

year. Mr. Morgan mentioned that in Marlborough a thin band of phosphatic rock had been found in the Amuri limestone, containing from 45 to 53 per cent. of phosphate of lime. A thicker band had been discovered near Port Robinson, and good samples had been obtained in the Whangarei district, but the prospects of finding a payable deposit there were not good. Phosphates had also been found in Southland near the Waiau River in 1906. More careful examination of these places would be made at an early date. It was stated that the nearest locality to New Plymouth where limestone could be quarried on a large scale was a few miles up the Mokau River; the available analysis of this stone, which varied a good deal in quality, ranged from 72 to 92 per cent. of carbonate of lime. There was also good limestone on the Awakino River, north of the Mokau. Subsequently Mr. Morgan obtained and forwarded a number of valuable reports supplied by the Public Works Department's Engineers resident at Taumarunui, Stratford, and Wanganui regarding limestone-deposits in their districts. He later supplied reports on the investigations made regarding the availability of supplies from the deposits in the Mokau district. Specimens of stone which had been submitted for analysis turned out extremely well; in five cases out of six the analysis showed that the percentage of calcium carbonate (CaCO_3) was 93.4, 95, 95.4, 96.6, and 98, indicating that the limestone in the district was of very good quality, in one instance the deposit being exceedingly high-grade. Mr. Aston, Agricultural Chemist, also supplied us with valuable information regarding limestone-deposits in the Wairarapa and Manawatu districts.

The Board also had the great advantage of consulting Mr. Parry, Chief Electrical Engineer of the Public Works Department, on the question of the best means of crushing phosphate and limestone. He informed us that he has been making many inquiries in connection with the best mode of crushing the phosphate sufficiently fine for the purpose of top-dressing.

CARRIAGE OF LIME FOR AGRICULTURAL PURPOSES ON THE RAILWAYS.

The question of the Railway Regulations as they apply to the railway carriage of lime for agricultural purposes has received a good deal of attention from the Board. Mr. Hunt, one of our members, drew up a report in connection with the matter, and pointed out that the regulations as at present existing made no provision for lime coming or going overseas. There does not appear to be any reason why this should not be done, provided the Railway Department is satisfied that the farmer is charged a reasonable price, and that the transaction is a direct deal between the lime-works and the farmer. Our Board were approached in the case of lime coming overseas to the Taranaki District, as the Railway Department refused to grant the concession set out in the regulations. After giving the matter full consideration we are of opinion that the Taranaki people have a good case, inasmuch as the district is badly in need of lime, and there is no lime locally that could be obtained by rail direct from the works—that is, within the free-railage limit of 100 miles. The Board are going into the matter with a view of seeing whether some relief can be given to settlers in the district named, and we are making inquiries as to the price intended to be charged for the lime on trucks at the port in the Taranaki District to which it is proposed to ship it. When these particulars come to hand the question of further considering whether representations should be made to the proper quarter to get the regulations amended to meet the case will be fully gone into.

POTASH-SUPPLIES.

We had a long conference with Mr. Pope, Mr. Aston, and Mr. Brown at a recent meeting in connection with some proposals that had been made to the Board regarding the supply of potash. After the matter had been fully discussed it was decided to recommend you to instruct the officers of the Department to make inquiries as to the practicability of utilizing the wood-ashes from sawmills for manurial purposes which are now going to waste, as some of them are of manurial value; also to ascertain whether anything could be done to obtain potash, iodine, &c., from the seaweeds on the New Zealand coast and potash from fern.

The experts expressed the opinion that there was very little prospect of the extraction of potash from these sources being a profitable undertaking in the face of the fact that the natural deposits would again become available at the close of the war.

In response to a request from the Board, Mr. Parry, Chief Electrical Engineer, submitted a report stating that strenuous efforts are being made the world over at the present time to discover new deposits of potash and economic processes for extracting potash from potash-bearing rocks, owing to the cutting-off of the supply of the natural deposits due to the war. Mr. Parry mentioned that a chemical process for treating feldspar was undergoing trial in the United States, also an electrolytic process for extracting potash out of alunite, and that recently a new electrolytic process for treating feldspar was patented in the United States. As the process was a simple one and capable of demonstration on a small scale, an experiment was carried out in the Dominion Laboratory, the result of which, although not altogether satisfactory or promising, yet was not quite conclusive, so it is hoped to repeat the experiment on a larger scale at Addington, and to conduct other investigations of a similar character at the first opportunity. Mr. Parry further stated that several electro-chemical and electro-metallurgical developments requiring the aid of electricity for their successful pursuit were in view, some of which will no doubt eventuate in course of time, such as the manufacture of nitric acid, caustic soda, hydrochloric acid, &c.; grinding phosphate rock and limestone and converting the rock phosphate into a soluble form, such as the preparation of bicalcic phosphate by the Palmaer process, which depends for its success upon the production of cheap hydrochloric acid by electrolytic means. There should, he states, be no difficulty in getting any of these processes into operation now that a supply of electricity is available, provided it can be proved that they are commercially and economically sound.