Port Arthur, Ont.; (17) The Year's Progress of Mining in Ontario, by T. W. Gibson, Director of Mines, Toronto; (18) On Magnetic Separation, by F. G. Snyder, Chicago Ill.; (19) On a Water Supply for Hawaiian Sugar Plantations, by I. N. S. Williams, Puunene, H.I.; (20) Subject not yet announced, by Frederic Keffer, M.E., Anaconda, B.C.; (21) The Early History of Mining in the Sudbury District, by J. W. Evans, C.E., Deseronto, Ont.; (22) Subject not announced, by A. C. Garde, M.E., Sandon, B.C.; (23) On the Carboniferous of New Brunswick, by Dr. H. M. Ami, Ottawa; (24) Subject not yet announced, by E. B. Kirby, E.M., Rossland, B.C.

The above programme will be kept open for additional papers until 15th February next.

HYDRAULIC MINING IN CASSIAR.

M INING operations in the Cassiar district during 1903 were confined entirely to the work done by the Thibert Creek Company, working hydarulic ground on Thibert Creek, a brief report of whose operations follows —

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Number of days (of 24 hours) worked	- 98
Water used per day, miners' inches	475
Total water used for season	46,550
Total gravel moved, cu. yds	162,925
Amount of gold recovered	\$21,000
Total cost of operating for season, including	
Government fees and licenses, pipe-laying,	
tools, etc	\$17,400
Profit for season	\$ 2,600

From for season	3,000
Cost of recovering gold per \$1.00	83c
Value of gravel per cubic yard	13c.
Cubic vards of gravel washed per miners' inch	3.5

The shortness of the season's run was due to the pipe line not being completed, which delayed the commencement of washing until the 13th of June. Also to the fact that the manager did not wish to incur expense by doing late work from which profits would not be derived until next season. Operations were therefore discontinued earlier than was utcessary.

With pipe lines and plant in readiness for a start, operations could be commenced about the 30th of May and continued until near the end of October; though, in ordinary seasons, the last clean-up should take place not later than the 1st of that month, on account of cold weather setting in and preventing the picking and cleaning of bedrock and cuts. The washing of gravel, however, may be continued until about the 20th of October.

Last season's water supply was the smallest ever known in the district and when it was most abundant the company's pipe line and monitors were not in order to be worked.

A great deal of water is wasted which could be secured and made available by building dams and diverting some of the smaller creeks into Berry Creek. By using means to secure this water the company would have much more than they could use. The present supply is not adequate for washing banks 150

feet in height; 1,000 inches or more should be available.

There are three propositions for securing for the mine an increased supply of water at a reasonable cost and with a larger supply the cost of washing would, of course, be much less per cubic yard. The wages of high-priced men are as great a tax on a small production as on a large output. The rate of wages paid for pipe men was: Pipe men \$6.00; machinists, \$6.00; carpenters, \$5.00 and sluice men \$4.50 per day, would be no more if using a larger supply of water, while the quantity of gravel washed and gold recovered would, of course, be much greater. It may be mentioned that nothing has so far been done to improve the water supply in Berry Creek. A heavier flow of water would also force larger stones through the sluices and save cost of moving on cars.

The preliminary prospecting of the mine was not sufficient to establish the lowest portion of the bedrock in the old channel, so that two of the sluices were started too high up to allow of a good grade in the rock cuts. This to some extent increased the cost of working for the season. Next year (1904) the lowest portion of the channel now being established, sluices will be started low enough to give sufficient grade. The cost of removing boulders last season was one half of the working expenditure. This expense will be proportionately reduced when conditions are improved in future seasons. Fully one-third of the stones now handled by cars might be moved by a larger supply of water.

Bringing in and taking out the men cost \$800. This item remains fixed whether the season be long or short. The cost of laying pipe and setting machines also is as great for small as for large installations and increases the cost of working a yard of gravel proportionately.

The cost of working per \$I gold produced in the past season was, as above shown, 83 cents, divided as follows : Manager's and foremen's salaries, Government fees and part of travelling expenses, 27 2-3c., high priced labor, 13 5-6c., ordinary labor, 41 I-2c.; total, 83 cents.

With a season of 150 days and a water supply of 1,500 inches, the total cost of producing 1 worth of gold would be 52 1-2 cents. The amount produced calculating upon the results of last season's operations would be \$100,0000, leaving a profit of \$47,500.

From calculations made the carrying capacity of the miners' inch can be put down at 3.5 cubic yards. According to this the company washed during the season 162,925 yards, with a value of 13 cents per yard. With the larger supply of water above indicated 787,-500 cubic yards could be washed in one season of 150 days.

The Thibert Company's property consists of seven claims, each 1,500 feet, following the old channel, or 10,500 feet in all, 500 feet of which has been worked. These claims measure on an average 400 feet in width by 100 feet in height, or 14,000,000 yards of gravel in all.