spends at Dunedin is wasted so far as practical experience for certificates as mine-manager is concerned (1).

(3) The examination is conducted on paper, and covers a large quantity of ground. It thus favors the bookworm in comparison with the budding mining engineer or metallurgist with a real bent for the work.

Abandoned Properties.

Some thousands of metalliferous lodes are known to exist in New Zealand. Many of these are hopelessly poor, and their development has never proceeded very far. Some happened to be discovered at a time when a "boom" was in process of being succeeded by a "slump," and so never received the attention to which their true value entitled them. Others worked with success till a change in the nature of the ore-though not its value-caused a shut-down. Others, again, were run with varying fortune by companies whose finance consisted essentially of a dividend on Mondays and a call on Fridays. With these the slightest contretemps involved a stoppage. Sometimes they would be re-opened on the strength of a levy barely sufficient to pay for retimbering and the erection of a ramshackle caricature of a modern treatment plant. Unless payable returns were obtained at once the mine closed down a second time with another stain on its reputation. To-day those who know the facts have not themselves the capital to operate the mine in a suitable manner, while those who have to trust to the published history of the reef see little to tempt them to invest.

The prospecting of these properties by diamond drills or otherwise is work which will never be done if not by the Minerals Fund.

Subsidized Mining.

Instead of encouraging the under-capitalisation of mining ventures-already too marked in locally promoted concerns-by the loan of money at 4 per cent., it would be better if the state gave a helping hand to some of the small mining companies which have been struggling bravely for years against ill-fortune. Many of these have always "acted straight" with their men, have invariably obeyed the law, have kept their plant in reasonably good order, and, in fact, have dealt faithfully with all. If the people of New Zealand are satisfied that there is national money to spare for the encouragement of gold-mining, it would be infinitely more just to employ it in the direction indicated. Necessary restrictions would be: (1). That the money thus paid must be expended in stores, wages, etc.; (2) that the Minister must have the right of directing the work of exploration carried out by means of the subsidy; (3) that during the currency of such exploration, and for three months before and after, the shareregister of the company must be closed for transfer.

Old Battery-tailings.

The early batteries trusted mainly to the amalgamation process in different forms for the extraction of their gold, and what the quicksilver-then or later-did not catch went into the tailings. (That this amount must have been considerable may be deduced from the fact that in modern mills quite 30 per cent. of the total bullion is obtained from chemical processes subsequent to amalgamation (2). In many places these tailings-heaps are being treated with profit, as a simple cyanide plant, complete in every detail, and capable of treating 50 tons per week, can be erected for under ± 200 . The drilling of holes and the blasting of the rock. cost of treatment will be about 7s. 6d. per ton under ordinary conditions.

therefore, that a list of such heaps be published. The time the proportion of deaths from lung-diseases among Cornish during which the erection of a plant must be completed should miners who had not worked rock-drills was about three times be fixed, however, at six months.

Mine-ventilation and Miners' Diseases.

existing regulations relating to mine-ventilation.

(2) That as soon as possible a decision be arrived at as to the best form of apparatus to be adopted for the laying of dust during mining operations, and that legislation be in- mation, £41,000 by subsequent treatment.

troduced to compel, under penalties, its installation in every working-face.

(3) That immediate steps be taken to ascertain whether ankylostomiasis be prevalent among ore and stone miners, and that if any mine be found to be infected its operations be stopped until the mine has been disinfected to the satisfaction of the Minister.

(4) That legislation be introduced providing penalties for any person, whether mine-owner, mine-manager, contractor, tributer, or wages-man, who orders, commits, or knowingly permits the infraction of any of the regulations drawn up for the prevention of miners' diseases.

(5) That the Minister decide upon the nature of the most effective antidotes for cyanide poisoning, and issue regulations compelling their provision in all plants employing the cyanide process.

(6) That legislation which bears the appearance of being directed against individuals be avoided as far as is compatible with proper regulation of the industry.

Mine-ventilation.

One hundred cubic feet-or more if the Inspector considers it necessary-has been fixed as the minimum quantity of air to be supplied to every face for each man working in it. In driving with a machine drill three men are required-viz., one to run the machine, one to stand by the chuck, and one shoveller or trucker working on the rock shot down by the last round of holes. An ordinary 3-inch machine drill exhaust amounts to 85 cubic ft. per minute (3), so that to satisfy the law 215 cubic feet must be brought in by other means. A little—say, 15 cubic feet—may be supplied by leaky joints, and an indeterminate, but certainly small, amount by diffusion and by the slight currents set up by the movements of the miners.

The air-current reaches the level under consideration, and travels along on its way to the upcast. It will only enter the dead end in which the men are working if compelled to do so by bratticing or by mechanical means, preferring instead the road offered to it by the various passes. The fact that a current of air is travelling up a pass anything from 5 ft. to 250 ft. behind them does not benefit the men in the slightest degree. It is claimed by some mine-managers that they ventilate their mines by blowing off compressed air from the pipe-line. If the claim is just, then at each face sufficient air to work two additional machine-drills is expanding without doing any useful work.

The above applies with equal force to the ventilation of rises and winzes, and during the sinking of shafts. Men in the stopes are slightly better off.

Cheap and efficient methods of supplying the requisite quantity of air to the faces will be discussed under "Suggestions" (B).

Miners' Phthisis : Silicosis.

Commissions composed of distinguished savants have been set up in many parts of the world to consider this disease. Many able writers have published monographs on the subject. All have agreed that silicosis is terribly prevalent among quartz-miners. Yet, except in the Transvaal, no legislation-so far as the writer has been able to ascertain -has been introduced, although innumerable suggestions have been made, all with the idea of preventing the supension in the atmosphere of fine dust produced during the

In a report prepared recently under Royal authority by three well-known experts (4), the following words are italic-Unfortunately, the existence of many of these heaps is ised: "The death-rate among machine-men from respiratory known only to a few local residents, who have neither the diseases was about thirty times and the total death-rate ten capital nor the energy for their exploitation. It is suggested, i times as great as that among colliers of the same age, while

⁽¹⁾ An Associate of the Otago School of Mines (Mining e-ventilation and Miners' Diseases. (1) That strict compliance be insisted upon with the discrete the orago school of Mines (Mining Division) can, however, obtain a certificate as mine-manager under the Victorian Government. In England, managers of

⁽²⁾ Compare returns from Inangahua County, where the treatment consists of amalgamation, concentration, and cyaniding, the figures being-for 1905, £126,000 by amalga-