Translation.

ON THE USE OF PORTABLE KITCHENS (DES CUISINES ROULANTES) AS APPARATUS FOR DOUCHE AND STEAM DISINFECTION IN THE FIGHTING LINE AND IN ARMY CORPS (DANS LES SERVICES DE L’AVANT ET LES CORPS DE TROUPES).

By M. le Dr. Chauchard.

Typhus and recurrent fever (la fièvre récurrente) have at all times been dreaded scourges of armies in the field. We know that they are spread by lice. Many means of destroying lice have been advocated; the only one of indisputable value is the steam stoving of clothing and linen, together with and at the same time as bodily cleansing by hot soapy douches, followed by the rubbing in of antiseptics. The construction of steam stoves in regiments in the fighting line appears, at first sight, practically impossible, and so this process is not used. However, all army corps have at hand first-class apparatus, admitting the establishment, without expense, and in a simple and practical way, of a service of douches and disinfection. This apparatus is the portable kitchen.

As Senior Medical Officer (Medicin-chef) of a regiment in the first line, I am using with complete success this means of disinfection, and that by adapting to the portable kitchens an arrangement small in cost and within the reach of all.

(1) The Steam Stove.—At the disconnecting pipe (or at the safety valve, previously unscrewed) of one of the boilers an elbowed pipe is fixed. The free end of this passes through an opening in the upper part of one of the staves of a large barrel (those which I use have a capacity of five hundred litres). The upper end of this barrel has been taken off, and made into a lid, on the lower side of which are hooks on which the clothes are hung. This lid is raised by means of a pulley. The lower end of the barrel is pierced with holes for the escape of air and the exit of steam. The boiler is half filled with water and heated by coal or coke. The steam is conducted by the elbowed pipe into the barrel, of which it fills the upper part first, as its density is less than that of the air. Little by little, in proportion as the pressure increases, it drives the air, after the manner of a piston, towards the lower part of the barrel. Thus, in a few minutes, the air is completely driven out. At this moment the thermometer placed in the interior of the lower part of the receptacle rises to 100° C., and remains there as long as the steam is given off. The parasites and their nits are destroyed in fifteen minutes from this time.

This apparatus provides for the stoving of the clothes and linen of one hundred men per hour. Failing a barrel, a wooden case could be arranged covered with sheets of zinc or light sheet iron.
(2) Douche Installation.—There are two types of portable kitchens:—

(a) Boilers with outlet tap at the bottom and with covers fastened at the centre by means of a lever and a spiral spring.

(b) Boilers without a lower tap and with covers fixed by means of bolts (autoclave system).

First type; boiler with outlet tap (scheme a). The cold water comes in by the disconnecting pipe; this water is supplied either by a pre-existent system of pipes, or from a barrel raised up (four to five metres), acting as a reservoir. A hose of canvas or rubber is fitted to the lower outlet tap, and at its other extremity there is fixed an iron or lead pipe bearing every eighty centimetres a watering rose (total, five on the apparatus I set up). The spiral spring is blocked by means of two wooden wedges to stop escapes between the cover and the boiler.

Second type (scheme b). The water comes in in the same way. To let it out a hole has been made in the cover which permits the introduction, down to the bottom of the receptacle, of an outlet tube for the water, which is connected with the pipe carrying the roses by means of a hose of canvas or rubber.

The boiler is filled with water and heated. In a few minutes a continuous flow of hot water is obtained, the temperature of which is regulated as required by opening the inlet tap more or less, or by varying the intensity of the heat of the fire.

Two men take their douche under each rose, soaping one another. Each douching takes five minutes, so we douche more than one hundred men per hour.

To make this apparatus there is needed: A tap for the inlet of the water, six metres of iron or lead piping, five roses, one and a half metres of rubber or canvas hose, a barrel, and, in the type of boiler without a tap, there is required besides an adjustment for the opening pierced in the lid. The cost of all these fittings is negligible, considering that the
 allowances (les circulaires allouent) to army corps for douches is 45 centimes per man per month, which, for a regiment of three thousand men gives a monthly credit of 1,350 francs.

These fittings are set up in a large room (une salle) or hut, six metres by four, in one corner of which an undressing closet has been arranged by a boarded partition; the "kitchen" remains outside. In cases where the ground is not cemented it will do to make an open flooring over light beams, which would permit the water to run away.

Up to the present I have installed five stations, one of which is working in a ravine, sheltered from artillery fire, about five hundred metres behind our trenches. The officers and men of the companies in the first line are its assiduous clients. To the others there come, besides the men of the reserve companies of my regiment, men from neighbouring regiments; four regiments of infantry, artillery, army service corps (du train des équipages), engineers, etc., the German prisoners of the Division; in all more than ten thousand men.

Two men suffice for the service of each of these stations; a stoker, capable, in case of need, of doing soldering, and an orderly (stover) taken from a resting company.

Each infantry regiment has four portable kitchens, two to each battalion, the regiment consisting of two or three battalions. It is thus easy to arrange among them a sanitary service which will fit in with the cooks' hours, as setting up and taking down the apparatus only occupies the work of a few minutes.

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The *Etiology of Typhus Exanthematicus* (H. Plotz, P. K. Olitsky and G. Baehr. *The Journal of Infectious Diseases*, vol. xvii, No. 1, July, 1915).—This paper is divided into three parts: (1) Bacteriological studies; (2) serological studies; and (3) experimental studies.

The first part of the paper deals with the work which led up to the discovery by Plotz of the organism of typhus fever. The epidemic form of typhus is characterized by its comparatively mild course, and low mortality. This disease is known in America as Brill's disease. Louria and Friedman have published papers pointing out the resemblance between this disease and cases of mild typhus which they had seen in Europe.

Striking cross-immunity experiments have been described which show that a cross-immunity exists between monkeys infected with Brill's disease and those infected with Mexican typhus.

In the search for the etiology of typhus fever one of the most important aids was the fact that the virus of typhus had been found in the circulating blood during the febrile period of the disease. The work of Nicolle, Ricketts and Wilder, Gavino and Girard, and of Anderson and Goldberger, all pointed to the fact that the virus of typhus is not filterable.