

(3 Ca. O., P.O.), and irrespective of carbonate of lime or moisture. This rather loose method causes a uniformity of product, but does not encourage the miner to select his rock with a view to obtaining the highest yield of soluble phosphates of lime with given quantities of solvents—an object to be considered in the manufacture of fertilizers." He farther reports that—"Since the discovery of the value of the phosphate rock bed of South Carolina, in 1867, to the present time, about 2,250,000 tons have been mined by land and river companies in about equal proportions."

Mr. Moses gives a list of companies and individuals engaged in mining, and states that their aggregate capital is over \$2,000,000.

In regard to manufacturing, he says that the manufacture of phosphates in South Carolina has been developed on an enormous scale, over \$3,500,000 of capital being invested by twenty-one companies, which have a capacity of 250,000 tons per annum. Ashley and Cooper Rivers, in the neighbourhood of Charleston, are lined with the finest and most extensive collection of fertilizer factories in the world. Others of equal importance are being erected in the Beaufort district. Most economically arranged, and located in the heart of the phosphate region, on deep water and on railroads, they have such natural advantages of position as will give them control of the phosphate trade of the South and Southwest, and perhaps, in time, of the whole country.

A total capital of \$3,350,000 is invested in this business. The shipments have steadily increased from 22,589 tons in 1872 to 130,000 in 1883 (up to 1st June).

This volume contains valuable reports upon Apatite, Marls and Gypsum, etc. From the article upon Apatite, written by Mr. F. A. Wilber, I must extract one brief paragraph—the concluding one:—

"Apatite is used in the arts as a source of phosphoric acid and phosphorus, and its value to the manufacturers of fertilizers depends upon the amount of phosphate of lime which it contains. Since the discovery of the deposits of phosphatic marls in South Carolina the demand for it has decreased, and these latter deposits now furnish the supply of phosphates in the market."

The output of the Norwegian mines affords a striking contrast to our frightfully improvident superficial Canadian methods (or, rather, lack of method) of exploitation. The comparison is all the more profitable from the fact that these Scandinavian deposits occur in rocks of very similar age and character to our own. That district extends about 50 kilometres along the coast, with a depth of about 5 kilometres. Mr. Frank Adams informs me that Gjögren (a Swedish geologist) reports that a single section of about one square mile in extent, viz.,

Manufacture of phosphates.

Norwegian phosphate.