Walpole Island.

Walpole Island (off New Caledonia), a French possession, was worked by a company, and was a failure. There is a possibility that this failure was due to lack of expert management.

Christmas Islands.

Christmas Island, which is not to be confounded with an island of the same name in Java which is also phosphatic, is a desolate island. The soil is soaked with salts, which even penetrate to the juice of the coconuts. The guano and phosphate there is very impure. Fritsch ("The Manufacture of Chemical Manures," 1911, writing of the other Christmas Island, states: "Christmas Island phospho-guano (Indian Ocean): Christmas Island, to the south of Java, belongs to the Straits Settlement. The phosphate deposit discovered there a few years ago is wrought by a British company, the Christmas Island Phosphate Company (Limited). The total bulk of this deposit is estimated at 250,000 tons, with a percentage of 60 to 90 of phosphate of lime. The samples received in Europe tested 85 per cent. of phosphate of lime, with 1·5 per cent. of sesquioxides; rendered soluble by sulphuric acid at 53° B., yielded about 20 per cent. of phosphoric, of which 0·5 per cent. was insoluble in water, and 4 per cent. of free acid, which is little. This phosphate is very hard, but easy to crush when it is dry or dried, which is indispensable, as it contains 5 per cent. of moisture."

Clipperton Island.

Clipperton Island (off the coast of Mexico) is difficult to work owing to the bad weather and currents. There is apparently much phosphate of 78 per cent. The right to work this island is in the hands of the Pacific Phosphate Company. The phosphate is a coarse yellow-grey powder, also stones. It is an uncommon case of a coral island built round a trachyte crater.

Surprise Island.

Surprise Island (New Caledonia) contains phosphate embedded in coral sand, and phosphate sandstone in the form of big blocks, rich in iron and 55 to 65 per cent. phosphate.

THE NECESSITY OF PHOSPHATES TO THE NEW ZEALAND FARMER.

8th September, 1919.

The function of phosphates in agriculture is to supply this most important constituent of the ash of plants and the bodies of animals, the bones of which are mainly composed of calcium phosphate. Phosphates, as a plant-food, stimulate root-action and hasten the maturing of the plant. In shallow-rooted plants and those with a feeble root-system, such as turnips, phosphates greatly stimulate the young plant past the stage at which it is most attacked by its enemies. It would be practically impossible after the first burn to grow a good turnip crop on an average New Zealand soil without the use of phosphates.

Phosphates have a most beneficial effect on all clovers and leguminous fodder plants, and thus indirectly increase the store of nitrogenous organic matter in the soil. The improvement of poor pasture by phosphates is probably the most important part they play in increasing the productiveness of New Zealand lands. The effects of phosphates in raising the quality and feeding-value of the crop are very great. The most nutritious pastures in England and the best dairy pastures in France are those richest in phosphates, and this holds good in New Zealand.

In the North Island there are large areas of country which, owing to the well-distributed rainfall, are well suited for dairying. On account of the deficiency of phosphates, however, this may not be practicable under the present system unless a good phosphates-supply is assured. In fact, the North Island largely owes its prosperity and rapid development to the use of phosphates, the northern land being generally deficient in available phosphates. An example of the successful use of phosphates producing good dairying country out of poor country is that of Matamata, portions of which, owing to the heavy phosphatic manuring, are now yielding as much milk as the best Taranaki land.

On account of the high cost of handling fertilizers in New Zealand it is desirable that as high a grade of phosphate should be used as possible. Thus a source yielding an 85-per-cent. phosphate should be more suitable than that giving a 60-per-cent. phosphate, and by using the high-grade fertilizer the cost of bagging, freight, cartage, storage, and handling is largely reduced.

Finally, the fact that the New Zealand farmer finds it necessary to pay about half a million pounds sterling per annum on phosphates should be sufficient indication of the importance of phosphates to New Zealand agriculture under the present system of manuring.

Other References.—Bulletins 48 and 54 (New Series) of the Department of Agriculture deal fully with the value and use of phosphates in New Zealand.

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