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MOSQUITO DESTRUCTION BY JAMES’ METHOD.

Royal Army Medical Corps.

In amplification of the method described by James¹ (1935) for the fumigation of rooms and destruction of mosquitoes as an anti-malaria measure, the following illustrated account of the method in actual practice may be of use in that illustrations are easier to follow and more readily remembered than a word description.

The method has now been in use since 1933 as one of the permanent routine anti-malaria measures employed at Bannu and the illustrations were taken during the routine work in the new cavalry barracks.

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FIG. 1.

The Trap.—This consists of a black cloth, about 6 feet square, in the centre of which is cut an opening 12 to 15 inches in diameter. Stitched on to this black cloth, on the outer side, is a bag of mulmul (a fine gauze

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cloth) 6 feet long and 2 feet in diameter. This is sewn on at right angles to the black cloth, and has tapes at the distal end for tying to supports which retain the mulmul bag in position.

In the original experiments an ordinary Service brown blanket and an old mosquito net were used; but the present modification is lighter, more easy to handle and to fix in position and is much more economical. The cost per trap is three rupees.

![Fig. 2.](image)

The trap is set by stretching the black cloth as a diaphragm over the inner side of the most suitable window by means of tying tapes and nails, and by fixing the mulmul bag through the window to supports placed outside in such a manner that the bag is held open and at right angles to the diaphragm.

**Diagrammatic Sketch of Black Cloth, and Mulmul Trap.**—Fig. 1 shows the black cloth fixed as a diaphragm across a window and fastened to four nails in the wall, with the mulmul cloth trap open and supported in position by two poles to keep it at right angles to the black cloth.
The most convenient method of support for Indian troop lines is undoubtedly the charpoy.

**The Trap Set.**—Fig. 2 shows the mulmul bag stretched from the black diaphragm to the supporting charpoy. The windows chosen for the traps face towards the north.

**The Trap Entrance** (fig 3).—The room is quite dark. The black cloth is in position over this window, which shows as a grey patch in the darkness. The exit hole leading to the trap shows up as a brilliant white mark.

In rooms in which this method is used regularly four stout nails are driven and left in readiness at the corners of the selected window in each room.

**Fumigant.**—Three or four inches of katol coil are used for each ordinary eight- to ten-bedded barrack room. This is lighted and left hanging on a shelf or nail at the end furthest from the trap.

![Fig. 3.](image)

This has proved to be the most effective and economical of the fumigants, and it is harmless, as used, to humans or to equipment.

The stream of mosquitoes which pour out of a room to the lighted opening to escape from this fumigant has to be seen to be believed.

**Method of use.**—In each barrack room a stout wire is firmly fixed permanently in position over the top of each window and door. These are meant as supports to the blankets which cover the openings.

For each clerestory window a double piece of sacking remains permanently as a blind. This is pushed into position daily for the morning fumigation by means of a pole, or may be even left in position during the mosquito season.

When the occupants get up in the morning the men nearest the windows and doors place their own brown blankets over the wires to cover the windows and doors. This darkens the room except for the trap-window.

The anti-mosquito orderly then comes to the room and places a trap
over the open window. The unit, name and barrack number are marked on a paper slip and placed in the trap for identification.

*Room Prepared for Fumigation* (fig. 4).—The orderly lights a katol coil, closes the door and leaves the room for half an hour.

After half an hour the trap is tied off, and the room is opened up. The traps are all collected together, rolled up and sent up to the laboratory.
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for counting and identification of the catch and for killing the hordes of insects which have been caught.

Annual catches have been about 15,000 to 18,000 insects, of which in Bannu a definite majority are anophelines.

The barrack room orderly puts back the men's blankets on to each bed and opens up the clerestory windows. The smell of fumigation soon disappears.

The windows used for trapping should face away from the sun and away from the prevailing wind. All the rooms in one block can be done at one time. The method becomes pure routine for the occupants, the barrack orderly and the anti-malaria personnel.

A Battery of Traps in the Cavalry Barracks (fig. 5).—The north aspect of the barrack block with traps in action on each room is shown in this figure.

My thanks are due to Captain J. W. A. McIver, R.A.M.C., the anti-malaria officer, Bannu, and to the anti-malaria staff who carried out the demonstration.

A NEW LORRY-FITTING FOR STRETCHERS.

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When a mechanized brigade operates over a wide front, distances will inevitably be long and the mechanized field ambulance is likely to be dependent on all its transport for the removal of casualties.

To meet this problem the obvious solution appears to be the provision of a conversion set for each lorry. For a mechanized field ambulance this would bring the total stretcher carrying capacity up to 104, as against 32 at present.

There is no provision for a lorry conversion set in the British Army, and we have devised and had a set made which embodies the following advantages: (i) The utmost possible riding comfort; (ii) easy loading and unloading; (iii) it is instantly available for use; and (iv) it is "foolproof," strong and a permanent fixture with nothing to get lost.

The equipment consists of tubular steel uprights from which protrude two steel supporting arms. The uprights are supported on spring shock absorbers. When not in use the supporting arms are flush along the side of the lorry and held with spring clips. The steel uprights are held in position to the side of the lorry by iron cleats which are mounted on rubber shock absorbers. To bring into action the supporting arms are pulled out at right angles to the side of the lorry and when in this position a stud in