giving riches in addition beyond the dreams of avarice, the policy of "Sink, sink, sink" was persevered with.

But now there is a change. The new reefs struck are large and imposing as ever, but they are not profitable. Depth after depth has been explored to the 4500 feet level mentioned above, without any good results. The rest of the story we will leave to be told by the expert afore mentioned (Mr. Donald Grant, M.M.E.), who has permitted us to extract from his sketch of Deep Sinking at the Bendigo Quartz Mines.

Mine Ventilaton.

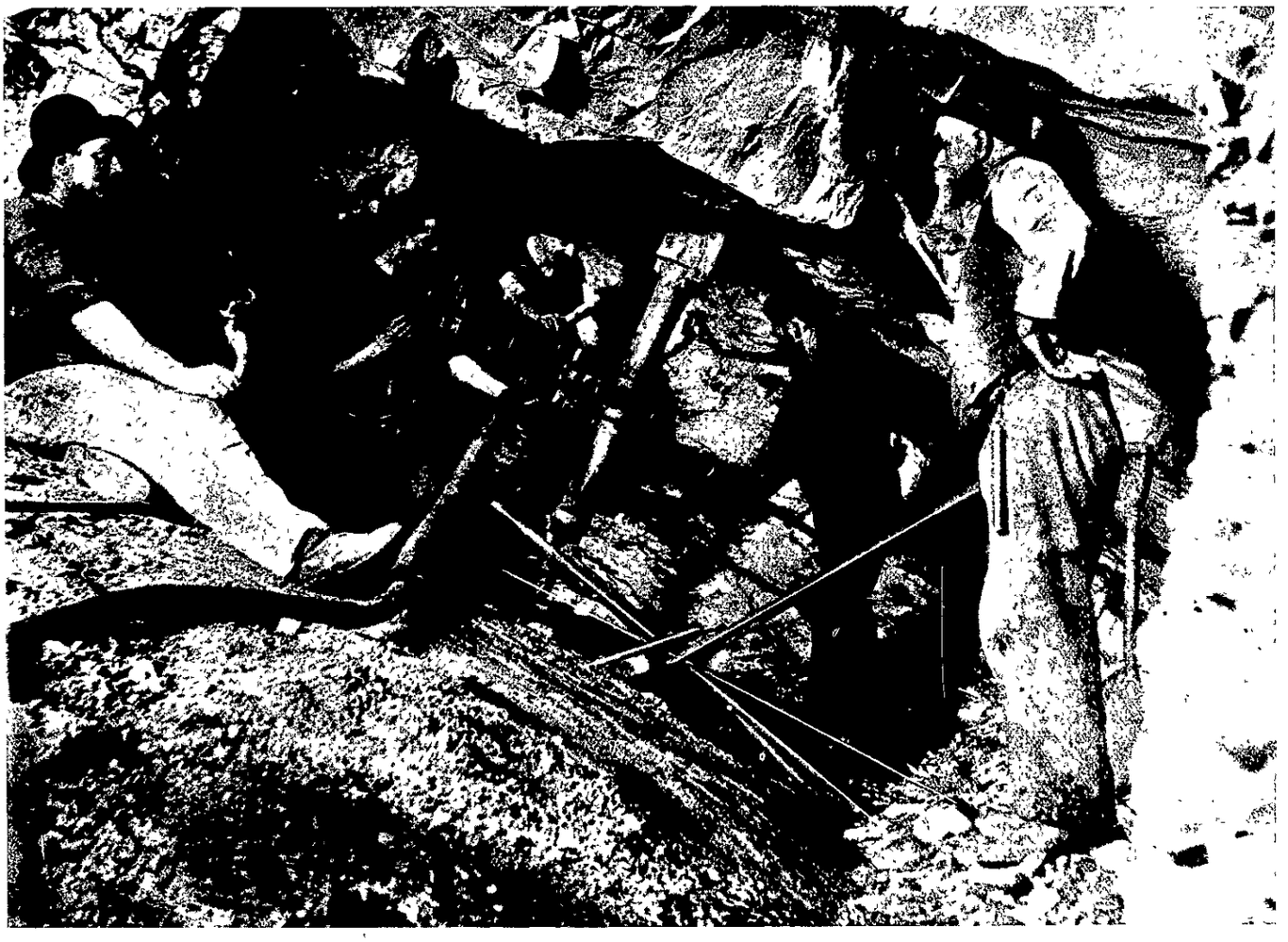
The management of the Victoria Quartz-mine is under the guidance of Mr. Wilfred Rickard, who has been in charge for seventeen years. If the present reef carries gold, Mr. Rickard can pay all expenses, and also do development work, on 5dwt. per ton—truly a great performance from a reef nearly a mile deep. It is owing to his foresight that the mine can be worked now. Years ago Mr. Rickard made it imperative that adequate ventilation should be provided for at every stage, with the result that a fine stream of air is circulated by natural means even at the lowest levels. The shaft is a downcast; the air goes to the bottom, and returns through the centre-country winzes to the 3,384ft. level, and up the 180 Mine.

Rock-Temperature.

The temperature of the water issuing from the rock at the bottom of the winze is 114° Fahr., but it cools rapidly—even in falling 3ft. after issuing from the rock the temperature falls 6° Fahr. The temperature of the rock from a hole bored for 9ft. in the face of a dead end was 112½° Fahr. It might be imagined that it would be impossible to wrok with such surrounding temperature, but the incoming air, if not saturated, soon chills down the hot rock, and leaves a cold skin on the surface, through which the heat from the interior diffuses slowly; further, the issuing water is soon cooled down. The water baled from below is only 86° to 88°, and the temperature of the air at the 425ft. level varies from 72° to 75°, the higher temperature, as a rule, depending on the temperature of the air above. For instance, when it was 75°, the shade temperature on top was 95°, and when 72° the shade temperature was below 60°. Mr. Rickard finds that the air is heated about 1° for every 100ft. of drives or crosscuts it passes through at the lower level; he also finds that he obtains better ventilation with north than with south winds—an opposite result from that obtained in shallow mines. The pressure of the air is equal to 34.75in. of mercury at the bottom, and water boils at 218.4°.

Gold at a depth of 5,000 feet.

It is felt that the future of deep sinking in Bendigo will depend on the results obtained in this mine, or its deep rival, the New Chum Railway. Very few other fields have the same conditions. In many the reefs become poor, or pinch out altogether. Here it has been proved, contrary to the opinions once expressed, that quartz bodies, just as large, exist a mile below as at the surface. It has been proved that they have been just as good at 3,000ft. as at shallow levels. It has been proved that low-grade stone would pay even at great depths; but, unless some better encouragement is obtained in opening up the reefs now disclosed at the lowest levels in both these mines, it is certain that the shareholders, who have done so much, must reluctantly abandon them. If once abandoned, then there is only the remotest chance of work being again started, for it will mean shutting down mine after mine right along the line. No better opportunity for the Government exists than to aid the industry by continuing the work so long carried on without result by the shareholders of this company. The mine is well equipped, and with a few minor alterations the present plant could sink another 1,000ft.. The cost of sinking and timbering complete at the lower levels amounts to £5 16s. per foot; the water is comparatively light; and the centre country is camparatively close to the shaft. The conditions as to ventilation are such that another 1,000ft. will not make matters worse than at present. It may be said that, owing to the pitch of the country, other mines at a lesser level are in the same formation as the Victoria Quartz; but this aspect of the question, although interesting geologically, must not be measured against the commercial nature of the undertaking. If gold is got at a depth of over 5,000ft., such as was obtained at 3,000ft., then it means a new life for many mines which are now on the point of closing down.



THE VICTORIA REEF QUARTZ-MINE, BENDIGO, VICTORIA—THE DEEPEST QUARTZ MINE IN THE WORLD.
Photograph showing Stoping by Rock-drill on the West Leg of the Saddle Reef at a depth of 4,156 ft from the surface On the right is Captain W Abraham Government Mining Inspector, and on the left is Mr. Rickard, Mine Manager *(Mines Record)*

Note above that ventilation is reported secure down to 6000 feet. If gold is plentiful refrigerating machinery will offer great possibilities.—Ed. P.