ing imprisonment. They were given up for lost, as all the entrances and air-holes were buried, and we naturally judged they were buried in the interior of the mine. But, strange to say, though the inside of the mine was shaken and rocked violently, yet the workings are practically intact, and only two lives were lost; those seemingly being due to compression of air or shock. The horses inside are still alive and now being fed inside, as it is not possible to remove them under present conditions.

The report of the escaped men will, no doubt, have a favorable tendency with the owners when deciding the future.

The cause of the whole affair is evidently not due to mine gas; the general opinion is that generation of gas has been caused by water percolating into the limestone strata, of which the outer surface of the mountain is composed. This in time by compression, assumed such power as to dislodge the entire mountain side, and cause the present disaster. The death-dealing rocks are but three or four hundred yards from our door. I have drawn a rough sketch, showing the track taken by the falling rocks. Even at the furthest point away from the mountain, the rocks are piled up so high as to lead many to think that the whole valley was violently upheaved and overturned. We shall only know the cause after the scientific experts have visited



us and made up their reports, as not a single soul that was working outside the mine is alive to give evidence. All is conjecture; and as this event is a new experience, at least for Canada, we shall probably soon have theories enough propounded to satisfy all the various opinions held on the subject.

Writing two or three days later, Mr. Cooper says: Owing to the dangerous condition of the mountain at Frank, another huge slide of rocks is threatening the whole town. Everyone was ordered out on Saturday, and the town is now absolutely deserted, the only living souls near being the police on guard. We had to leave at a minute's notice, and a four-miles' tramp across the mountains to the north of the town enabled us to reach the train waiting to go east. We had to leave, of course, just as we stood, the only things I brought being a brush and comb, and a loaf of bread! I am going to venture back possibly to-morrow, to get some bed-clothing, and whatever I can manage to carry as no trains now go further west than Cowley. I anticipate quite a pleasant little trip, as I shall have to tramp and pack what I can on the pony.

One thing is certain, that however incorrect newspapers may be in detail, no report yet appearing has given any idea of the destructive energy of the rock-fall—only an actual sight can convey a true impression—and one must see the result from all sides before a true idea can be obtained.

A trail is being cut over the mountains, by order of Premier Haultain, who is on the spot; and a temporary track is being laid over the rocks by the C.P.R., but it must be weeks before either can be finished—meanwhile, the only access is by footpath across the mountains.

See page 154 for later report.

HEATING AND VENTILATION OF SHOPS.

At a recent meeting of the New York Railway Club, an interesting discussion took place upon the subject of heating railway shops and other one-story buildings of the same nature. While such buildings are very simple in construction, they are not so simple as might appear in regard to the problem of effectively and efficiently distributing heat and air. On account of the large amount of roof, wall and window surface, the loss of heat is very great, and also, because of this and the relatively great height of the building considered as a single room, there is a tendency towards unequal distribution of the heat, the warm air rising to the roof and the cold air flowing to the floor, where it renders the workmen uncomfortable. It is important, then, not only that a sufficient quantity of heat should be delivered to the building, but also that it should be delivered where it will do the most good.

If an attempt is made to supply the heat directly by means of steam or hot water coils, the best results are not obtained. The vicinity of the coils is apt to be uncomfortably hot from the heat radiated directly therefrom, while places at a distance are disagreeably cold. The heat transmitted to the air of the room by contact and convection from the coils is largely lost, since the hot air rises vertically and imparts its warmth to the roof and skylights. It is also to be objected to this system of heating, that it makes no provision whatever for ventilation, the extended system of steam or water pipes is subject to damage by freezing during the coldest weather and steam pipes have been shown to be frequently the cause of fire where they came in direct contact with wood or other inflammable materials.

Owing to the reasons given above, the direct system of heating for work of this character seems to be falling into disfavor and is being superseded by the fan or hot-blast system. The apparatus required for the latter consists usually of a steam coil for heating the air, an engine or motordriven fan for propelling the air through the heater and to its destination in the shop, and a system of piping or ducts leading it where it is needed. The heater will contain a considerable less length of pipe than would be required for direct heating, due to the higher velocity of the air over the pipe surfaces. The blower is additional equipment, but its use would be justified on the score of ventilation alone, something which is hardly considered at all in the direct system of heating. The exhaust of the engine is usually turned into the heater, thus obviating any loss from that source.

The distribution of the air by means of pipes should be so carried out that the lower part of the room is kept at a comfortable temperature, while at the same time no disagreeable drafts are produced. It has been found that by properly proportioning and directing the delivery flues most satisfactory results can be secured. Illustrating this point some very interesting examples were cited at the meeting mentioned above, by C. H. Gifford, of the B. F. Sturtevant Co., Boston. He said:

"In the first place, if you desire air or almost any other form of gas or substance at any particular place at any particular time, the best way is to provide a suitable conduit to deliver it there, and I would add, if there is any difficulty, which there may be, by air blowing on an individual workman, it is a simple mechanical detail to rectify it and, if you are unable to predetermine where the men or machines are to be located in a building, you can simply have an adjustable discharge opening from the pipe delivering the air, and if, perchance, it blows upon someone there generally is some space near the person to which the air can be directed and therefore cause no inconvenience whatever.

"As an example of what can be accomplished by distribution, I have in mind a machine-shop, that of the New York Shipbuilding Co., which as a machine-shop, is not dissimilar to one designed for railroad work. They have a building which I believe is about 1,100 ft. long, about 250 ft. wide, and 82 ft. high. The proposition was to heat one half of this building and leave the balance of it unheated. It was a problem that came to me, and I must say that I was