

from original materials. The assaying and metallurgical department could undertake work upon—(1.) Methods of utilizing the coal-slack produced in large amounts and thrown away by the coal-mines, though containing much calorific power and material for the production of gas and tar, and possibly oil. (2.) Methods for securing the most complete combustion of coal in producer plants; at present a large amount of the carbon fed into such producers remains unused. These two problems will probably have to be considered with regard to individual types of coal. (3.) The possibility of the manufacture of silica brick or sand-lime brick from local materials, such as the extremely abundant Caversham sandstones or other deposits. (4.) The investigation of the location, nature, extent, and suitability for the manufacture of bricks and pottery of the clays of Otago and Southland. In both these investigations the co-operation of the Geological Department and the materials-testing laboratory of the School of Mines should be of use in the location and survey of the deposits and the control by microscopical and mechanical tests of the products in various stages.

In regard to the Geological Department, any economic field-work that it undertakes would be spent to far better advantage to the community in the systematic study of regions in which valuable minerals have been discovered, to ascertain the nature and extent of the deposits, than in the search for new deposits in more or less untried regions. It should be pointed out that the extensive regions of coalfields in Otago and Southland have never been mapped in detail, and the investigation of the Kaitangata district, the Waiau valley (Nightcaps), the Orepuki oil-shales, and other mineral-fields is desirable. The occurrences of tinstone and wolfram on Stewart Island have never been surveyed in detail. The desirability of the study of deposits of material for brick and pottery making have been mentioned already. In all such topics the investigation might be accomplished by trained graduates working under the direction of the professors. The time required to be devoted to this work by the professors may render it necessary to relieve them of some of the routine work of tuition, and it might be best that the professor and the investigator should co-operate in both the teaching and the research work. In the case of work involving geological surveys, it may be best that a close association should exist between the Dominion Geological Survey and the University, especially if the work be of a regional character, upon which a published report is desired, that might suitably appear as a Survey Bulletin. Owing to the unsuitable nature of much of the winter-time for field studies, the employment of the investigator as a part-time assistant in the teaching may be very desirable. The University teachers themselves may also be co-opted by the Geological Survey for special investigation and regional surveys, this practice being followed in other lands. In such investigations by members of university staffs the employment of senior students as field assistants is often very suitable. Several of the bulletins already issued by the Geological Survey have been produced in this manner. It has the merit of increasing the field staff of the Survey in that portion of the year most suitable for field investigations, leading to an increase in the output of information useful to the country and to science generally. The School of Mines could not, however, undertake investigations of most of the topics suggested without considerable financial support, for the securing of ample instrumental and mechanical equipment, technical publications, the adequate remuneration of assistants, and other expenses necessary to such researches. It is not possible at the present stage to indicate what support is required or how it should be applied, especially if the research undertaken be chiefly in the interest of private individuals, for this would depend entirely upon the individual circumstances of the case.

*To Mr. Hudson:* The question of waste slack at the mines has possibilities of considerable development. There is so much potential power thrown away that it is worthy of investigation.

*To Mr. Luke:* A great deal of our New Zealand coal is different from the coal of England. We have largely brown coals. Coal is a widely varying substance, and different seams require different treatment. Investigation is necessary to ascertain which treatment is desirable. Professor Waters is of opinion that we ought to pursue investigations from our own aspect.

*To Mr. Sidey:* We have no equipment to enable us to do much in connection with the work of coals and firebrick.

E. L. MACASSEY, Land Agent, examined.

I wish to make a few remarks about seaweed. On the coast of New Zealand there are thousands of tons of seaweed which are at present going to waste. I have had a good deal of communication with the Minister of Marine on the matter, and he has suggested that I should have seaweed tested. We treated it in a rough way for potash for manure. In New Zealand at present potash manure is very scarce. The seaweed we treated was analysed by Professor Waters, and showed 11·2 per cent. of potash. That alone is worth a lot of money. [Sample produced.] We burnt the material. Besides the potash there are iodine and other properties in the seaweed. I refer specially, however, to the potash-value of the preparation for manure. Seeing we have so much of it on the coast, I think the Government should send an officer to America to find out the treatment and what machinery is required. Works might be established in a district such as that from Hampden to Shag Point. I would like the Government to bring an expert from America to examine our coasts.

C. S. MITCHELL, Manager, New Zealand Paper-mills (Limited), examined.

The wrapping-paper industry is carried on in New Zealand at present by the New Zealand Paper-mills (Limited), a company with £100,000 capital and three mills—Mataura, Dunedin, and Riverhead (Auckland). It confines itself solely to New Zealand, and its ramifications extend from the North Cape to the Bluff. Last year it paid out for raw material £36,840, in freights (rail and steamer) £4,042, for coal £9,750, and for wages £20,000. It is an industry that should be encouraged in every way by protection. We have written to the Government more than once, and hope to get some alterations made to the existing scale of duties. In regard to