

charge of the mine there was no remark about the "rockers operations" which are referred to in May. We should like to know what Messrs. Woodhouse, Boyd and McQuarrie have to say about these very serious charges?

Again, under the heading of "Legal," we clip the following from the *Review*:—

"A. A. HAYWARD AND THE LAKE VIEW MINING CO. vs. THE WEST WAVERLEY GOLD CO., LTD.
Motion for an Injunction.

Before Mr. Justice Meagher in Chambers, on Tuesday, the 23rd day of April, at Halifax, the plaintiff moved for an injunction to restrain defendant company from discharging the tailings from their stamp mill into Muddy Pond at Waverley.

It was claimed by plaintiff Hayward, one time manager of the Lake View Mining Co., that the tailings discharged into the pond backed up the water so that it flooded back into plaintiff company's mine. Defendant company produced affidavits showing that the level of the water had not been raised at all, and that the shafts of the plaintiff company were from eight to ten feet above the level of the pond.

The injunction was denied, Mr. Justice Meagher saying: "The motion for a restraining order is refused. The facts relied on by plaintiffs to show danger of their mine being flooded or effected by water being forced into it by the defendants' operations, have been most completely met by the proof produced by the defendants."

An order to serve notice in the matter of the injunction was obtained by plaintiff Hayward during the absence in the United States of the manager of the defendant company, and it was hoped to rush the matter through before he could return. The scheme failed.

An action of trespass and damages has been entered in the Supreme Court of Nova Scotia."

Even here there had to be misrepresentation, as we are informed that no attempt was made to take advantage of the absence of manager Hardman of the defendant company.

These are specimen bricks of the reliability of the Nova Scotia mining news furnished the *Review*, and go a long way to prove that the Nova Scotia correspondent of that journal is using its columns as a vent for his personal malice.

Rumor has it that a certain well-known mining man here has a financial pull over the *Review*, and that its editor has to publish anything that is sent in from that source.

If this is true we can understand the situation and pity the editor; if untrue and the editor is a free agent he should lose no time in making a change in his Nova Scotia correspondent.

WHITEBURN.—We have stated in previous issues that these mines were in a healthy condition. A short visit to the camp this week reminded us of former days, but with less excitement, consequent upon the discovery of gold existing in our midst. The old McGuire mine, now the Crocker mine, seems to be as promising as ever. Rich leads have been discovered which are producing the precious metal in paying quantities, and the whole mine and plant seems to be full of life and vigor. We hope the new Co., under the efficient management of Mr. K. F. Crocker, who is a practical and expert gold miner of much experience, will be rewarded each month with large returns, for they deserve much praise for putting things in the condition they now are in that district.

The adjoining mine, also belonging to American gentlemen, is again coming the front as a gold producer. Within a few weeks new leads have been discovered, one of which has been "tapped" over four hundred feet in length, showing coarse gold throughout. It is pleasing indeed to see these rich nuggets coming to light, after lying there for centuries in those apparently barren formations. This property is managed by Mr. G. J. Partridge, an efficient mining engineer, with much experience in mines elsewhere, and we have his word for it that the mine will be worked for all that it is worth in a short time.

To the tributors and miners who have resided in this camp for a number of years, some mention should be made. They have not been idle or despondent, but frequently were seen with pick and shovel prospecting the barrens. They are valuable requisites in a mining camp, and will tell you of the whereabouts of leads on your property—and rich ones too—for a consideration. An indefatigable prospector is Mr. Mike Kelley, (and Esquire added on would do him no harm.) for he it was who discovered the rich lead now being opened up on the Whiteburn Co.'s mine. Mike says he knows the whereabouts of other good leads at Whiteburn, which will gladden mine-owners and set things fairly humming. "if they don't squeeze him too tight."

We are waiting to hear of rich strikes being discovered on the West mine, with its fine plant lying idle only for the want of efficient prospecting.

Other properties at Whiteburn, deserving energetic prospecting, will cause a commotion shortly, we hope.—*Gold Hunter.*

LABORATORY EXPERIMENTS ON GOLD ORES, BY F. H. MASON, F. C. S., M. S. A., LATE CHEMIST AND ASSAYER TO THE NEWBURY VAUTIN (PATENTS) GOLD EXTRACTION CO., LIMITED.

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(Continued.)

Extraction of Gold with Potassium Cyanide.—In making experiments with potassium cyanide it must be borne in mind that it is a very poisonous

reagent, and great care must be taken to avoid inhaling any of the fumes or allowing it to come in contact with any cuts or scratches on the hands; in the event of giddiness being felt from inhaling the fumes energetic stimulation is the best antidote. Two kinds of experiments may be tried with this reagent. First, by allowing the cyanide solution to percolate through the ore; and secondly, by agitating the ore and cyanide solution together in a closed vessel. The ore requires no preliminary treatment except when concentration has been found by experiment to be advantageous.

Treatment with Potassium Cyanide by Percolation.—Take one pound of ore crushed through a "40 sieve" and place in the cylinder of the apparatus described in the chapter on filtration, weigh out one pound of water, and weigh out sufficient potassium cyanide to make it up to a one per cent solution, the amount will of course vary with the amount of actual KCN in the reagent. (See estimation of KCN in commercial potassium cyanide.) For these experiments it will be found convenient to make up a 10 per cent solution of KCN and keep it in a well-stopped bottle made of dark glass. Pour the cyanide solution on the ore, keeping a head of from half to one inch on the surface. When it has all run through, pour any liquid there may be in the vessel under the cylinder into the beaker, then run it through the ore once or twice more, taking care never to allow the ore to become quite dry on the surface. The rate of filtration may conveniently be taken while this experiment is going on in the manner already described. The ore must now be washed free from the auriferous solution by pouring water on the surface about an inch at the time, the wash water being tested from time to time by a little silver nitrate; when this reagent fails to give a precipitate the washing is completed. The amount of wash water used must be roughly noted, as it may form an important factor in the cost of treatment. The ore must now be turned out of the cylinder, well dried and mixed together, and a sample of it assayed; the difference in the assay from the original assay gives the amount of gold extracted by the cyanide.

If gold is still left in the ore, the cause of the failure of the experiment must be looked for by testing the cyanide solution with a small piece of gold leaf to see if it is still active, if after eight hours the solution has failed to dissolve the gold leaf it shows it is no longer active, and that failure is due to insufficient potassium cyanide having been used, and the experiment must be repeated with a larger percentage of potassium cyanide, provided always the ore is sufficiently rich for it to pay to do so.

If on the other hand the cyanide solution dissolves the piece of gold leaf, then the failure must be looked for in the cyanide solution not being sufficiently long in contact with the ore, or by the ore not being sufficiently finely crushed, in which case the experiment must be repeated with ore crushed through a "60" "80" or "100" mesh sieve, and another experiment with the solution passed through the ore five or six times.

It is advisable to keep the beaker containing the cyanide solution and the cylinder of ore covered with clock glasses during the experiments, excess of air tending to decompose the solution and reprecipitate the dissolved gold in the ore.

If in the experiments with the finely crushed ore the rate of filtration is slow, one of the methods of hastening already described must be tried.

The experimenter must of course be guided in future experiments by the amount of success attained in the first one. If the experiment has been successful and little or no gold is left in the tailings, experiments must be tried with smaller percentages of potassium cyanide. The object being to find the least possible amount necessary to extract the gold.

Treatment with Potassium Cyanide by Agitation.—For the experiment take one pound of ore from the sample and place in a bottle, weigh out also a pound of water and dissolve in it sufficient potassium cyanide to make it up to a one per cent solution of KCN. The ore and solution together should not fill more than two-thirds of the bottle, because the oxygen of the air plays an important part in the reaction: well cork the bottle and keep it agitated for eight hours, if any machinery is working, a good method of agitation is to tie the bottle on to a pulley which is revolving between ten and fourteen times a minute, if not it must be shaken continually by hand; at the end of the prescribed time the bottle is opened, and the whole of the contents emptied into a cylinder with a filter cloth at the bottom, the same apparatus as used in the previous experiment will answer every purpose. The solution, which if the experiment has been successful, contains the gold, runs through and is caught in a beaker with a clock glass over it to prevent more air entering than is absolutely unavoidable; when the solution has run through, wash water is poured on little by little until the washings are free from potassium cyanide, care being taken never to allow the ore to become quite dry on the surface. When thoroughly washed the ore is turned out, dried and assayed, if gold is still left in it, the causes of failure must be looked for in exactly the same way as described under experiments by percolation.

If the ore has to be crushed finely, and consequently filters badly, artificial means must be used to hasten it or the solution will decompose and the gold be reprecipitated before it can be washed away from the ore.

If the experiment has been successful it should be repeated with weaker solution of cyanide until the minimum amount necessary to extract the gold is found. It will be at once evident that, when both methods of treatment answer equally well, the percolation method will be much the cheaper of the two, because it requires no power, but as a rule the agitation will be the more successful. One of the greatest disadvantages of the cyanide process is, that the auriferous solution decomposes on exposure to the air and the gold is reprecipitated in the ore before the solution can be filtered away. This is more especially the case when there is much carbonic anhydride present in the atmosphere.

The author, at the suggestion of Mr. D. A. Louis, made several experi-