

per cent., were taken from 0.11 acre, or at the rate of 418 tons an acre, at a cost of only \$3 a ton on cars, in spite of necessarily crude arrangements. A portion of the rock was experimented with at the works of the Navasse Guano Company, and it was found that 1000 pound charges required only from 600 to 650 pounds of acid, as compared with 900 pounds for South Carolina phosphate, the product containing from 10.78 to 11.63 per cent. of soluble phosphoric acid, from none to 0.67 per cent of reverted phosphoric acid, and up to 1.35 per cent. of insoluble phosphoric acid. The crude rock treated was not even thoroughly treated. These results are certainly very gratifying, and give promise of the development of an industry very important to North Carolina, and are highly creditable to the vigilance and enterprise of those in charge of the Experiment Station."

When it is considered how vast are the apatite deposits in Canada, and how low is the cost of mining, together with the fact that the mineral will assay 80 to 85 per cent., in cargo lots, if carefully dressed, compared with 32.5 to 50.5 per cent. as above, increased demand for phosphate locations is not to be wondered at.

PHOSPHATE MINING IN OTTAWA COUNTY.

At the mines east of the Gatineau and on the east and west sides of the Riviere du Lievre, operations are going ahead with more than ordinary activity, and mineral is being raised in great quantity. During the past year important improvements have been made on many of the locations in the form of comfortable and substantial buildings, erected for the accommodation of the miners, suitable tables, blacksmith shops, engine houses, and neat cottages, the latter being occupied by the managers of the mines as dwellings and offices. Steam drills, hoists and pumps are now in use where a year ago all work was done by hand power. Tramways have been laid from the mines to the dumping grounds, over which the ore and waste can be speedily removed in cars which now take the place of wheelbarrows that were used a year ago; good summer roads are graded from the mines to the Riviere du Lievre which afford facilities for forwarding the ore during the summer to the river bank, from whence it is carried in scows to Buckingham Village and there transhipped and forwarded to the point of shipment. Formerly it was necessary to allow the ore to accumulate at the mines

until such time as winter transportation should be rendered practicable. All of these changes have taken place during one short year, it may be said, and are due to the introduction of capital, practical ability and an element of enterprise, which have given an impetus to the industry and supplied a want long felt in the district. It is now less expensive to raise the ore, the output is rapidly increasing and the cost of transportation has been materially reduced. In short, the phosphate mining industry of Ottawa County has a most promising future, and was never in such a flourishing condition as it is to-day.

THE MINES.

In the Township of Portland, West, the *High Rock* mine, the property of the Phosphate of Lime Company, and the Union Phosphate Mining and Land Company's *Star Hill* mine are each giving employment to a large force of miners, and phosphate is coming to the surface in large quantity. So much has already been said of these mines in the Review that their value must be well known. They are thoroughly equipped and well managed.

In the Township of Portland East, the *North Star* mine, owned by the Dominion Phosphate Company, has much improved during the past few months and an abundance of high grade ore is daily raised, mining operations are systematically conducted, and the mine is supplied with every facility for carrying on work to advantage. Last year's output from this property is now being shipped to Hamburg, and there is no doubt the whole will return \$4 per cent. The ore has been carefully dressed and is of a high grade.

The *Rapids* mine, owned by Mr. W. A. Allan, has been put in good shape during the past few months by Mr. George Smith, Mr. Allan's manager, and a quantity of very fine ore has been piled up. Actual mining on this property has been retarded by a delay in getting the machinery on the ground. It has been recently delivered, however, and is now in course of erection, and when this has been completed, active operations will be proceeded with.

The *Lansdowne*, adjoining the *Emerald*, now the property of the Dominion Phosphate Company, is being thoroughly prospected under the personal supervision of Mr. W. H. Smith, the company's manager, and many valuable deposits have already been exposed. On the west side of the property, facing the Riviere du Lievre, a large body of ore has been uncovered, and the indications are that it will prove to be of vast extent. The company is to be congratulated on its purchase of this location.

In the Township of Buckingham the *Emerald*, belonging to the Ottawa Phosphate Company, is the pride of the County. The mine itself appears to be in a body of phosphate, the extent of which has not yet been defined, capable of yielding many thousand tons annually for years to come. The mining captain in charge is a man of wide experience, as his work has shown, and Mr. S. P. Franchot, the genial business manager, and one of the directors of the company, has so systematized each department that everything goes ahead apace without hindrance and like clock work.

The force employed at the mines above mentioned and the daily output of each has not varied since our last report.

In the Townships of Templeton and Wakefield the mines are producing a large quantity of mineral, and preparations are being made to open new ground almost immediately.

TRANSPORTATION OF ORE.

From the *High Rock*, the *Star Hill*, and the *Emerald* mines, phosphate is being forwarded daily to the points of shipment, and the large piles which have accumulated at the railway stations and at points on the Ottawa River since the close of navigation last year are being reduced by shipments to Montreal, by rail and barge, respectively; from which port the ore will be forwarded across the Atlantic.

Phosphate Quotations.

The market continues dull and buyers are not offering such liberal prices as producers have been looking for. Nevertheless several sales have been recently reported at prices in lots that will establish a price for this season's shipments at one shilling a unit for 70 per cent. mineral, with one-fifth of a penny rise. For those who ship direct this, with the ruling low rates of freight, is quite equal to 1s. 3d. per unit for 80 per cent. with freight at past years rates.

FREIGHTS.

Owing to the scarcity of outgoing freights this season the phosphate shippers are deriving the benefit of unusually low rates. For some seasons past the rates have ruled at from ten to fifteen shillings, from Montreal to Liverpool. Shipowners are now offering tonnage to Liverpool and London by steamship at from three to six shillings.

At Tunora, New South Wales, a gold nugget was recently found which weighed 183 ounces and was valued at about \$3,300.

APPOINTMENT OF A SUPERINTENDENT OF MINES IN THE NORTH-WEST TERRITORIES.

Owing to the threatened influx of prospectors and miners to the mineral sections of the Rockies, and the probable impetus it will give to mining in that district, the Government has appointed a Superintendent of mines, and we understand that Mr. W. Pearce, Inspector of Dominion Land Agencies, has been selected for that position. The Superintendent of mines, under the new mining regulations, will be vested with authority to adjudicate all disputes that may arise among mine owners and will have a general supervision over all mineral locations.

MICA MINING IN CANADA.

During the past year some important discoveries of this valuable mineral have been made in Eastern Ontario and in Ottawa County, Province of Quebec. In the township of Loughboro' mining has been started on a property that, it is said, will yield fair merchantable mica. Mr. Allan's mine in Burgess has turned out a large amount, some of which has been cut into plates 10x6, and the mine is capable of yielding an almost unlimited quantity. The output of the mine is being regularly shipped to the American market and to dealers in Canada. Mr. Allan has some men engaged in opening up a property in Ottawa county, discovered late last autumn, which promises to develop into a mine of great value. The crystals are large and the quality of the mica is equal to any that has ever been mined in North Carolina or New Hampshire.

Phosphate of lime (apatite) was first discovered in Burgess, Ontario, in 1847. In 1860 the first shipment of the mineral was made, amounting to about 100 tons.

The earliest discovery of apatite in the County of Ottawa, was made in 1829, by Lieut. Ingall of the 15th Regiment, while engaged in certain geological explorations. Mining operations were not engaged in until 1873.

The entire phosphate beds of South Carolina, so far as discovered and defined, have been estimated to cover an area of 240,000 acres; it was not known that the rock possessed any commercial value until the year 1865.