Sulphuretted hydrogen appears to arise when certain ores are being worked, but it is present in appreciable quantities only in the form of a solution in water standing for long periods in winzes and shaft-wells. When these waters are disturbed the gas is given off, and under exceptional circumstances may be in such quantity as to prove dangerous to life. This probably was the cause in the accident at the Energetic Mine in March last, and on inquiry I heard of one other case (also after discharging an accumulation of water in a winze) when a miner was overcome by gas, the circumstances pointing also to HS_2 being the agent at work.† The possibility of accident from this cause is, however, remote, and cannot well be guarded against by elaborating the ventilation system in the mines. A memorandum to mine-managers asking them to warn the men as to this danger when any long-standing accumulation of waters is being disturbed would probably meet the case.

The After-effects of Explosions.

Mr. Betts complained that on returning to the face after the use of explosives of the nitro-glycerine series the men suffered from the fumes which lingered about, the symptoms being headache, loss of appetite, and sometimes vomiting. To guard against this he advocated a current of fresh air being pumped into the face. I had no opportunity to examine the atmosphere immediately after an explosion in the "dead-ends" of a drive—only in the "stopings," where there was a certain amount of air circulating. Here, certainly, there was nothing to complain of. In conversation with several miners and the managers I concluded that they did not regard this as a very serious trouble. In the first place, there was no compulsion to return to the face at once, as they were always allowed to wait till the fumes had cleared—say, in half an hour, generally less. The compressed air from the rock-drill pipe could always be turned on if needful to assist in the clearing of the atmosphere. Again, the noxious fumes are only marked when charges have burned slowly instead of exploding. These are known as "burners" or "stinkers," the fumes from which produce smarting of the eyes, headache, &c. These fumes are nitrous oxide and nitric peroxide, and certainly their inhalation would be accompanied by very unpleasant effects; but as there is no necessity to work in the presence of such fumes their occasional occurrence does not demand any special system of ventilation.

To sum up, I have no recommendation to make as to ventilation, save, perhaps, as to issuing a warning of the danger occasionally arising when accumulations of water are being dealt with.

4. Dust from Rock-drills.

Mr. Betts complained of the damage to health suffered by the men employed at the rock-drills owing to the inhalation of dust, a large amount of which is produced while these machines are working in hard rock. The Miners' Union recommend on this subject as follows: (8.) "We would also urge the necessity of compelling the use of water-jets where rock-drilling machines are at work to keep down the dust, and in the event of a jet of water not being provided the working of the rock-drilling machine be prohibited."

Dr. Conlon, of Reefton, informed me that he met a very large number of cases of phthisis among the miners, and he thought that it was commonly of the fibroid type.

I have obtained, through the courtesy of the Registrar-General, a return of deaths in the Reefton district during the past five years, and the following table, comparing them with deaths over the whole of New Zealand, shows that the percentage of phthisis in Reefton is extremely high:—

Percentage of Deaths from Phthisis to Total Deaths from all Causes.

Locality.	Both Sexes and all Ages.	Males only.	Females only.
New Zealand	7·7	7·0	8·5
Reefton	16·5	18·3	12·0

It must be noted that the high rate at Reefton is not confined to males, but that for females it is half as high again as for the whole colony; but the influence of the miners' work can be conjectured from the fact that while in New Zealand generally males suffer less than females from phthisis, at Reefton the position is markedly reversed, the percentage for males being 50 per cent. higher than for females.

The following table, showing the distribution according to sex and age-period in Reefton compared to the whole of New Zealand, further brings out the influence of the mines. The figures refer to the percentage of deaths from phthisis of the total deaths at each age-period:—

Ages.	Whole of New Zealand.		Reefton.	
	Males.	Females.	Males.	Females.
0–10 years ...	0·5	0·7	0	0
10–30 " ...	25	28·6	31·2	40
30–50 " ...	16·6	18·5	34·7	25·6
50 and over ...	3·5	2·4	19·2	16·7

† In an interesting paper on sulphuretted hydrogen in quartz-mines in the *New Zealand Mines Record* of the 16th May Mr. R. M. Aitken mentions this case.