sonnel, requiring only one man to work each set, and its ease of transport, is not better fitted for field work than the present Army bath set.

My thanks are due to No. 52 Mobile Bath Unit who carried out the practical trials, to the Commandant, M. E. School of Hygiene, and D.M.S., G.H.Q., M.E.F., for permission to make this communication.

A PORTABLE IMPROVISED SHOWER.

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(1) INTENTION.

A great need exists for some portable easily devised appliance to provide satisfactory bathing arrangements under field conditions. Bathing in cut-down 4 gallon petrol tins, which have been the standby in the Middle East, results in rather inefficient ablution and waste of the already precious small quantity of water which can be allotted for ablution out of a daily ration of say one to two gallons per day.

The sponging or splashing of water from a cut-down 4-gallon petrol tin on to the body often resulted in feet being washed before the rest of the body and so on. This misuse of precious water can be obviated by showering.

(2) EVOLUTION OF DESIGN.

It was decided early that water container and shower rose must be combined because of shortage of piping and tubing to improvise the more formal types of shower bath. The earlier models were constructed from 4-gallon non-returnable petrol tins for the water rese-
voir with a shower rose constructed from an empty beer can. The showers were easily damaged in transport, were heavy to lift into position when full of water and could not be rested on the ground once they had been filled with water because of the unguarded rose.

In the present design a 2-gallon petrol or water container is used as the shower reservoir and, the rose now being guarded, the appliance can be stood on the ground when the reservoir is full of water and, carrying only 2 gallons of water, can easily be lifted into position for showering by the user. The present pattern of improvised shower is illustrated in the drawing (fig. 1) and in figs. 2 and 3.

**FIG. 2.**

**FIG. 3.**

(3) **Practical Details of Construction.**

(a) *Materials required.*—

1. U.S. 2-gallon petrol or water container. These are often to be found in Salvage Depots minus the screw cap.
2. 1 beer can.
3. 1 piece of stout wire.
4. 1 piece of piping.
5. 1 piece of rubber inner tube.
6. 1 piece of stout cord or flexible wire.
7. 2 pieces 1 foot 5 inches by $\frac{3}{4}$ inch round iron.
8. 2 fixing blocks of wood 5 inches by 3 inches by 1$\frac{1}{2}$ inches.
9. 4 screws, wood, 2 inches by 14.

(b) *Constructional Details.*—An opening 6 inches by 2$\frac{1}{4}$ inches is cut in the top of the petrol tin for the water filling opening. This can be made to include the screwed pouring opening of the tin.

The cylindrical part of the beer can is removed, the base is perforated with about 100 holes. A wire stay to steady the valve assembly is soldered across the inside of the neck of the beer can and then the top and bottom are soldered together to form a rose.

A 1 inch diameter hole is cut in the bottom of the petrol tin and the neck of the beer can
soldered into the opening. A small hole is drilled in the top of the petrol tin directly above
the neck of the beer can, that is, $1 \frac{1}{2}$ inches from the edge of the petrol tin.

The semi-circular tin rider and the round iron stands are then soldered into position.
The piece of piping is then prepared to form the water valve. A wooden plug is driven
into the pipe to within $\frac{1}{2}$ inch of the end. A loop is made in one end of the wire which is then
driven right through the centre of the wooden plug to project $1 \frac{1}{2}$ inches from the piece of
piping. The rubber washer is then threaded on.
The cord is tied to the wire loop and a knot made to allow only $\frac{1}{2}$ inch of vertical movement
when inside the shower tin. The valve assembly is then placed in position through the water
filling opening; the cord threaded through the small hole and knotted again to prevent any
side movement of the valve assembly.

(c) Weight empty: 3$\frac{3}{4}$ pounds.

(d) Overall size: 1 foot 2 inches by 10 inches by 6 inches.

(e) Time for construction: two hours. This figure can easily be reduced when mass
production is undertaken.

(4) Method of Use.

(a) Erection.—By means of the quick-release double block fitting the shower can easily
be brought into use in almost any situation and, if the blocks are permanently fixed to vehicle,
wall or specially fitted shower stance, the shower can be brought into use with the minimum
of delay. The following are some of the situations in which the shower might be erected and
used: (i) On the inside of the canopy frame of a 3-ton truck allowing the truck body to be
used as a closed-in shower compartment. (ii) Fitted externally on the canopy frame, the
shower to be used outside, the user standing under the shower beside the truck. (iii) On the
wall of a building. (iv) On a wooden gantry fixed 8 feet 6 inches above ground or duck-board
level allowing a battery of showers to be in operation at one time. Such a frame, erected
inside an I.P.P. tent with a duck-board flooring, would make a simple improvised shower unit.

(b) Action by the bather.—The bather takes an empty shower bath and fills it up to
2 gallons of water. For hot showering, $\frac{1}{2}$ gallon of hot water obtained from a Soyer's stove,
camp kettle or other improvised water heater, mixed with $\frac{1}{2}$ gallons of cold water, makes a
good hot shower mixture. As an empty stance becomes available the user lifts his shower
into position in the holding blocks where it is held firmly and safely. The shower release
cord is pulled down and the body wetted. Soaping is then carried out and the final wash-off
given. Two gallons of water will provide one minute of shower time. On completion of the
operation the user lifts down the empty shower, surrenders his stance to the next man and
returns his shower can to the dump next the source of water.

(5) Conclusion.

This improvised shower provides the best answer yet given to the problem of ablution
of troops in the field especially in conditions of dispersed or desert warfare where the ration
of washing water is minimal. Any unit could make and carry about its own showering
equipment and make small bodies of troops independent of the service of a Mobile Bath Unit.
The appliance could also be used to supplement the bathing facilities of Mobile Bath Units and
especially to deal with small isolated detachments.

A suggested scale to be held by field units would be one shower bath per three vehicles,
one of which would be fitted with holding blocks.

(6) Summary.

(a) A light, durable, improvised shower bath of small bulk is described which would allow
of shower ablution for even the smallest bodies of troops in field conditions.

(b) It can be constructed from salvaged material; only simple tools are required and it is
well within the capacity of a regimental pioneer.
(c) Water wastage due to carelessness or defective stop cocks is eliminated and each bather is restricted to a maximum of 2 gallons of water.

(d) As all pumps, tube boiler water heaters, pipes, joints and cocks are eliminated, improvisation of a unit ablution house in the field is possible with the aid of a dry standing, an I.P.P. tent for shelter, a water heater, such as a Soyer Stove, a water tank and some simple gantry to hold the shower baths in position above the level of the heads of the bathers.

My thanks are due to the Commandant, Middle East School of Hygiene and D.M.S., G.H.Q., M.E.F., for permission to forward this communication.

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**Travel.**

**THE "LLANDOVERY CASTLE."**

With Extracts from the Reports of Miss A. M. Birch, Matron, T.A.N.S., Miss Pamela Durrant, Q.A.I.M.N.S.R., and Miss H. Cant, Sister, Q.A.I.M.N.S.R.

It is a long time since the editorial staff of the *Journal of the Royal Army Medical Corps* has had the pleasure of printing extracts from the letters of members of the Q.A.I.M.N.S. and T.A.N.S., and it is one of the privileges of the war that we have now received the following. We may add that only the dearth of paper prevents us from using still more of these excellent reports but we hope to be able to give them occasional publicity in the future.

Miss Birch writes as follows:

No one who has not served in Field or Converted hospitals for three years, can possibly realize with what joy I beheld the steam sterilizers and boilers, with an unfailing supply of hot water. After primus stoves in continuous use, many times packed, and minus spare parts, this was, indeed, heaven. The pantry was an even greater surprise. It appeared to be full of china. Actually cups, saucers and plates sufficient for each patient, to say nothing of knives, forks and spoons with even a small surplus and, what is more astonishing, none of these are missing when inventories are done. Unless one has worked in Palestine, it is impossible to appreciate this particular joy. Apart from a lack of lockers, or kit space, the wards are extremely convenient. The beds compactly arranged with deep Vi-spring mattresses, so comfortable that on one occasion, doing a late round, I found a patient sleeping on the floor with only a blanket beneath him. He assured me the bed was far too comfortable after months of hard desert and begged to be allowed to stay there.

All the beds have green folk-weave counterpanes and white sheets (that have not been dried in a Sudan sandstorm!). Ablution and bathrooms are plentiful with brass and copper fittings, unfortunately, now that polish is almost non-existent.

My first journey was to Tobruk, timed to reach the harbour very early in the morning to enable us to embark our patients and away before 5 p.m. as, at that time, air raids could usually be expected, and were actually seen by us on our return journey, but at a safe distance away. Shortly after dropping anchor some 2 miles from the partially demolished quay, watching anxiously from the deck, we sighted the "Z" Lighter (a large flat barge) bringing our patients. In this, if the stretchers are well arranged, 120 can be carried at one time. The fighting must have been exceptionally hard at this time for we carried back 715 patients instead of the usual 460, the surplus being accommodated in the canvas hammocks slung above the beds, on mattresses on the floor, in all available spaces even to the padded cells, the patients in the latter causing much amusement and facetious remarks from their comrades. The "Z" Lighter securely fastened "aft," our stretcher box was lowered over the side, two patients laid in, one over the other, then carefully guided by the stretcher bearers and by the attached ropes, up and over on to a mattress laid on the deck to prevent any jarring of the fractures. To my amazement this was done at the rate of one a minute so that 120 patients are embarked in an hour. At the