

"It was found advisable from the beginning, because of the great weight of the wall plates, to mould them in two sections, one section spanning the ladder way and one skipway, and the other section spanning the remaining skip compartment. These two sections were connected when in place by two bolts passing through holes, cored for the purpose, and two straps of iron spanning the splice. Studdles were made for 4 feet 0 inches, 5 feet 0 inches, and 6 feet 0 inches sets to accommodate the ground passed through.

"The weights of the different pieces comprising the set are as follows:

	Pounds.
Long section of wall plate.....	1,035
Short section of wall plate.....	700
End plate	600
Divider	645
Three feet 3 inch studdles	268

Complete set of 16 pieces 8,104

"Taking the weight of No. 1 Western fir, which has been exposed to the weather in stock piles, as 33 pounds per cubic feet, the above concrete set weighs almost three times that of a 12x12 inch timber set, which the concrete set is intended to replace. Because of this additional weight of the concrete set, it was found necessary to increase the usual five or six men on the timber gang to seven in number. In a vertical shaft, to which the concrete sets are especially adapted, the number of men per gang might again be reduced. The sets are hung or built as the ordinary timber sets, only requiring an additional rope and block to swing the pieces in place. After the sets are wedged to line, bottoms are put in between the plates and the surrounding shaft wall, and the set is then tied to the shaft wall by means of concrete, in the proportion of 1:3:5. The concrete slabs are then put in place, and loose rock thrown behind them, filling up what space still remains between the set and the wall of the shaft.

"After the set is in place, it is extremely important that it is well protected from the blast, for, unlike the timber set, concrete will not stand the blast. For the purpose, the writer used flat timber and steel plates chained to the under side of the plates and dividings, and even this precaution was at times inadequate. Where the ground was breaking easily, the sets have been as near as 12 feet to the miners, and again when the ground was especially refractory, sets 40 feet from the blast have been cut out. It is obvious that it is well to keep as far behind the mining as the ground will permit. In dangerous ground, which required timbering close up to the sinking, timber sets were used, but, had not time played an important part in the sinking, no ground was met in which concrete sets could not have been installed. With a gang of seven men, one complete set can be installed in a nine hour shift. This permits a sinking rate of better than one hundred feet

per month, which was accomplished at the Nos. 3 and 4 shafts.

"The comparative cost of the concrete set and timber set, delivered at the shaft collar, is striking. The concrete set was delivered for \$22.50, the timber set for \$37.60. These figures are based on:

"Western fir at \$28.00 per M., f.o.b. car.

"Crushed rock at 35c per yard, f.o.b. shaft

"Conglomerate sand at 60 per yard, f.o.b. shaft.

"No. 1 Portland cement at \$1.15 per bbl., f.o.b. works.

"Reinforcement at \$12.00 per set, f.o.b. factory.

"The Ahmeek Mining Company, I believe, was the first to adopt the concrete stringers, and the Mohawk Mining Company soon followed with their use. At the Ahmeek, these stringers have been in continuous use since the beginning of operations, and have required no repairs. Superintendent Smith of the Mohawk has informed me that soon after the stringers were installed, skip repairs increased about 100 per cent. The stringer being entirely rigid and the skip also of rigid construction, the axles of skips were found to be crystallized and the rivets working loose. This feature was overcome by moulding inch pine strips, after preserving them in Delaney's wood preservative to prevent decay, into the stringers at intervals of three feet, allowing them to project one-half inch above the face of the stringer, and resting the rail thereon. The pine strips have been in place four years, and none have been replaced to date, and skip repairs have been reduced to normal. Possibly because of a differently constructed skip, Ahmeek repairs were not abnormally high, but the same racking of the skip body occurred and the Ahmeek Company has adopted the Mohawk feature and expects to profit accordingly.

"Concrete plats, or stations, have been in use at both the Ahmeek and the Mohawk for some time. They differ from the timber plat in outward design only in the cross-section of the members, which are 9x12 inches, and are reinforced with old rail and wire rope, and replace the 12x12 inch and 12x14 inch timber formerly used. Holes are bored to accommodate gates for skip and dump doors, and tram rails are imbedded in the concrete, making the use of spikes unnecessary. When turn-tables are used on the back of the plat, the rigidity furnished by the concrete insures the trammers against derailed cars, resulting from a tilted table.

"At the present time our company is installing reinforced concrete dividings to replace the practice of putting in 10 inch flat timber. In cross-section they are 9x12 inches, and are reinforced by old rail. On the ladder road, they are placed six feet from centre to centre and between the skip compartments are put in as often as the hanging requires. Since the casing along the ladder road performs no other office than the protection of the men while on the ladder, or in case of a fall, plank is used for the purpose, and a 3-inch hemlock strip is moulded into the dividings to facilitate the fastening of this casing."

SPECIAL CORRESPONDENCE

PORCUPINE, SWASTIKA AND DANE

The Bush Fires which have caused so much uneasiness and loss of property, have subsided without much damage to the mining industry. The Cobalt camp is, of course, safe, and has been for several years past, owing to the very large area absolutely clear of all

vegetation. In Porcupine there was some trepidation; but, thanks to the wholesale and very efficacious precautions taken after the lamentable fire of two years ago, there was no damage of any account done. At Kirkland Lake the bush is fairly green, and the wind shifted at a favourable moment. To sum up, the only loss was of several plants, isolated and long abandoned.