CAMPING IN THE TROPICS.

BY

SIR DAVID BRUCE. C.B., F.R.S., F.R.C.P.

Surgeon-General, Army Medical Service.

1. THE TENT AND ITS ACCESSORIES.

At the present time, when many of our soldiers are doing duty with expeditionary forces in the tropics, the following simple hints may be of some service.

For the avoidance of mosquitoes and flies generally it is a comfortable and useful plan to make the verandah of the ordinary double-roof ridge tent into a fly-proof room. The following drawings illustrate this and render a detailed description unnecessary.

FIG. 1.—Fly-proof Verandah, down.

FIG. 2.—Fly-proof Verandah, up.

The net is attached permanently to the tent and can be fastened up out of the way during the day by means of tapes. At the lower edge of the net there is a wide edging of thin calico which can be weighted down by gun cases and chop boxes, so as to effectively seal up any stray openings. At the four corners are loops for tent-pegs. The doorway has three over-lapping layers of net, so that things can be passed through without much danger of insects finding their way in at the same time. The side of the fly-proof room opening into the tent itself is the same as that described, that is to say, it has a triple doorway, in order to prevent flies finding their way into the verandah from the tent. At meals one servant remains inside to receive the dishes, which are passed carefully through the triple doorway.

This fly-proof room is a convenient and practical arrangement, and enables the traveller or sportsman to read or write after sundown absolutely protected from mosquitoes or other insects.

FIG. 3.

The photograph shews a camp near Lake Nyasa. The mosquito curtains attached to the verandah are tied up, and it can be seen how little they are in the way during the day.

In addition to the fly-proof verandah it is necessary to have mosquito nets over the camp-beds. As a rule, these are held up by wooden stays, or a round hoop suspended from the roof, and are tucked under the

mattress. This is an untidy method, and it is much neater and takes up less room to have a net made to fit the shape of the tent (Fig. 4).

FIG. 4.

Strong hooks are sewn on the seams of the tent and eyes on the mosquito net. It is the simplest thing in the world for the native servant to slip the eyes over the hooks.

Another improvement is to make the net into a closed bag by sewing it to a floor or base of calico (Fig. 5).

FIG. 5.

A.—Calico floor to mosquito net.

B.—Overlapping curtains of net, with calico ends for tucking in.

C.—Eyes for hanging net on hooks in tent.

The calico passes up the sides of the net for about six inches in order to strengthen it. The net in front is double for about three feet, the two curtains overlapping. This forms the opening into the mosquito-net, through which it is possible to slip without at the same time allowing mosquitoes to slip in too. The overlapping parts of the net have a wide margin of calico which can be tucked under the mattress after getting into bed.

The mattress is, of course, placed inside the net, resting on the calico base or floor, and the bed made up. When once inside and the calico

ends of the curtains forming the door tucked in, the traveller is safe from mosquitoes, ticks or ants. The interior is also roomy, the sides tight and trim, and altogether it is the easiest managed, the safest and the most comfortable net for a camp bedstead. It is well to have an electric lamp inside in case of alarm during the night, and, if thought necessary, a rifle may also be kept inside, lying along the edge of the mattress.

If there is any danger of mosquitoes being in the tent—and it is difficult to keep them out—it is well to get straight into bed from the mosquito-proof verandah and undress inside the mosquito net.

There is usually no difficulty in this, as dress in the tropics, as a rule, consists only of a khaki shirt and shorts. Talking of dress, I found a loose khaki shirt, only reaching as low as the hips and worn outside the shorts, to be cool and comfortable. If the shirt is made low and open at the neck there is a pleasant current of air set up from below upwards, which is comforting on a hot march. Some people try to arrive at the same end by wearing an ordinary shirt outside their trousers, but this is not nearly so neat and efficacious a plan. Of course, in tsetse-fly country shorts should not be worn, on account of the danger of being infected with sleeping sickness.

Another small improvement on the ordinary double-roof ridge tent may be mentioned. In the front wall or doorway there is an opening or window about a foot square. This is closed at night by a roll of canvas, which is let down and fastened *on the outside*. Of course, the reason for fastening the flap on the outside is to keep out rain and wind, and, if there is no verandah, doubtless this is an advantage. But if fastened outside, and anything startling occurs during the night, such as a lion grunting close by, it is impossible to look out without first unfastening the door and going outside to unfasten the window curtain. If the flap of canvas is removed from the outside to the inside it will be found more convenient. This was pointed out to me by Major PEARCE, Nyasaland. He also advocated the making of holes for ventilation in the inner canvas just under the ridge-pole. No doubt, a tent when securely shut up at night to keep out wild animals is badly ventilated.*

Another useful article in camp life is the thermos flask. When

*If anyone thinks it worth while to have a tent fitted up as described, I may say that Edgington, Duke Street, London Bridge, made me such a one in 1911.

travelling in the tropics, it is a good thing to get away from the camping ground as soon as it is light enough to see. If the cook is expected to make tea or coffee and supply an early breakfast it spells delay. The best way is to have the thermos flask filled at night with hot coffee, milk and sugar. The next morning a couple of raw eggs are beaten up in a cup and the coffee added. This is swallowed in a few seconds, and makes an excellent early breakfast. The cook does not require to make a fire, and he can have his pots and pans packed up the previous evening.

As a rule the cook and his assistants are left to pack and follow. This is a mistake. They dawdle along the road, talking to every native they meet, and are never at hand when wanted. The whole column should be started at once, and rigid discipline preserved until the evening camp is reached. The leader walks at the head of the column and his lieutenant at the rear. If any man leaves the column the lieutenant blows a whistle, the whole line is brought to a halt and the man brought back. If he has no reasonable excuse, he is reprimanded, ordered back into his place, the whistle is blown and the column again takes up its march. In a few days the men learn the rules and no one leaves his place. If this is not done the men straggle along the path, visit villages, get beer, and turn up in camp hours late. The man who has strayed is usually carrying some important part of the tent or equipment, and nothing can be more annoying than to wait an hour or more for some such laggard to turn up with the tent poles or pegs. But by keeping up rigid discipline the men all march into camp at the same time, the tents are pitched in a few minutes, and the men are at liberty to feed, rest and amuse themselves as they think fit. Of course, suitable halts are made. After the first mile or two, when it is fully light, a halt of ten to fifteen minutes is made, to enable the porters to readjust their loads, and at least five minutes every hour is given as a breathing space. About ten or eleven o'clock a long halt is made for breakfast. Table and chairs are set up in a shady place, a fire lit, and a good breakfast cooked and eaten at leisure. Before starting again the cook fills the thermos flask with hot tea, milk and sugar, places it in the luncheon basket, and so afternoon tea can be had immediately on reaching camp. After such a march most people are thoroughly tired and wearied, and the immediate tea is very grateful. The cook and the other servants can also be set to help to pitch the tents instead of starting to light fires and unpack the kettle.

2. PROTECTION FROM TSETSE AND OTHER BITING FLIES.

When shooting or working in a tsetse-fly country some protection from the bites of these poisonous insects is necessary. It must be borne in mind that a single bite from an infected tsetse-fly will almost certainly give rise to sleeping sickness. It is evident, then, that shorts are not permissible. Their place must be taken by strong drill khaki breeches, with boots and gaiters or puttees. It is best to wear a coat over the shirt in order to protect the body and arms. The neck and face are favourite places of attack, and anything in the way of a net veil or covering attached to the brim of the helmet is apt to be hot and stuffy, and, further, is constantly being caught and torn by the thorns with which all the trees in the fly-country are plentifully supplied. Moreover, the veil interferes with vision, and is in the way when shooting.

FIG. 6.

To remedy this a headpiece was invented, which was found to be practical, fairly cool and safe (Fig. 6). Knitting-needles, about one-third of an inch in thickness, were made of hard wood. With these a head-covering was knitted, similar in appearance to a Crusader's headpiece of chain-mail. Native string, which is stiff and hard like whipcord, was used. The result was a close-fitting cap, extending well down on the

chest and back, and leaving only a small opening for the eyes, nose and mouth. It was found that the tsetse-flies seldom attacked this opening, and, if they did, were seen and driven away. The string made a layer about one-third of an inch thick like chain-mail, full of spaces and interstices, which permitted free ventilation and evaporation. But a tsetse or other biting fly could get through these spaces. To prevent this a layer of coarse mosquito netting was sewn on the surface of the knitted string, so that a fly found its proboscis too short to reach the skin. As this fly-proof helmet lies close to the head, it is possible to creep or push through thorny scrub without any danger of being held up. Of course, as a protection against the sun, a large felt or terai hat must be worn over the helmet, but this can easily be arranged.

When cycling through fly-country, especially on a motor-cycle, the tsetse-flies often attack in great numbers, and very viciously. Sometimes they follow like a swarm of angry bees, and it is necessary to stop now and then and break off a branch in order by its aid to drive them away. On these occasions the cyclist is liable to be severely bitten unless he is adequately protected. A net is of little use, but the above-described headgear, with the addition of a pair of motor-goggles, gives excellent protection for the face and neck.

It is necessary to see that there is no undefended space between the goggles and the helmet. The only parts exposed are the nose and mouth; if a fly attacks here it can be blown away.

To protect the hands, fingerless gloves with khaki gauntlets were made in the same way, except that the palm was made of leather, with a hole for the forefinger to go through.

3. PROTECTION FROM MOSQUITOES FOR SOLDIERS ON ACTIVE SERVICE IN MALARIOUS COUNTRIES.

This is an important and difficult subject. Important, because many campaigns have been rendered null and void by the barrier of malaria. Armies armed to the teeth with quick-firing guns, and all the panoply of modern war, may just as easily be routed by the minute anopheles mosquito as were the older armies. Difficult, because it is difficult so see how soldiers on active service can be protected from mosquitoes. They have often to march long distances in great heat and with a heavy kit to

carry. Naturally they want to expose as much bare skin as possible for evaporation purposes. Hence the use of shorts and shirt with rolled-up sleeves. The malaria-carrying mosquitoes bite at night, it is true, but this does not help much, as marching must often be done at night, and, even if men are in camp, it is almost impossible to escape being bitten during the evening or night. Much can doubtless be done by a wise selection of camping grounds, but the question to be answered is, Is it possible to provide a soldier on active service with a practicable protection against mosquitoes? As this is a subject of which I have no practical experience, I must leave the question to others to answer.

Professor SIMPSON has lately demonstrated to the Society several ingenious methods of protecting against mosquitoes; it is hoped that these few remarks on camping in the tropics may form a small addition to the subject.