

hardly be undertaken by the experiment station than a series of field experiments for the purpose of testing these claims.

"The trials begun in 1885 at this station in the case of five experiments out of the eight on different forms, the phosphate being used with potash and nitrogen compounds, the increase of crop was greater with the more insoluble phosphate than with the more expensive superphosphate, and that in three of these five cases the 'floats,' the cheapest of all, did the best work, goes a little way, at least, toward showing that the superphosphate may have had its day."

Mr. W. H. Bowker in his lecture on Homoeopathy and Agriculture," says, "There may be places where insoluble phosphates can be advantageously applied, as upon lands covered with fruit trees or devoted to grass. Perennial plants, like grasses and trees, no doubt extract phosphoric acid more readily than annual plants, owing to their numerous and well developed roots. Winter grains, especially wheat, from the long time it occupies the ground, and its growth in the fall, may also be benefited by an insoluble or partially insoluble phosphate."

Calling attention to these statements, Mr. Ward says that in 1884 more than four-fifths of the cultivated land in New England was comprised in the hay crop, while the pasturage adds a vast acreage. If it be admitted that the crude phosphates are serviceable even to grass alone, an incalculable field is opened for their use.

There is no subject of greater importance to Canada than this one, and it is to be hoped that our Agricultural Bureau will give earnest attention to experiments that may tend to supply our farmers with a cheap and effective fertilizer, easily obtained, pleasant to handle, and inviting confidence by its simplicity. This would render more "protection" to agriculture than can be obtained from any amount of fiscal legislation, and would utilize extensively the valuable phosphate deposits which Canada has the good fortune to possess.

Gold Mining in the Yukon Country.

Dr. G. M. Dawson, Assistant Director of the Geological Survey of Canada, and his assistant, Mr. McEvoy, have returned to Ottawa from their preliminary survey of the Yukon country. Being interviewed with special reference to the gold mining in that vast region Dr. Dawson very kindly gave us the following information:

In the Cassiar country placer mining has been in progress for a number of years, and some very rich creeks were formerly worked. Mining is still carried on, though now largely by Chinese. Quartz veins of considerable size are known to exist in a number of places in the immediate vicinity of some of the paying creeks, but so far no attention has been paid to quartz mining. As this section is of comparatively easy access from the coast and a wagon road could be constructed without

difficulty from the head of navigation on the Stickeen, it seems very desirable that efforts should now be made to test some of the quartz deposits.

East and north of Dease Lake, on the Dease and Lard Rivers, placer mining was some years ago quite remunerative. Still further north, along the Lewis, Pelly and Stewart Rivers—branches of the Yukon—and their tributaries, miners have been working river bars for several years past. The aggregate length of these streams, along all of which gold in greater or less quantity is found, is great, and the total area of the gold producing region which they drain is very extensive. During the summer of 1886 most of the work was done on the Stewart River, but in consequence of the discovery of 'coarse gold' at Forty-Mile Creek—further down the Yukon—nearly all the miners went to that stream this year. Forty Mile Creek has now been prospected for nearly 100 miles in length, and some rich bars discovered, though the miners unite in saying that the gold is 'spotted,' or unequally distributed. About 250 miners are estimated to have been at work this year.

Asked if the reported hardships and difficulties were adequate to the results obtained by the miners, Dr. Dawson said that while there was undoubtedly much difficulty and many hardships to be faced, mainly owing to the inaccessibility of the country—there being no practical route, and also from the limited working season and the difficulty in working frozen ground when covered with moss and wood, he still had reason to believe that on the average good pay had been obtained, and while numbers were found to speak disparagingly of the results, on the whole he thought that the miners were very well satisfied with the country. He did not think, however, that any other than miners experienced in work on the western coast, men well accustomed to hard work and able to cope with difficulties of no ordinary character should be encouraged to enter the country at present.

Supplies are brought up the Yukon from its mouth in Behring Sea, yearly, by one or more steamers. The trading post now furthest up is near Forty-Mile Creek, but steamers could ascend much further if required. Supplies brought in thus, however, do not arrive till August, which is too late for the summer work of the miners. It is therefore customary for miners to carry in supplies over the Chilkoot Pass and down to the Lewis River. The best way, when possible, is to spend one winter in the country and thus get two good summers work. Little attention has yet been paid to other minerals than gold, but coal has been found on the Lewis, and evidences of copper are frequently met with.

The published maps of the country which at present exist are very incomplete and inaccurate, and though much still remains to be done, the work of Dr. Dawson's expedition will enable a much more accurate delineation of the region.

New Process of Treating Crude Phosphate.

Mr. F. S. Shirley, New Bedford, Mass., and managing director of the grinding mills at Buckingham has discovered a new process by which apatite in its crude state is rendered soluble to a marked degree in water and by which, it is claimed, that the poorer rock which now goes begging can be utilized and made marketable. Mr. Shirley is having his process thoroughly tested by several eminent agricultural chemists and as soon as their reports have been made known they will be communicated to our readers through these columns. The matter is one of vital importance to our phosphate industry and we await further developments with interest.

Our Asbestos Industry.

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The mining of asbestos is carried on at several points along the line of the Quebec Central Railway, viz., at Thetford, Black Lake, Coleraine and Belmina. Some work has also been done near Coleraine station. Near Danville, four miles from the Grand Trunk railway, a mine of considerable extent has been operated for several years. As this industry has already grown to large proportions and bids fair to become one of the most important in the Dominion, a brief description of the various asbestos properties, its mode of occurrence, and some facts bearing on the future of the industry may be of general interest.

The various companies engaged in mining asbestos at Thetford are King Bros., the Boston Asbestos Packing Co., Johnston & Co., and Ward Bros.; while at Black Lake and Coleraine are situated the mines of the Anglo-Canadian Co., Frechette's and the Lionais Martin or Scottish Canadian Company's property. These all lie along or near the line of the Quebec Central railway which crosses the property at Thetford, while at Black Lake it is from a quarter to half a mile distant from the workings. At Belmina which is about four miles from the railway at Coleraine station, a small force of men, from six to eight, have been engaged for several years, merely on exploratory work on property owned by Mr. John Bell, of London, England. With a view of acquiring more definite information concerning this valuable mineral, a somewhat detailed examination of all these properties was made in order to render assistance, if required, to any parties interested in this industry.

All the asbestos mines in the Eastern Townships are situated on portions of the great serpentine belts which extend in tolerably direct lines, though with many breaks, northward from the Vermont boundary for some distance beyond the Chaudière river. Further east these peculiar rocks present large areas in the Shickshock Mountain Range, which extends through the northern portion of the Gaspé Peninsula in rear of Ste. Anne des Monts, and further east on the lower part of the Dartmouth river. Though indications of asbestos are found at most points throughout the whole serpentine formation, the developments of this mineral appear, in so far as yet known, to be greatest in the areas about Thetford and Black Lake and near Danville, though there is no apparent reason why it should not be found in paying quantities at other points, and it is prob-