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TWO IMPROVISED OPERATING TENTS.

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During the operations in Waziristan, in 1937, it was found that the official pattern operating tent was unsuitable for several reasons:

(a) It is difficult to carry by mule-pack transport. This double-fly tent complete with poles, ropes, pegs, etc., weighs 458 pounds, and is intended to be carried in one of the motor transport vehicles attached to the Headquarters of a Field Ambulance. The standard pattern tent, in which the walls are sewn to the roof, cannot be carried on pack-mules as the combined weight of roof and walls is too heavy for one mule. As a result of this defect, during the operations in Waziristan in 1937, the walls were altered so that they could be detached from the roof. But, even with this modification, the loads of the tent when packed up are unwieldy for pack mules; as a result, it is usually left behind when the Field Ambulance, as often happens in operations on the North-West Frontier, moves on an all-pack basis.

(b) Its floor space, 20 by 12 feet, when all equipment is in position, is too cramped.

(c) Its door is too low and narrow.

(d) Its pitching space (38 by 30 feet) is too great for advanced
perimeter camps, where a Field Ambulance may have to maintain a main dressing station for a few days.

To obviate these objections, and at the same time to make use of the existing stocks of I.P. and 160-pound tents which are yearly deteriorating, two improvised types of operating tent are now proposed; one for mule-pack carriage, the other for camel-pack or wheeled carriage.

**Operating Tent for Mule-pack Carriage.**

The mule-pack operating tent was improvised by the Arsenal, Rawalpindi, at the instigation of the D.D.M.S., Northern Command. It is intended to use this tent when only mule-pack transport is available. As soon as tracks are sufficiently developed the modified I.P. tent described later would be taken into use.

**Mule pack operating tent.**

The tent now described consists of the following components:

- Two 160-pound tents complete with poles, cordage, etc.
- One special canvas ridge-cover.
- Two special canvas flaps to close each gable end.
- Two 10-feet bamboo poles.
- One additional ridge-pole, as used normally with the 160-pound tent.
- Thirty iron tent pins.

To erect the tent, the procedure is as follows:

The two 160-pound tents are joined together at two adjacent walls, by lashing the edge of each wall to its neighbour, and sealing the junction by the special canvas cover. The ridge-pole is then placed under the ridge
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of one tent and the tent raised in the usual manner. The ridge of the other tent is then similarly raised. The two 160-pound tents are now erected side by side but with their adjacent walls forming an awning between the two tents. This awning is now lifted to a height of 10 feet by placing under it, at the junction of the two walls, the extra ridge-pole and by raising this ridge-pole on the two 10-feet bamboo poles. A combined tent is thus formed, 10 feet high at its central ridge and sloping on each side from this ridge to 8 feet at each lateral ridge and thence gradually to the ground. Each end of the combined tent is closed by one of the special canvas flaps, each of which is fitted with a door set to one side of the middle which can be opened or closed at will. A window can also be cut in the flap if desired. The weight of this improvised operating tent complete with all necessary fittings is 440 pounds, and it can be easily carried by three pack-mules. It has a floor space of 34 by 14 feet, and requires a pitching space of only 38 by 16 feet.

It is pointed out that this operating tent is made entirely of existing tentage (i.e. two 160-pound tents), which is not damaged in any way and which can be taken into ordinary use when no longer required as an operating tent. The flaps to close each end are made of old condemned tents and the two 10-feet central standing-poles are natural uncut bamboos in the usual length as supplied by contractors.

The extra materials (canvas ridge-cover, canvas flaps, extra ridge-pole, the two 10-feet standing-poles and the tent-pins) can easily be stored in the field ambulance and take up very little room. When the field ambulance has to proceed on a mule pack basis, all that is necessary is to draw two 160-pound tents from reserves kept for this purpose.

The advantages of this operating-tent are as follows:—

(a) It can be easily carried by three pack mules.

(b) It provides so much more floor space than the official pattern operating tent (476 as compared to 240 square feet) that two operating tables can be worked at the same time.

(c) It requires much less pitching space, 608 compared to 1,140 square feet, a matter of great importance in a cramped advanced perimeter camp.

(d) The fact that the doors are at opposite ends and are arranged diagonally enables patients to be brought to either table without disturbing the other surgical team.

(e) The doors are high and wide enough to permit a loaded stretcher to be carried into the tent without tilting, raising or lowering of the stretcher.

(f) It takes very little time to erect.

Its only disadvantage is that it is a single-fly tent; but, as already mentioned, it is intended for emergencies when only mule-pack transport is available.
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Operating Tent for Camel-pack or Wheeled Carriage.

In 1937, in Waziristan, the Ordnance Services began to use as store tents, tents I.P. Privates Mark II, which, with the object of increasing their storage capacity, had been raised 3 feet higher than normal. One of these tents thus modified was seen by the D.D.M.S., Northern Command, who realized that two such tents joined together would provide an operating tent for a Field Ambulance much superior to the existing authorized pattern. These tents being readily portable, either by pack-camel or wheeled vehicles, are intended to be used as operating tents as soon as tracks have been sufficiently improved to allow the passage of camels or vehicles.

Operating tent for camel-pack or wheeled carriage.

This operating tent consists of the following components:

Two tents, I.P. Privates Mark II, complete with standing poles, cordage, etc.
Two strips of canvas, each 3 feet in depth, to form additions for the walls.
Four 3-feet bamboo poles, to increase the height of the standing poles.
Four iron sockets, each about 1 foot long, into which the standing poles and the short bamboo poles fit.
Special wall poles, using the 10-feet bamboo pole as supplied by the contractors.
Special canvas loops sewn on to the inside surface of the walls and of the canvas strips.
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To erect the operating tent, the procedure is as follows:

The upper margin of one 3-feet canvas strip is lashed to the roof of one of the I.P. tents. Each normal standing pole of this tent is then lengthened by joining it to one of the 3-feet poles by means of the iron socket, and the roof, with the canvas strip hanging down like a fringe from it on each of its four sides, erected in the usual way. The 10-feet wall poles are then threaded through the special canvas loops (which are sewn in vertical rows 6 feet apart on the inside of the walls), and the walls erected and lashed to the lower margin of the canvas strip, the upper end of the wall pole being first thrust through the corresponding canvas loops which are sewn on the inside of the canvas strip. By this means a firm wall is produced far superior to the ordinary tent wall.

The second tent is erected in the same way, side by side with the first, and the adjacent flies of both are lashed together, with the customary waterproof sheet to prevent leakage. A specially high and wide door is provided at each end.

The weight of this combined operating tent, complete with all necessary fittings of ropes, poles, etc., is 1,534 pounds, and it can be carried by four pack-camels. It has a floor space of 31 by 20 feet, and requires a pitching space of 55 by 41 feet.

This tent also, it is pointed out, is made of existing tentage which is not damaged in any way, and which, when not required as an operating tent, can be taken into ordinary use. The extra materials (strips of canvas, short bamboo poles, iron sockets, and the special wall poles) can readily be stored until required, taking up practically no space.

The advantages of this operating tent are as follows:

(a) It can be easily carried by pack-camels, and so can be used as soon as the tracks are fit for camels or wheeled vehicles (A.T. or M.T. vehicles).

(b) It provides much more floor space than the official operating tent (620 as against 240 square feet) and much greater height. There is thus ample space for two operating tables and full operating room equipment.

(c) Natural lighting is good, and the extra height makes the slinging of operating lamps considerably easier.

(d) The tent is double-fly, lofty, airy and cool.

(e) The doors are high and wide enough to permit a loaded stretcher to be carried into the tent by the tallest and broadest stretcher-bearers without tilting, raising or lowering of the stretcher.

(f) I.P. tents, thus modified, can be joined together in series to form excellent hospital wards.

(g) It is no longer necessary to keep a standard pattern operating tent so that the recurring expenditure on these tents is saved.

These tents form such eminently suitable field operating tents, and are so superior to anything we now have that it seems unnecessary to try and
design a new standard pattern operating tent in an attempt to improve on
the present admittedly unsatisfactory one.

It is recommended that the existing stocks of I.P. tents should be
used in this way wherever tented operating accommodation is required in
field ambulance, casualty clearing station, or elsewhere.

It is further suggested that these modified I.P. tents joined together in
series should be used for hospital wards in standing camps of all kinds.

In conclusion, the writer would like to thank Major-General W. H.
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writing up the descriptions of the tents.

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SHORT WAVE THERAPY.

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This article is written with the object of stimulating interest in a
comparatively new addition to the medical armamentarium.

As far back as 1888, D'Arsonval experimented with high frequency
currents and later Tesla, Zeynck and others extended these expe­
riments and produced the relatively sustained high frequency current called
diathermy. To Dr. Schliephake falls the honour of introducing the science
of short wave therapy and his book on the subject, published in 1935 after
seven years of continuous research, first provoked world-wide interest in
this form of therapy. It is fairly certain that treatment with the ultra
short waves will entirely oust diathermy from the medical field in the near
future and acceptance of its therapeutic value may be judged by the fact
that several firms are producing short wave apparatus in this country and
that machines are imported in large numbers from abroad.

PHYSICAL CONSIDERATIONS.

The average medical man has but little time in which to study the
rather difficult technical side of such a subject, nevertheless an appreciation
of the physical aspect is necessary to a clear understanding of the ther­
aputics. An attempt will be made under this heading to explain simply
why this treatment is called short wave therapy and to show the relation­
ship that exists between this treatment, medical high frequency, and
diathermy.

It is first necessary to consider briefly the characteristics of the
alternating current.

An alternating current is one which rises from zero to peak potential,