At the moment of writing, seven months after the operation, there is a most satisfactory return of function in the muscles of expression. The patient can close his eye quite well and there is good voluntary contraction of all the muscles at the right angle of the mouth. He talks well and has overcome the difficulty with his food.

I am indebted to Major Graham Simpson for permission to publish this case, and to Mr. H. Caiger, F.R.C.S., who very kindly handed the case over to me.

THE CLINICAL MANIFESTATIONS OF GAS IN MILITARY MINES.

By Temporary Captain C. E. Sundell, M.D., M.R.C.P.
Assistant Physician to Seamen's Hospital, Greenwich.
Royal Army Medical Corps.

The following notes are mainly based upon a series of over 100 cases which have passed through my hands during the last few months. I have to acknowledge much valuable help in the study of this subject from Captain Logan, R.A.M.C., who has generously placed the results of his extensive experience at my disposal.

"Gassing" is responsible for the great bulk of casualties among miners, following the explosion of a charge. Military mining differs from industrial mining in three particulars which are of importance in the present connexion. The charges used are very much larger, the air space of the mine is very much smaller and adequate ventilation of the shafts and galleries is much more difficult to maintain. The harmful gas produced by an explosion may, for practical purposes, be regarded as consisting only of carbon monoxide; nitrous fumes are also present and may cause irritant effects in some cases, but these are relatively unimportant. The quantity of carbon monoxide produced by the explosion of a mine charge is considerable; if, as sometimes happens, the explosion is incomplete and part of the charge burns instead of detonating, the carbon monoxide production is much increased. It is remarkable that in the area with which I am familiar more casualties occur during the few days subsequent to the explosion of a hostile mine than at the time of the explosion itself. This is to be explained by the friable nature of the chalky soil in which the mine is sunk; the force of the explosion fissures and shatters the soil throughout a wide zone, and in the crevices thus formed the gas collects till it is freed by fresh working, or puffed out into the galleries by gradual settling of the soil.

The following characters of carbon monoxide should be borne in mind: the gas is odourless, it does not affect a candle flame, its presence in the atmosphere at a strength of 0.1 per cent may be fatal, and its action is cumulative. Men may thus gradually come under its influence without any warning of its presence.
Clinical and other Notes

Premonitory Symptoms.—These may be absent; in many cases, however, warning is given by a feeling of heaviness and loss of power in the limbs, especially in the hands and arms; sometimes the first complaint is of giddiness or light-headedness. The loss of limb power is important, as it may prevent escape or lead to falls from the ladder while the man is attempting to climb out of the mine. All degrees of severity are met with, from transient disability to complete collapse and death; fortunately the cases of moderate severity are the most common.

Appearance of the Men.—Other observers lay stress upon the pink colour of cheeks and lips, and the appearance of cherry red patches upon the skin of the chest and back have been described; in my own cases, all of which have been seen without delay, pallor has been constant; a recent writer has called attention to the occasional late appearance of the classical pink tint in fatal cases of carbon-monoxide poisoning.

The attitude in the cases able to walk to the aid-post is very striking; it is that of extreme physical and mental fatigue. The men crouch on a bench with elbows on knees and supporting their heads on his hands; they show a great disinclination to speak or move. The mental state varies, however; sometimes considerable mental excitement is present, suggesting a thoroughly happy "drunk."

Pulse-rate.—In mild cases this is unaltered or slightly raised. In severe cases it may rise to 140 or more, while Captain Logan has told me of one case in which the patient was found unconscious and convulsed, with a pulse-rate of 38 to 42 beats per minute.

Temperature.—The patients even when only slightly affected are cold. This is partly due to the fact that they are brought thinly clad from the close atmosphere of a mine into the open air, but it is an established fact that carbon monoxide poisoning is always associated with lowering of the body temperature. In bad cases severe rigors may occur.

Respiration.—In mild cases this is slightly increased in rate; in severe cases it is slowed or abolished.

Vomiting is an almost constant symptom; it occurs usually when the man is brought out into the fresh air and it frequently affords relief to his feeling of weakness or giddiness.

Headache comes on usually on exposure to fresh air; it is often very severe and is usually frontal in position. It is one of the most lasting of the symptoms and may persist even in a mild case of poisoning for over seven days.

Precordial pain is not a very common symptom. It may occur with palpitation and a throbbing headache. It has been found, however, in a good many cases, especially in men who have repeatedly been exposed to gas; in these men other phenomena of heart-fatigue may be present, such as superficial precordial tenderness and undue breathlessness on exertion.

Nervous Phenomena.—Psychical or physical changes may ensue upon
repeated exposure to gas. Several men who originally possessed more than the average of pluck and determination have "lost their nerve" and developed insomnia, tremor of hands and weakness of will-power.

Treatment.—This may be summed up in warmth, oxygen, artificial respiration, rest. The lowering effect of CO upon the body temperature has been referred to; every effort should be made to provide warmth for these men with the least possible delay. Circulatory stimulants such as hot, strong coffee, are of great value.

Oxygen administration properly carried out is most beneficial; a well-fitting mask and a liberal amount of gas are necessary. It is possible that oxygen tends to wash out CO from the blood; whether this be so or not, it is a most valuable help towards recovery.

Artificial respiration should be carried out if circumstances allow by Schafer's method; this allows of continuous oxygen administration, and can be employed with the minimum of fatigue to the attendant. Prolonged and unremitting efforts may be necessary; I have seen recovery take place after two and three-quarter hours' apparently fruitless work. Some cases begin to breathe spontaneously after a time and then suddenly slip back and fail to respond to further efforts. Hypodermic injections of strychnine are of value in stimulating the respiratory centre.

Rest is essential; it should be absolute for at least twenty-four hours even in mild cases, and proportionately longer in the more severe.

Practical experience affords two warnings. Severe cardiac embarrassment has followed the taking of phenacetin and aspirin for the severe headache. The use of these drugs in these cases is now forbidden.

Men who have been slightly gassed should not be allowed to descend the shaft again till recovery is complete; the cumulative action of carbon-monoxide must never be forgotten.

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Review.


This little book is based on the study of 100 cases of psycho-neuroses in soldiers while the author was in charge of the Psycho-Neurological Department, Malta. Shell shock was responsible for only fifty-three cases. In the classification of these cases, the author has followed Freud, dividing them into three groups: Conversion hysteria, anxiety hysteria, and psychasthenia. In none of his cases did he make a diagnosis of neurasthenia. He introduces several interesting histories, illustrating the various types, and briefly covering the symptomatology of war-shock. The author is thoroughly imbued with the Freudian theory, and his book is full of the careless logic and the extreme dogmatism so characteristic of this new psycho-pathological school. He is given to much speculation