

Hoisting Crew—

1 foreman at \$6.00	6.00
1 engineer at \$6.00	6.00
1 dumpman at \$5.00	5.00
1 bucketman at \$5.00	5.00
12 shovellers at \$5.00	60.00
Wheeling planks at \$75.00 per M.....	10.00
*21 days' board at \$1.75	36.75

†\$179.75

*In this case the board of 21 men is reckoned at \$1.75 each.

†It will be noted that the wages paid by this operator is above the average, and it necessarily follows that only the best men are employed.

The quantity of material handled per day of 10 hours was 590 sq. ft. of bedrock, the dirt hoisted being approximately three feet deep.

Cost of handling 590 sq. ft. of bedrock.....	\$179.75
Cost per sq. ft. of bedrock.....	.30

The following table, which was furnished by a skilful operator, shows the working cost of a self-dumping plant, namely:—

Working Cost of Self-Dumper.

Thawing Crew—

*2 pumpmen at \$7.00 per day.....	\$14.00
*1 helper at \$6.00 per day	6.00
*1 fireman at \$6.50 per day.....	6.50

Hoisting Crew—

*1 foreman at \$8.00 per day.....	8.00
*1 engineer at \$7.50 per day	7.50
*1 dumpman at \$6.50 per day	6.50
*1 bucketman at \$6.50 per day	6.50
*16 shovellers at \$6.50 per day.....	104.00
3 cords of wood at \$8.00	24.00
Box candles	3.50
Coal, 25c; oil, 25c.....	.50
Picks (life one month), 16 at \$2.50; shovels (life one month), 16 at \$18.00 per doz. (per day) ..	2.13
Wheeling planks (life three months), at \$75.00 per M. per day	25

\$189.38

*These figures include an allowance of \$2.00 per day per man for board.

The capacity of the above plant, equipped with two No. 6 pulsometers, would be approximately 600 sq. ft. of bedrock, the dirt hoisted being between 3 and 4 feet deep.

600 sq. ft. of bedrock	\$189.38
Cost per sq. ft. of bedrock.....	†.31

†The above table includes the cost of thawing, hoisting and sluicing.

Hoisting by Windlass.—The following information, which was furnished by a miner on Lower Dominion, will give an idea of the cost of hoisting the dirt by hand windlass: (On many claims on the lower portion of Dominion the pay gravel is thawed by fires of kindling wood, and described under paragraph 7 of this part, and the dirt is hoisted by hand windlass.)

Plant.

- 1 5-h.p. boiler.
- 40 ft. ½-inch steam pipe.
- 2 steam points with hose.
- 1 lead hose, 10 ft. (to connect point battery with steam pipe).
- 1 windlass with 40 ft. ¾-inch rope or ¼-inch cable.
- 2 windlass buckets.
- Picks and shovels.

The ground is thawed for five hours in the afternoon and allowed to cool over night. The thawed

dirt is then hoisted in five hours next morning. Two men thaw and take out six feet of dirt in one shift, i.e., ten hours. Approximately one cord of wood is sufficient fuel to thaw a shaft 30 feet deep.

Working Costs.

(Sinking shaft 3 ft. by 5 ft.)

2 men at \$6.50	\$13.00
Wood, for thawing	2.00

\$15.00

Cost of sinking 6 ft.	\$15.00
Cost per ft.	2.50

Tunneling.—From the bottom of the shaft two men will drive a tunnel 6 feet by 4 feet by 3½ feet, in one shift, i.e., thaw the ground and hoist the dirt in ten hours. (It is seldom necessary to timber shafts or tunnels for windlass work.) The cost of tunneling by this method is estimated as follows:—

2 men at \$6.50	\$13.00
Wood for thawing	2.00

\$15.00

Cost of tunnelling 6 ft.....	\$15.00
Cost per ft.	*2.50

*The shaft in this case was 30 ft. in depth. The cost per ft. would necessarily increase according to the distance from the bottom of the shaft.

THE CREIGHTON NICKEL-COPPER DEPOSIT.

According to Mr. Cyril W. Knight, in a letter published in the "Engineering and Mining Journal," the Creighton orebody is an enormous breccia of crushed rocks. Mr. Knight says:

"The oldest rocks in the immediate vicinity of the Creighton are greenstones. Norite was intruded into these greenstones. Then came the granite intrusion, which formed the foot wall of the orebody. The granite forced its way mainly along the norite-greenstone contact. After the granite had solidified, there followed a period of tremendous crushing and brecciation along the norite-granite contact, and great 'crush breccias' and 'crush conglomerates' were formed. The fragments of this brecciated material vary in size from immense blocks 100 feet long to microscopic specks—rocks ground to powder. The shape of the fragments and blocks is infinite in variety, varying from sharply angular to round. Solutions circulated through the 'crush breccia' and 'crush conglomerate,' depositing sulphides that cemented the fragments together and partly or almost wholly replaced them. Some replacement of the granite foot wall also took place, but the norite hanging wall, particularly where it has been slightly sheared and brecciated, was more severely attacked, often forming what has been called 'spotted' norite. In short, the immense stopes of the Creighton mine have demonstrated that the orebody is merely an enormous 'breccia' or 'conglomerate' of crushed rocks, granite, greenstone and norite, cemented together by sulphides. The contact between this orebody and the lean, non-commercial hanging wall of 'spotted' norite is comparatively sharp—a few feet more or less. The 'spotted' norite, on the other hand, becomes gradually less and less impregnated and replaced with sulphides as the distance from the orebody increases. It may be added that every other commercial orebody in the nickel field is mainly of this character; that is, a mass of crushed rock fragments cemented together by sulphides."