

tute inclined the observers to the view that the organism in question was identical with one that for some time was confused with that of malignant oedema, known as the bacillus of Ghon and Sach. There are some ten different organisms that have been isolated from cases of gas gangrene in man, all of which are closely allied, and have the common characteristic of being anaërobic spore-bearers. From other cases in the clearing hospitals at the Front several more organisms of this group have been isolated.

A sample of earth from a trench was also examined, and the result of investigations led the authors to the conclusion that the gangrene found amongst our wounded soldiers is directly due to infection introduced at the time of the wound, and this is especially likely to occur if muddy clothing has been carried in by the projectile, or if earth has been carried in by the explosion. They are therefore of opinion that the gangrene that occurs amongst the wounded is a traumatic infection, and dates from the moment of the injury. It is solely due to infection from the soil, and is in no way related to sloughing phagedæna, or so-called hospital gangrene.

#### CLINICAL PICTURE OF GAS GANGRENE.

In the cases seen by the authors, the gangrene has always occurred in connection with wounds of the extremities. They have seen it both in slight and very serious wounds, but a larger proportion of the serious wounds are affected by it, especially when large bones have been shattered, and muscles extensively torn and extruded. They have seen it with and without fractures, and in a relatively large number of fractures of the femur.

#### PERIOD OF ONSET.

The authors add further:—It is most noticeable that it always shows itself within the first few days, or even hours, following the infliction of the injury. In two cases we have seen it well marked within thirty-six hours, and in several others already extensive on the third and fourth day.

Several patients have died of it on the third day following that of the injury, and in other patients it has progressed so far that amputation has been performed on the third day.

#### ONSET.

This is characterized by swelling of the injured part, and the gangrene seems especially liable to occur in connection with that swelling of a limb which is due to extravasation of blood in the subcutaneous tissues and intermuscular planes. It seems to us that interference with

the circulation either by extravasation of blood or by tight bandages has a marked influence.

In the early stages the patient complains of severe pain, which is perhaps due to tension, the result of the swelling, but in the later stages the affected area becomes completely numbed and insensitive. The edges of the wound are generally ragged and sloughy, and a considerable quantity of bloodstained serum constantly exudes and soaks the dressings. This discharge emits a characteristic and most offensive odour which is so marked as to be almost diagnostic. The skin, if not previously discoloured by extravasated blood, assumes a dark purplish or slate-coloured hue.

In the vicinity of the wound it changes subsequently to a more green colour. The swelling extends coincidentally with the change of colour, and a few hours later the skin becomes nearly black, and finally forms a black, leathery slough. Beyond the area of discolouration the limb is swollen with gas and fluid exudation, and an emphysematous crackling can be elicited on pressure with the hand. This may spread to a distance of as much as a foot above and below the actually gangrenous area, and so rapid is the extension of the gangrene that we have seen the whole of the lower extremity completely mortified before the end of the third day after the infliction of the wound.

#### CONDITION OF PATIENT.

Temperature is not materially affected in many cases, and high fever is rare. A temperature of 99° to 100° is usual. Respiration is not materially quickened; headache is not complained of. The mind is perfectly clear till near the end. The pulse is not greatly quickened, but rapidly loses power, so that several of the patients we have seen have had no perceptible radial pulse. The heart's action is greatly weakened so that its beat is quite difficult to feel.

Vomiting is common and in many cases is frequent; diarrhœa is rare; sweating is not generally present, and before death the skin is cold; the tongue is usually covered with a dirty fur, but the mouth is not exceptionally dry. Death appears to be due to cardiac failure, and we have been struck by the extraordinary clearness of the mind of a patient, almost pulseless, and within an hour or two of his death. In the worst cases the gangrene may spread with such rapidity that the whole limb may be cold, of a purple or black colour, immensely swollen and quite devoid of all sense of touch and power of motion within thirty-six hours of the onset of the gangrene. The smell of such a limb is overpowering, and almost precludes a careful post-

[previous page](#)

[next page](#)