

CANADA'S NICKLE MINES.

An Inexhaustible Supply of the Ore—How It Is Treated.

Within a few weeks past two meetings of international importance have been held in Canada, and both were followed by excursions of still greater interest, says a Toronto correspondent of the N. Y. Tribune. The first excursion was made from Toronto to Sudbury after the close of the meeting of the American Association of the Advancement of Science early in September. The second excursion was in charge of the dominion and two of the provincial governments of Canada, those of Ontario and Quebec, and given to the American Institution of Mining Engineers, at the conclusion of their meeting at Ottawa early in October. The interest felt in the latter meeting is evident from the fact that each of the three governments named paid \$1,000 toward the expenses of the meeting and the excursion. The appropriation of the province of Ontario for the Toronto meeting of the science association was still more liberal, though not intended so much to defray the cost of excursions to examine the mineral resources of the country. It was thought, however, that the mining engineers would more thoroughly appreciate the mines of the dominion, and that it would be most desirable to give them a correct idea of the wonderful resources of Canada, about which so little is yet known in the United States.

The Sudbury mines, which some of the mining engineers visited after their Ottawa meeting, comprise the most extensive deposits of nickel in the world. These mines were first worked for copper, in which they are very rich. As late as the spring of 1857 copper was the one metal sought for, and the mines were regarded as marvels of richness in this respect, while nothing was said or known about nickel. The discovery of nickel in the matte was accidental. While some of it was being reduced to get out the copper, the characteristic color of nickel was noticed. This led to a chemical analysis, and the color indication was confirmed. Furnaces were then erected at Sudbury, and the burning and smelting of the ore was undertaken on a large scale, under the direction of Dr. Peters. The capacity of the mines and of the two furnaces now exceeds by far the entire world's consumption of nickel in 1888, which was less than 1,000 tons. The discovery of these inexhaustible mines of New Caledonia and of the United States are either failing or unable to supply nickel cheaply. The expense of working at Sudbury is wonderfully small. The ore occurs in masses elevated above the level of the surrounding region, so that the process of getting it is rather one of quarrying than of mining. A few drill holes filled with dynamite will throw down immense quantities at a single blast. In September a blast was fired which it was estimated threw down 500 tons. Dr. Peters, a month later at Ottawa, said that the amount proved to be 530 tons.

The method of treating the ore is extremely ingenious and economical, many of the features being original with Dr. Peters, who described the process fully before the mining engineers at Ottawa, and received the highest commendation from them. The ore is first burned, being piled in great heaps in the burning yard, upon a superstructure of wood, which is ignited, and sets fire to the ore. The ore continues burning for months, the contained sulphur supplying the fuel. It is necessary to regulate this process so that a proper medium of temperature is preserved. Too little heat would not reduce the ore sufficiently; too much would melt it down into a sort of glass. To insure the proper temperature the ore is piled in alternate layers of large pieces and of ore dust. The entire cost of the fuel used is only that of wood enough to start the fire—about 2 cents per ton of ore. The burning heaps are arranged side by side, and after combustion has gone on for some weeks the interstices are filled up with fresh ore, which ignites, and the entire mass undergoes a uniform combustion.

The burned ore is then smelted in furnaces with a powerful blast. An ingenious device of Dr. Peters' invention keeps the melted slag and metal drawn off into movable tanks, thus rendering impossible the formation of salamanders in the furnace, which are the base of blast furnaces generally. The resulting matte contains 15 or 18 per cent of copper, besides a very small amount of platinum. It is sent to Swansea and Philadelphia to be refined.

New York Potter's Field.

The potter's field of New York city is located at present on Hart's island, and since 1869 more than 60,000 bodies have been buried there. There are no single interments; the bodies are placed in trenches, dug in regular rows, 45 feet long, 14 feet wide, and 10 feet deep. Each of these pits will hold 150 bodies, which are laid three deep, in six rows of twenty-five each. In 1887 4,158 bodies were buried on Hart's island; the interments averaged about thirty per day. In the public or poor quarter of Calvary cemetery a trench is dug 7 feet wide, 10 or 12 feet deep, and of indefinite length, in which the coffins are stowed tier upon tier, making a flight of steps five or more deep, and with not enough dirt to hide one from the next.

Feeding Chickens By Clockwork.

Fred Leach of Ansonia has some fine poultry, and he believes in feeding them as regularly as he eats his own meals. He is unable to be at home at eight before the chickens go to roost, and in order that they may be fed without fail he has rigged up an apparatus which works like a charm. The usual quantity of corn is placed in a tin can, which is suspended from a string and weight. An alarm clock in the outer coop releases the spring at a certain hour, the can turns bottom-side up, and the corn is scattered. There are four coops and each has its can, all working at the same time.—*New Haven Palladium.*

"WORK DONE" BY MOUNTAINEERS.

Calculation of the Force Expended by a Man Who Climbs a Hill.

The physical energy or force sometimes exerted by the human body under certain conditions is known to be astounding, but no one has ever taken the trouble to put before us that force in figures. Dr. J. Buchheister has now made a most interesting calculation on the "work done" by mountaineers in ascending heights, which will serve as an illustration. Supposing a mountaineer weighing 165 pounds is making the ascent of a summit 8,000 feet high from the point of starting, he has to expend an amount of physical force found by multiplying his weight by the height to be ascended. In the case assumed a weight of 165 pounds plus a height of 7,000 feet equals 1,155,000 foot-pounds; or, in other words, 1,176,000 pounds have to be lifted 1 foot.

This is work performed merely by the muscles of the legs; but, besides this, the contractions of the muscle of the heart have to be taken into account. Its function consists, as is well known, in propelling the blood collecting in the heart, on the one hand, into the arteries, and, on the other, into the lungs. This is effected at an initial velocity of 11-2 feet per second, which represents in the case of an adult a work of 4 foot-pounds for each contraction of the heart. The pulsations of an adult are on the average 72 per minute, but in ascending heights, owing to the additional exertion, their number is increased to an extraordinary extent.

Assuming, for the sake of simplicity in calculation, only 100 beats of the pulse per minute, this would give 400 foot-pounds per minute, 24,000 foot-pounds per hour, and 120,000 foot-pounds for the five hours supposed to be required in ascending a height of 7,000 feet. The work performed by the muscles in breathing, by the expansion and contraction of the chest, may also be estimated at 4 foot-pounds. Assuming, further, that the number of breathings per minute is on the average only twenty-five, although, as a matter of fact, it will be found to be higher in a mountain ascent lasting five hours, we have to add further work of 30,000 foot-pounds.

The total work performed during five hours by a mountaineer consequently amounts to 1,326,000 foot-pounds. In this estimate are not included the physical force spent in overcoming the friction on the ground, the exertions to be made in keeping the body erect at dizzy heights and in dragging heavy boots and foot-irons, nor the loss of muscle power in cutting steps in the ice, not to reckon the work performed in carrying an ice axe, or the physical force exerted in crossing fresh, loose snow. Taking all these conditions into account, Dr. Buchheister arrives at the conclusion that the work done in an ascent of 7,000 feet, lasting five hours, cannot be placed at less than 1,330,000 foot-pounds.—*Iron.*

A Strange Story.

J. B. Toomer recently told the Athens (Ga.) Banner the following story that is as singular as it is interesting:

About five miles from Aiken, S. C., on the Charleston dirt road, and in sight of the railway, is a little place that was first christened "Pole Cat," but afterwards changed to Montmorenci, the French for that odorous little animal. Many years ago a young woman came with her pitcher to draw a bucket of water from a well at Montmorenci, and set the vessel on a stone post that some of the railroad men had moved there. While drawing the water a flash of lightning came that struck the chain to which the well-bucket was attached and the woman was killed in her tracks. Her remains were removed, but the pitcher was left just where the dead girl had set it. To this day the pitcher remains in the same place, and so far from being removed it is said that no living hand has ever touched it save its owner's, although near the side of the public road. But the most wonderful thing is the superstition to the pitcher. There is an indescribable influence surrounding it that prevents its touch. Hundreds of people have gone with the firm determination of lifting the pitcher, but when they approach it a strange repugnance comes over them, and they hurriedly depart without carrying out the object of their visit. One night a bully in the neighborhood, while under the influence of whisky, made a bet with some friends that he would go and bring back the pitcher. He left to do so, but soon returned as pale as a sheet and empty-handed. "Boys," he remarked, "no person alive can lay hands on that pitcher, and I wouldn't attempt it again for the whole of Aiken county." He refused to tell his experience, and said that he would not talk about the matter. Other parties have gone to see it, but meet with the same repulsive feelings. As soon as they would step off a few feet the sensation would leave them. Parties have frequently amused themselves throwing stones at the pitcher, and when almost in its reach the missiles seemed to glide around it.

Mr. Toomer tells us that the other day when he passed this spot with his wife he got out and tried his marksmanship with brickbats, and, while a pretty accurate thrower, he met with no success—that he had as well try to knock down a sunbeam with a rock. Mr. Toomer further stated that he had been passing this pitcher for years, and always found it in the same place on the post. Before reaching it he would firmly make up his mind to remove the vessel, but when he approached it he experienced the same repugnance to touching it as an uncanny object. The old well from which the dead girl was drawing water has long been filled up, and no signs of it remain. Mr. Toomer is an entirely reliable gentleman.

Sorrows of the Photographer.

Baldheaded (and very homely) old gentleman to photographer—Drat such pictures! Can't you make me look any better than that after five sittings? Photographer (thoroughly exasperated)—I think I can, sir, if you allow me to take the back of your head. It hasn't so much expression as the other side, but it's a blamed sight prettier.—*Burlington Free Press.*

Railroad Human Nature.

Now and then one finds a person who understands railroad human nature, as exhibited by the gatekeepers in the depots. There orders are to pass no one in without a ticket, and it is the easiest thing in the world for them to wave back old age, youth, beauty, and anybody else who wants to pass in to meet a friend expected on that train. One of the strictest officials I ever saw has a gate in the L. & N. depot in Cincinnati, and I have seen him turn stiffly away from desperate men, weeping women, and howling children. To every protestation he had but one answer:

"Can't pass 'till a ticket."

The other day while I was watching him a little blue-eyed woman came gliding into the throng waiting at the gates. Of the two tenders she selected this one to operate on, although anyone could have seen that the other had the biggest heart. After several people had been turned away she sidled forward in a graceful way and inquired:

"Beg pardon, sir, but am I speaking to the President of the road?"

"No, ma'am," he stammered, thrown on his heels by the query.

"Ah! you look so much like him. Are you the superintendent?"

"No, ma'am—not exactly."

"Then you must be the manager?"

"Hardly, ma'am."

"Dear me! but how could the people be so mistaken?" she went on. "Half a dozen of them said you were one of the high officials, and I am so disappointed to find you are not. Perhaps, though, you have the general manager's powers when he is not here."

"What is it, ma'am?"

"My sister will be in on the 6:30, and I so want to go inside the gates and help her with the children. As you must have the authority of the manager in his absence, I make bold to—"

"Certainly, ma'am; walk right in," he interrupted.

"You are so kind."

"Don't mention it."

"But all leading railroad men are ever courteous," she said as a parting bit of tarty, and then she made a beeline down the depot.

"We turned to look at the gatekeeper, and the change was surprising. He had braced up until his height was increased by four inches, his chest was thrown out, and he was standing as stiff as a crowbar while a man pounded him on the back and offered to lick the stuffing out of him if he would come off the pedestal. The little woman of all had found his weak spot.—N. Y. Sun.

To Make Children Lovely.

There is just one way, and that is to surround them by day and night with an atmosphere of love. Restraint and reproval may be mingled with the love, but love must be a constant element. "I found my little girl was growing unamiable and plain," said a mother to us the other day, "and, reflecting on it sadly, I could only accuse myself of the cause thereof. So I changed my management and improved my opportunity to praise and encourage her, to assure her of my unbounded affection for her, and earnest desire that she should grow up to lovely and harmonious womanhood. As a rose opens to sunshine, so the child heart opened in the warmth of the constant affection and caresses showered upon her; her peevishness passed away, her face grew beautiful, and now one look from me brings her to my side, obedient to my will, and happy when she is nearest to me."—*Women's News.*

The Eleventh Commandment.

George Francis Train says he has been long enough in Boston to learn that the eleventh commandment in that city is "Thou shalt not get caught."

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WILLAMETTE VALLEY	Tuesday	July	1
FARALLON	Sunday	do	6
WILLAMETTE VALLEY	Thursday	do	10
FARALLON	Tuesday	do	15

From San Francisco.

STEAMSHIP	DAY	MONTH	DATE
FARALLON	Friday	June	24
WILLAMETTE VALLEY	Tuesday	do	27
FARALLON	Monday	July	1
WILLAMETTE VALLEY	Sunday	do	6
FARALLON	Thursday	do	10
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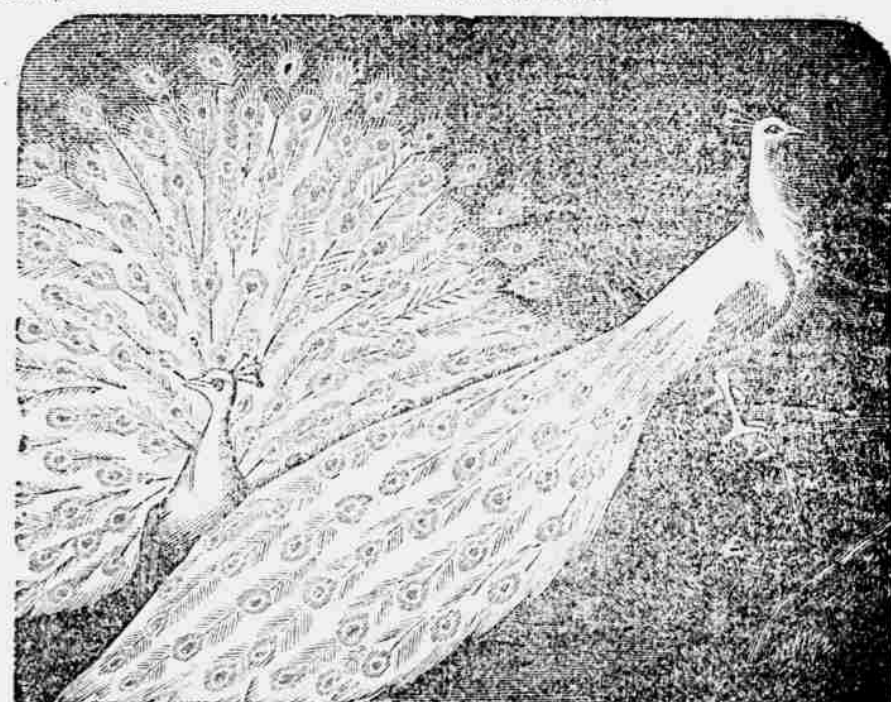
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