

Later in the season came a most welcome invitation to visit friends in the Mahratta Light Infantry on the northern coast on the Sea of Japan. This entailed a really beautiful motor journey of 100 miles right across the main Japanese island of Honshu over a mountain pass through snow-clad pine woods. Here the country was less steep and more undulating. Yamadori pheasants were as common as the others and my host twice got a right and left at woodcock. On one occasion my Jap guide insisted on taking me in to see a natural hot spring near where we were shooting. In large white-tiled baths filled with water from the spring were Japanese of both sexes; men, women and children unconcernedly basking and gossiping with each other.

It was near here that the dog put up five pheasants from the same place, on a hillside, and I had the satisfaction of seeing the smug Jap hunter miss with both barrels.

By the middle of October duck began to swarm on the Inland Sea, and in certain marshy areas there was some very fine shooting.

Japan is on one of the main migratory routes and it was interesting to see hundreds of mallard for a few days, for them to leave and then for the teal to come in in almost uncountable numbers. Later we saw widgeon, potchard, tufted, shoveller and shelldrake, and on the north coast thousands of geese appeared. For five or six weeks there was magnificent fighting before the duck moved on. In March they were coming back again and hundreds could again be found on the sea. We followed these in sampans, but usually they seemed to know the exact range of a shotgun and used to get up just beyond our reach. However, some early morning sorties were quite successful, and whatever the bag, the beauty of the "enchanted hour" before the sun rises to cast its rosy gleams through the mountain mists, was ample recompense.

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## AN IMPROVISED CONTINUOUS SUCTION APPARATUS, SUITABLE FOR PLEURAL EVACUATION.

BY

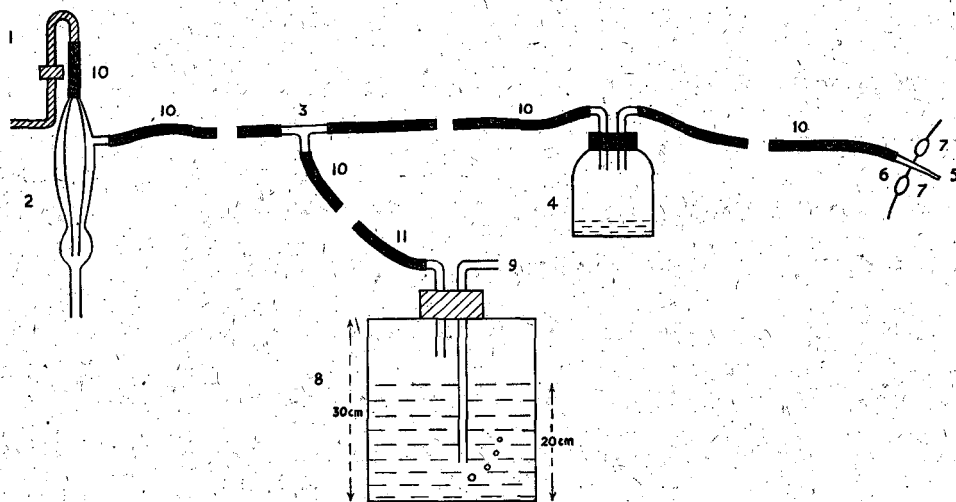
Lieutenant-Colonel A. L. WINGFIELD.

*Royal Army Medical Corps.*

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SPONTANEOUS pneumothorax and pyopneumothorax frequently demand continuous pleural suction. Electrical suction pumps have been designed for this purpose but, at the present time, they are in very short supply and may not be available where and when they are wanted. The apparatus herewith illustrated can be improvised in almost any permanent hospital at short notice:—

## AN IMPROVED CONTINUOUS SUCTION APPARATUS, SUITABLE FOR PLEURAL EVACUATION



1. Water tap. 2. Glass suction pump. 3. Three-way connexion. 4. Trap (capacity about  $\frac{1}{2}$  pint, and fitted with rubber stopper). 5. Pleural cavity. 6. Needle or catheter. 7. Ribs in section. 8. Suction-relief chamber, fitted with greased cork stopper, and containing water. 9. Air-inlet tube—height adjustable. 10. Rubber tubing. 11. Rubber tubing.

Suction is provided by a glass laboratory suction pump (2) which works from the main water supply. This is connected by a rubber tube (10) through a trap-bottle (4) to a needle or catheter (6) which lies in the pleural cavity. The direct suction from such a pump is too great for safe use and it is essential to incorporate a suction relief device. This consists of a tall bottle (8) brought into circuit by a three-way connexion (3). The bottle is three parts filled with water and through a vaselined cork two glass tubes enter it. The short tube lies in the air space while the long tube (9) reaches below the surface of the water. When suction is applied this bottle (8) acts as a relief valve and the final suction transmitted to the pleural cavity will be dependent upon the depth of the tube (9) below the surface of the water. For example in the illustration where the tube reaches about three-quarters of the depth of the water, i.e. 15 cm., the residual suction will be almost exactly 15 cm. water column below atmospheric pressure. According to the length of the tube (9) below the water the suction can be varied over wide limits. So long as the suction provided by the pump (2) is greater than the submerged length of tube (9) air will bubble through the tube to provide the required pressure relief. Should greater suction be temporarily required for the evacuation of fluids, this can be obtained by clamping the rubber tubing (11) immediately above the bottle (8) thus eliminating the suction relief device.

This improvisation has proved very satisfactory in practice and the one disadvantage, the noise made by the water escaping from the suction pump, can be overcome if a further length of rubber tubing is attached to the pump outflow and the water allowed to discharge some distance away.