knowledge of applied and practical science. Reports of analyses of minerals, &c., are, I understand, in most cases only to be obtained by favours of certain University professors, who have the advantage of access to apparatus not available to the private analyst. This should be remedied.

Conferences of scientists, engineers, professors, &c.: Annual conferences should be encouraged by all local public bodies. Legislation should make them compulsory, and expenses be chargeable to the several bodies. There should be no "hat-in-hand" application by a borough or county engineer for permission to attend an annual conference in New Zealand. Indeed, the engineers of the Dominion who now meet annually of their own accord are deserving of highest praise. Personal after-dinner discussions are oftentimes of greatest value in their profession, with a resultant economy of public money.

Compilation of known data in regard to existing industries: This should be at once undertaken, so that access to reports might be had by any one requiring information on existing methods. One example only might be instanced—namely, sawmilling. Data as to power for different-sized mills—sizes of pulleys, their speeds, &c.—amount of water necessary for practical working plants, should be carefully collected. Men of long practical experience should be interviewed by practical men before the former pass away and their stored amount of unwritten knowledge lost to future generations. Old methods might be compared with the new. Details of some men's lives, and the history of the Dominion generally, are collected and written up for future reference, and I contend that its industries and methods should be recorded similarly.

The Government grading and inspecting departments of farm and factory produce, hemp, and machinery—and I would here like to refer to the machinery and boiler inspecting departments as instances of existing departments of great value to both buyer and seller, and to the industrial employer, and agriculturist and worker generally—their value could be greatly enhanced by further organizing-methods. The suppliers of horse-power to-day are often in the dark and have to rely on experiment—often to the cost of the other man. The question occurs, Do these Government staffs work and confer and pull together sufficiently? All should be encouraged to confer whenever convenient and discuss the work and methods of their separate districts at such conferences. A Government bonus should be given to any member bringing forward practical and useful suggestions.

The Board of scientists would be the consultative centre for the present-day Government Graders, Inspectors, &c. No single Minister could possibly deal effectively with all questions. Records of the failures of enterprises, whether above or under ground, should be faithfully collected. Indeed, it should be made compulsory for secretaries of companies to supply full details of the causes of such failures at the legal winding-up of any company. This might save future pitfalls to those embarking on similar projects. If honest they would start at the point where others failed.

Assistance to private companies for mineral deposits, &c.: Government assistance might be granted after *bona fides* were established by expert examination of the project in hand. Details as to repayment for such service as may have been rendered by the State could later be arranged.

Government reports on prospective companies: Before flotation of companies, for the protection of the public and the proper care of the utilization of their money riches, I would make a Government report by expert compulsory. How many "wild cats" have been put on the market—oftentimes the same one and same locality, &c., only at a different period? for it is a known fact among exploiters that every seven or ten years bring along a fresh supply of "gullibles." We have many instances of this in Southland; and the present generation is so scared and scarred that it would probably refuse a sovereign for twenty shillings of silver