The body was seen by another Medical Officer just after death, and by me for the first time on the next day, when I was present at the autopsy performed by Dr. Peter Milligan, M.B., M.R.C.P., Honorary Pathologist to Doncaster Royal Infirmary, by whose kind permission I am reporting this case.

There were no external signs of injury beyond a few grazes on the chin and no bones broken anywhere. Some bloodstained froth was exuding from the nostrils and mouth and there was a considerable quantity of blood in the nasopharynx. There was no damage to the skull nor was the brain affected. There was a small haematoma under the aponeurosis covering the anterior surface of the sternum towards its lower end, but, apart from this, no damage could be found to any of the bones or muscles of the chest wall. There was an extensive right hæmothorax due to two large tears in the right lung, one near the hilum and the other on the parietal surface of the lower lobe. Both lungs were riddled with hæmorrhages varying in size from petechiae to areas of a couple of inches in diameter. They also showed acute pulmonary œdema with much pink froth in the bronchi. There was a large hæmo-pericardium due to rupture of the wall of the right auricle. There were many petechial haemorrhages and several larger ones, up to the size of a florin, in the pericardium, endocardium and myocardium. There was a tear 3 inches long inside the left auricle, just above the mitral valve, involving the myocardium but not completely rupturing the wall.

A large right retroperitoneal hæmorrhage was also present and the right kidney contained hæmorrhages of all sizes.

The injuries were apparently caused by the sudden compression and re-expansion of a young and elastic chest wall. A similar force would probably have fractured the ribs and sternum of an older subject.

The interest of this case seems to me to be: (1) That such extensive internal injuries can be caused without any apparent external damage and even in the absence of any fracture of a bone. (2) The similarity of the injuries to the lungs to those sustained in injuries from blast, as reported in the British Medical Journal recently (January 18, 1941, Hadfield and Christie, p. 77, and elsewhere in the same issue).

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SOME NOTES ON AN IMPROVED TYPE OF OTWAY PIT.

BY MAJOR W. J. ROBERTSON,
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WHEN Freetown was reopened as a station for Imperial troops, a new barracks mainly for African gunners was built. The question of the disposal of excreta arose and as dry earth closets are the general practice here, it was decided to construct Otway Pits of the pattern used by the Civil Health Department. This is a modification of the Otway Pit, and was
worked out by P. Osment, Sanitary Superintendent, Health Department of Sierra Leone (late a/Q.M.S., R.A.M.C.).

This is certainly a most simple and effective method of dealing with the excreta of a moderate-sized community and would appear suitable for camps, etc.

The pit is excavated 18 feet deep, 32 feet long and 9 feet wide. Such a size has been found capable of dealing with the excreta of a community of 300 for approximately two years.

Lengths of old steel rails are used to support the floor, which is made
of C.I. sheets surmounted by 2 inches of broken stones and covered with \( \frac{1}{2} \) inch of sandcrete (washed sand 8 to cement 1). Sandcrete is used as being easier to break up than concrete when the pit is filled.

Around the top edge of the pit dry pack founds are made supporting 9-inch mud-block walls, all made from the soil of the pit. Facing the walls with sandcrete increases their durability. Such walls are 12 inches from the pit edge and the floor extends all round to meet them. At the fly trap end of the pit apertures are left in the walls to admit light. One wall is made slightly higher than the other to permit of a sloped roof made of corrugated iron on wooden battens with an overlap of 12 to 18 inches on each side. Corrugated iron roofing, although more expensive, is much more efficient than thatching with palms or reeds, as this later type of roof very soon becomes pervious and causes scouring of the floor and edges of the pit.

Old sanitary dustbins are used as tipping holes but, instead of one, as is usual in this type of pit, four are provided at equal intervals down the length of the filling portion. It has been found by experience that, with only one filling hole, usually situated at the end of the pit, the excrement does not find its own level but banks and the pit appears to be filled when actually not more than half full.

With the improved pit, filling is done through the nearest hole until the mass rises to floor level, when No. 2 hole is taken into use, and so on till the mass reaches the floor by No. 4 hole. At this stage it will be found that some settling has taken place and the cycle can be repeated from No. 1 hole.

The fly trap used is the normal type made from a kerosene box with roof and trap of mosquito wire. Such traps are easily and cheaply made and can be immediately replaced as they become unserviceable through termites, exposure, etc.

When a pit is full it remains in that condition for twelve months, after which time an opening can be made around one of the filling holes and the matured contents removed. To facilitate removal one or more C.I. sheets may be taken from the roof. After emptying the floor and roof are replaced and the pit is again ready for use. There is in this Colony a keen demand for the matured contents for flower gardens.

A pair of such pits used as described will last for twenty years or longer. A stand pipe is erected adjacent to the pits with a hose and nozzle attached so that latrine buckets can be washed on the site and the washings emptied into the pit. This addition of water to the pit has the action of making it into a form of septic tank. It is undesirable to use cresol in the latrine buckets in this system, as the cresol destroys the bacteria and interferes with the maturing of the pit contents. Sawdust or dry earth to cover the faeces is the best method.