

Lt.-Col. Joshua Wright, North Bend, Yale District, B.C.; Capt. M. N. Garland, North Bend, B.C.; F. W. Va. au, North Bend. Mines office, North Bend, Yale District, B.C.

Danville Slate and Asbestos Co. Ltd.—This company has purchased the Jeffrey Asbestos Mine at Danville, Que., at a price, so it is reported, of \$150,000.

Dominion Coal Co. Ltd.—In his report to the Local Government, Dr. Martin Murphy, Provincial Engineer, has the following to say of this company's railway from Bridgeport to Louisburg. "The road has been constructed, so far, in a more permanent and serviceable manner than the contract calls for. The gradients and curvature have been reduced at considerable expense, so as to lessen the cost of transport. The cuttings are taken out to a width of 22 feet at formation level; the embankments are 16 feet wide. The permanent way is much heavier; rails are 80 lbs. per lineal yard, the contract being for rails 56 lbs. per yard. Servis tie plates of steel, weighing with fastenings, 100 lbs., connect the joints. The drainage a very important feature, is well provided for, by side 'off-take' ditches thus diverting the surface water from the slopes of cuttings and embankments and conveying it to the streams passing through the culverts and bridge openings. The culverts and bridge superstructure, speaking generally, are of a superior class of masonry. The bridge and trestle superstructure are of steel and are in strength and construction, built according to the progress of the time, heavier and stronger than the class of such work generally erected to carry lighter ling stock. They are built according to the requirements of the Federal Government specifications. The class and character of the work throughout the ten miles now opened for traffic, is superior to any I have inspected in this country. The station building a Bridgeport and the station house, engine house, repair shop, and freight shed, at Glace Bay are built on concrete foundation walls and are unusual large and commodious."

Nova Scotia Steel Co., Ltd.—Respecting the construction of this company's railway, Dr. Murphy, in his annual report, says:—"Eureka to Sunny Brae, 12½ miles, leaves the Pictou Branch of the Intercolonial Railway at Ferrona Junction, crosses the west branch of the East River to Ferrona, where the smelting works of the company are located, and runs up the valley of the East Branch to Sunny Brae. The first 10½ miles was opened for traffic to the public on the 1st of July, 1892, and the remainder is in operation since November following. The company applied for payment of subsidy according to the contract with the Provincial Government—(see Appendix 17, p. 15, Journals of the House of Assembly, 1891), the conditions being:—

(a.) "They shall have completed, equipped and put in operation the said line of railway."

(b.) "They shall have paid, or cause to be paid, the wages due to the workmen employed, and all charges for materials supplied for the construction of the said railway."

(c.) "They shall have constructed, completed and put in operation at some place within the County of Pictou, a blast furnace for the smelting of iron ores."

(d.) "They shall have established to the satisfaction of the Governor-in-Council, that they have bona fide expended in cash in the construction of said railway and blast furnace a sum of \$400,000."

All these conditions the company have fulfilled, and have carried them into effect before the time stipulated for completion, viz., the 31st day of December, 1892, and further they have constructed the line of railway in accordance with the specification and all other conditions of contract.

After receiving formal instructions to examine the contract, to inspect the works, and to report accordingly, I made an inspection of the line on the 22nd May, 1893, reported the work satisfactory, but not quite finished, and recommended a payment of thirty-five thousand dollars on account. The subvention account stands thus:—

Twelve and a-half miles of railway, at \$3,200 per mile....\$40,000
Payment recommended on account..... 35,000

Balance of subsidy remaining due on September 30th, 1893. \$5,000

The foregoing conditions have been complied with, the railway has been completed and the balance of subsidy paid on a certificate to that effect given on the 16th day of December, 1893."

The Mica Market.

During the past two months the demand for amber mica has quietly increased, and prices for large lots have advanced, owing to increased cost of mining. The principal demand has been for thumb-trimmed and rough-split, while some lots of trimmed have been sold. One dealer to keep up the supply of trimmed has been cutting dumps of several Templeton mines and trimming all that would cut 1 x 3 inches. Three mines are at present in operation, the output of two being steady, the work being on veins, while in one the mica is in pockets with an inclination to phosphate shortly. All the mica mined finds a ready sale, principally to the United States, the consumption in Canada being small but increasing. Several sample lots have been sent to England, reports on which are favorable. There is a strong hope that the demand from England is on the increase.

The Care of Mine Pumps.

By J. CLARENCE STINE, Osceola Mills, Pa.

Acidulated mine water is probably as great a source of trouble and expense at mines drained by steam pumps as any other natural feature of a mine.

The best way to counteract its destructive effects on pumps is to use gun metal or some other similar composition for the water ends of the pumps. Owing to its first cost, gun metal is not often used, and besides there are some waters so acidulated as to attack it and similar compositions nearly as savagely as they do good hard iron. The writer has seen gun metal rendered soft and spongy in less than a month's time, has known one inch iron bolts to be eaten to the thickness of a lead pencil in three days, and has seen 3 inch iron pipe eaten so thin that a full length of it could easily be carried in one hand.

I was recently shown the water end of a pump, which owing to a sudden change in the water from "sweet" to acid, had been utterly ruined in less than a month's time. Every mine superintendent should keep on hand duplicate parts, liable to wear or corrosion of all pumps, as a breakdown of a few hours duration may, at times, cause irreparable damage. Aside from the parts subjected to wear by friction, the

piece in double acting pumps likely to wear out first is the wall or partition between the bottom valves. This is caused by the water being discharged, from the valves nearest to it, against both sides, and, as the valves are usually located nearer the partition than the outside shell, the current must strike it with considerable force. Aside from this, it is attacked on both sides, and must, therefore wear twice as fast as the shell. When this wall is eaten through, the pump will do no work, as the water is forced from one side of the plunger to the other side. A method sometimes used in repairing this, is to melt and run sufficient Babbitt metal, or similar composition, into and around the wall to close the part eaten. This is only a makeshift at best, and a poor one. When hot the Babbitt metal lies close to the wall, and when cold it shrinks from it, allowing space enough for small quantities of water to pass through. This water gradually enlarges the passage way, and in a short time the pump is in a worse condition than before.

A method by which I have repaired several pumps, and which is original, as far as I know, is as follows: Drill down the top and bottom of the partition its full length. Then with a chisel chip out the entire partition, and chip both sides until sufficient breadth is obtained for a good joint. When the pump is a solid casting allow about a quarter of an inch taper so as to more easily fit the new partition. Then with a cape chisel about ⅝ of an inch wide cut a groove in each side of the same depth. These grooves should be carefully filed, and be made as nearly parallel with each other as possible. The success of the entire job depends on the fitting. Next is the new partition, which should be made of gun metal or a similar composition. Make a pattern, allowing enough for filling and shrinkage. (Brass shrinks about ⅜ of an inch in ten.) After the piece is cast it should be fitted into the grooves so as to make a perfect joint on all sides. Unless this is done the work will be a failure. When finished the bearing parts should be given a good coating of white lead and oil, and the piece be driven tightly into its place. If all the directions are carefully carried out, the new piece will outwear any other part of the pump. Of course it is better to get the casting at a foundry, but if there is no foundry handy the whole job can be done at the mine by any person having some knowledge of machinery. In this case it is better to make the casting first. The metal can be melted in an ordinary graphite crucible in the blacksmith's fire. With the exception of the casting, the work requires only such tools as are to be found at every well managed mine. All the tools necessary are a ratchet, chisels, hammer, drill and a few files. I have been called on to repair pumps in this manner several times and have never failed, and all pumps so repaired are at work, and, as far as can be seen, they are as good as new. One of them, a Cameron pump, has been running about two years, and to all appearances is good for many more. Another, a Blake pump, had been "doctored" in every conceivable way, but without success. After repairing it, as above described, it has run for several months and is giving excellent satisfaction. The bore of the cylinders of the pumps repaired, was, as nearly as I can remember, from 8 to 12 inches.—*Colliery Engineer.*

Rope Driving.—One of the most eminent engineers Mr. Nasmyth, favors the driving of machinery with cotton ropes in place of leather bands. As a result of many years' experience and close observation, he states that for heavy main drives it is both more economical and effective to use a series of ropes working in separate grooves, and in regard to the objection made to this system—that of the ropes extending unevenly and becoming variable in size, causing a portion of them to be more deeply in the grooves than others—he states that ropes are now made with such nicety and are fitted into grooves with such exactness, that little trouble from this source is experienced. In giving his reasons for thus favoring cotton as the material of which the ropes should be made, Mr. Nasmyth argues that strength alone should not be considered, but flexibility and elasticity, which properties pertain to ropes of cotton more than to those of any other material yet employed.

CANADIAN MINING INSTITUTE.

A MEETING of Delegates from the various Canadian Mining Organizations will be held in the CHATEAU FRONTENAC, QUEBEC, on Friday evening, 25th June at eight o'clock, for the purpose of making arrangements for carrying on the work of the Institute during the ensuing year.

JOHN BLUE,

President General Mining Association of Quebec.

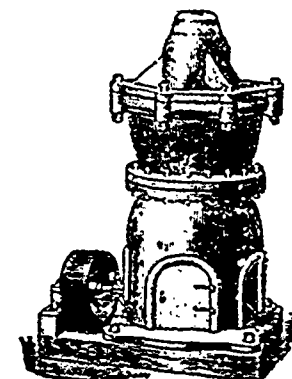
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