NOTES ON DRINKING WATER COOLERS.

By Major R. A. ANDERSON,
Royal Army Medical Corps.

Some very good innovations in designs for the provision of cool drinking water are in existence in the China Command. A few details are given in the hope that they may be of use to others serving in the Tropics.

In the United Services Recreation Club at Hong Kong, and in some of the Golf Club houses, water coolers (I think the maker is "Cordley") are in use. The cooling part consists of a white enamelled outer container, inside which is a white glazed porcelain flask with a small neck into which the neck of the upper glass water container fits; a rubber collar prevents breakage. The top of the porcelain flask is flush with the lid of the cooler. Ice is placed around this porcelain flask between the outer container and the flask. These coolers are expensive: they cost about £6.

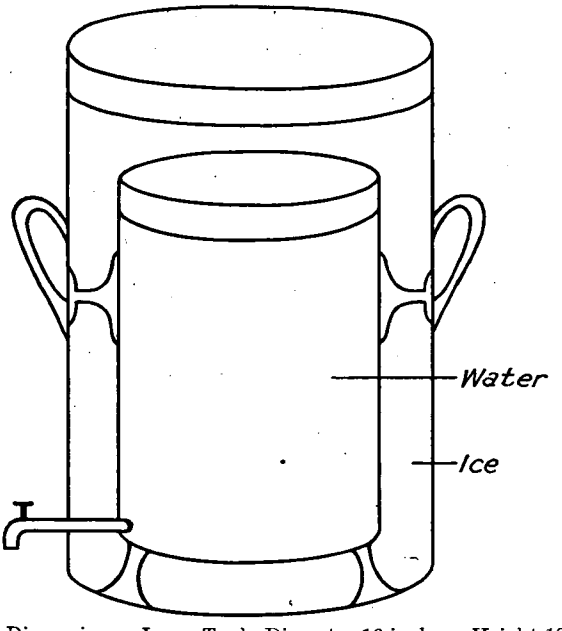

Fig. 1.—Dimensions: Inner Tank, Diameter 16 inches; Height 18 inches.
Outer Tank, Diameter 20 inches; Height 21 inches.
Cost: £1 2s. 6d.

A similar type of cooler has been supplied for the men, out of regimental funds, by the 1st Battalion Queen's Royal Regiment at Tientsin, in the proportion of, I think, one per Company. The only difference in the design I can remember is that the upper bottle is rounded.

A very efficient and cheap type of water cooler, called the "Griffin Cooler," has been designed by Major Griffin of the 1st Battalion The Lincolnshire Regiment. This cooler was used by the battalion while stationed at Shanghai during the hot weather.

I am indebted to him for allowing me to use his notes and diagrams. I quote verbatim from the notes :—

"The problem of providing an adequate supply of iced drinking water for troops in hot dry climates is more or less successfully solved by the use of "Chatties" which depend on a high rate of evaporation for their cooling properties. In climates such as Shanghai or Hong Kong, where the humidity often stands at ninety-five per cent with a temperature of ninety-eight degrees, there is practically no evaporation and consequently no cooling of the contents of a "Chattie," and other means have to be found to keep a supply of cold drinking water available. It has been found that a double zinc or galvanized iron tank constructed so that there is an air space between the inner tank (or water container) and the outer tank which can be packed with ice, meets the case. (See fig. No. 1.)

"In a battalion of 850 strong it was found that five such tanks located in dining halls (one per company) were sufficient to ensure an adequate supply of iced water in the hottest weather. Each tank was issued with forty pounds of ice twice a day at 7.30 a.m. and 4 p.m.—cost eighty cents per tank per day—and as water was drawn off, fresh water was poured in.

"On a parade being dismissed I have seen one hundred men file past a tank and each draw off a mug of water, the last mug being as cold as the first.

"Another method also found very effective and especially suited to icing draught beer is as follows :—'The beer or water is drawn off from the barrel or container and led through twenty feet of coiled glass tubing. The tubing is coiled in a tin lined double wooden box and is packed in ice.' This method is more economical in ice, requiring only about twenty pounds a day, but is more expensive to instal—costing about £1 10s."

With regard to these coolers the following remarks are made :—

(*a*) Water cannot be drawn off from the ice container as the ice melts.

(*b*) The amount of ice used could, I think, be considerably reduced if the water container was constructed with a cavity in which some non-conducting material was put.

(*c*) The designs could be improved by having feet so as to raise the apparatus, allowing air to circulate underneath, which would be less of a heat conducter than the surface on which it rests without feet.

The following improvements could be made in the Griffin cooler design without, I think, much extra cost. When the outer tank is being constructed, it could be made double so that granulated cork, sawdust, asbestos, or other non-conducting material, thoroughly dry, could be filled in between the two containers, and soldered off, with the lid similarly constructed. The outer container should have feet and a small tap to drain the ice compartment.

A small pulley float could be included to show the water level; if so desired the apparatus could be so arranged under a tap, with a ball valve

connection similar to that on any water tank, as to make the apparatus fool-proof and avoid handling. The outer lid should be constructed in two halves, so that ice could be added through one half. (See fig. No. 2.)

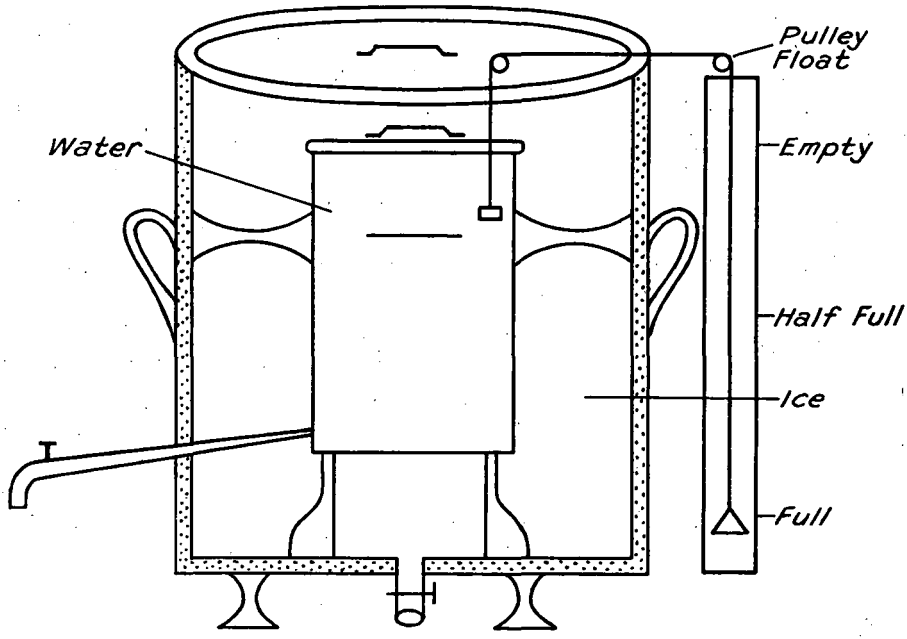

FIG. 2.

With regard to the other type of cooler used by Major Griffin for cooling draught beer, a modification could be adopted. The box might be made of non-conducting material, so as to conserve the ice, and should be drained. The coil might be of some cheaper tubing than glass.

A type of water cooler could be made with the ice container in the centre of the water. This type of water cooler would probably prove more economical in the use of ice. It would probably also prove more economical even without the sides of the outer container being non-conducting.

I am indebted to Colonel C. D. Myles, O.B.E., A.D.M.S., China Command, for his help and suggestions, and for permission to forward this article for publication.

ACHLORHYDRIC (MICROCYTIC) ANÆMIA IN A MALE.

BY CAPTAIN F. J. O'MEARA,
Royal Army Medical Corps.

THE clinical notes of this case are submitted for publication as, though the disease has been described in the female, its occurrence in the male sex is not generally recognized.

In January, 1933, a recruit in the Royal Corps of Signals, with nine