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(1) A very large thymus gland, about 7 in. long.
(2) Spleen enlarged, weighed 14 oz.
(3) The lymphatic glands generally enlarged.
(4) Haemorrhage into the stomach and intestine, and blood-stained serum in pleural and peritoneal sacs.

There are two points of interest in the case: (1) The angina, which no doubt was the origin of the disease, resembled in every respect a condition which is not uncommon in young people, yet acute lymphatic leukaemia is a rare disease; (2) the total number of leucocytes was much lower than is usual in acute leukaemia.

A SECTIONAL FIELD-STRETCHER.

BY CAPTAIN M. F. GRANT.
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The present pattern of field-stretcher (Mark II) is strong, simple and durable; while most officers will agree that it is well suited for the purpose which it is intended to serve, it is still possible that the apparatus is susceptible of improvement.

Its chief disadvantages seem to be these:

(1) The weight (30 lb.) is excessive, this is due to the thickness of the poles and traverses. The former, which between them are required to support a weight of not more than 15 or 16 stone, are of the same material and of nearly the same thickness as a set of parallel bars capable of sustaining the weight of a considerable number of gymnasts. The traverses are required to resist a bending strain, and need rigidity rather than weight.

(2) It is clumsy and cumbersome when closed. The stretcher, if carried on the march, as is at times unavoidable, has to be borne by two men, and in such a manner that each bearer may readily hinder the free movement of the other. In addition, the weight is supported by one side of the body only; that is to say, in the most fatiguing and least economical manner possible.

(3) Owing to its length (7 ft. 9 in.) the stretcher is not so well adapted for packing and storing as it might be.

(4) It cannot be used by mounted troops.

The two stretchers described below represent attempts at remedying these defects, chiefly by decreasing the weight and increasing the portability of the apparatus.

The principle adopted has been to divide the poles and canvas into sections in such a manner that a complete stretcher will require two bearers for its transportation, each man being equipped with a carrier attached to a web waistbelt and two web braces. The material is so divided between the bearers that any two of them are able to
assemble a complete stretcher by means of the sections with which they are equipped.

The thickness of the poles has been decreased and the material used for the construction of traverses, brackets, and rollers has been selected with a view to decreasing the weight without interfering with the necessary strength of the parts. Ash has been used for the wood-work in both patterns, but the metal work in Pattern I was made of "Duralumin," while in Pattern II steel with aluminium rollers was employed.

The metal "Duralumin" is an alloy of aluminium, but its exact composition is a trade secret and could not be ascertained; it is employed in the manufacture of orthopaedic instruments among other things, but for the purposes of a field-stretcher two disadvantages are apparent. In the first place its cost is excessive, being about twenty-five times as much as that of an equal weight of wrought iron; secondly, some uncertainty exists as to the strength and power of resistance to bending of any given thickness of the material.

For the last reason the joints and traverses were constructed of \( \frac{1}{2} \) inch metal and a larger band was used to support the runners, with the result that the apparatus without canvas weighed 26 lb. and very little saving in weight was effected.

In Pattern II, steel joints, traverses and brackets were used with the idea that a smaller weight of steel would have a strength similar to that of a larger weight of wrought iron, without any very material addition to its cost being incurred.

*Specification.*—The poles are made of seasoned ash, and are circular in section with a circumference of 5\( \frac{1}{2} \) in. and a length of 7 ft. 8 in. Each pole is divided into four sections, each section being 1 ft. 11 in. in length.

*Joints.*—The sections of the poles are connected together on each side by three tubular joints made of "Duralumin" \( \frac{1}{2} \) in. in Pattern I, and of steel \( \frac{3}{8} \) in. in Pattern II; each joint is 10 in. in length.

The joints are fixed to the two end pieces of the poles, but those connecting the centre sections are loose, being retained in position by steel pins passing through holes at either end, bored through the metal of the joint and in the wood of the pole. The pins are secured to the wood work by light chains or cords. Similar pins are provided for the end section, to secure the joints at their meeting with the inner sections of the poles.

Eight broad steel hooks are screwed on to the outer side of each pole to secure the canvas.

*Traverses.*—The traverses are similar to those in use with the service pattern of stretcher, but are made of steel \( \frac{3}{8} \) in. broad and \( \frac{1}{4} \) in. thick. The outer ends are fixed to the roller bracket by nuts. When opened the traverses allow a width of 1 ft. 11 in. between the poles.
Rollers.—To each of the four end sections an aluminium roller, 2 in. in diameter, is fixed in a steel bracket in such a manner that the canvas of the stretcher is raised 6 in. from the ground.

I.—Bearer carrying one half of stretcher, in carrier. Side view.

II.—Bearer carrying one half of stretcher, in carrier. Back view.

(In Pattern I, a “Duralumin” band, semicircular with protruding ends directed downwards, is used to carry the rollers.)

The brackets are placed with their centres 11 in. from the outer ends of the poles.

Canvas.—The canvas is of similar material and appearance to that
III.—Framework of Patterns I and II. Pattern I is complete; Pattern II only one half shown.

IV.—Pattern II complete. Canvas turned down at one corner to show the method of attachment.
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in use with the service pattern stretcher, but is divided into two pieces, each 3 ft. long and 1 ft. 11½ in. broad when completed.

A pocket is made along the sides of each piece by sewing down the edges of the canvas; two apertures are cut in each pocket so as to correspond, when in situ, with the position of the hooks attached to the poles.

Each pocket contains a steel rod, ¾ in. in diameter, broken in the middle so as to allow the canvas to be folded across its length for facility in packing.

When required for use the portion of the rods exposed by the apertures in the pockets engage with the hooks attached to the poles in the manner familiar to all who use "X" camp furniture.

Slings.—An experimental sling was made of webbing 65 in. long, provided with a grip-plate at each end to form the two loops and provide means of adjusting the length. To one loop is attached a buckle similar to that in use in the webbing equipment waistbelt. The intention is that by this means the two ends of the sling can be joined together into one continuous band, for use in the manner described for putties and pugarees in R.A.M.C. training.

Weight.—The total weight of the apparatus complete is between 25 and 26 lb.

The Carrier.—The carrier is similar to the coat-carrier used in the Infantry web equipment; the belt is identical and the braces practically the same as those used in that equipment. It is intended to carry a greatcoat in addition to the stretcher. The points in which the stretcher equipment differs from the Infantry equipment are the following:

(1) The braces are 2 in. wide, as in the Infantry equipment, except at the buckle end, where they are 1 in. wide, so as to fit the brace attachments.

(2) Brace attachments and diagonal straps are supplied to take the place of ammunition carriers in adjusting the balance of the load. This involves the addition of two extra three-bar buckles to the belt.

(3) The carrier has an additional horizontal strap for securing the sections of the stretcher.

Conclusion.—The stretchers described above are experimental, and are for that reason more expensive than the same articles would be if manufactured in bulk; but even in the latter contingency it is probable that the cost would be greater than that of the present Mark II pattern.

When completed, several defects came to light; they are noted for the benefit of anyone whose interest in field-stretchers may lead him to make experiments on similar lines. The hooks on the poles (to engage the canvas) should be arranged at points on the circumference of the pole having a definite relation to the holes for the pins which secure the joints; otherwise the sections are not interchangeable. It may be necessary for
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two holes to be bored in the poles at right angles to one another. The
hooks on the poles and the openings in the canvas should be fixed at the
same distance apart throughout the apparatus; otherwise the canvas will
not readily engage. It may be necessary to fix eyelets and laces to the
ends of the canvas so as to join the two pieces together and avoid a gap
in the middle of the stretcher.

A carrier in the form of a pack, or provided with a canvas bucket or
trough at the lower end to support the sections of the stretcher, would
probably be more satisfactory than the pattern described, in which the
sections are retained in position solely by horizontal and vertical straps.

It is probable that the thickness of the poles can be further decreased
without loss of efficiency. My thanks are due to Acting Serjeant-Major
T. W. Cardwell, R.A.M.C., for taking the accompanying photographs;
and to Serjeant A. J. Burke, R.A.M.C., for his assistance in arranging
some of the details.

SUGGESTIONS FOR FIRST-AID OUTFITS FOR THE
ROYAL FLYING CORPS.
BY CAPTAIN E. G. R. LITHGOW.
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First-aid outfits for the Royal Flying Corps should be of two kinds,
one to be carried on every aeroplane, the other in the mechanical
transport.

With regard to the former, it is not desirable that it should be carried
on the person of the pilot or observer, since this would entail much
handling, and possible damage or loss. A suitable position for the outfit
can easily be found in all types of aeroplane—e.g., in the fuselage—where
it would be accessible and protected from oil, &c., without being unduly
conspicuous, or in any way interfering with the control of the machine.
Both pilot and passenger should receive instruction in its use, and in
the treatment of minor disabilities and ailments, such as wounds, burns,
&c. The weight of the outfit complete should be limited to about
1 lb., and it should be packed in waterproof material.

The first-aid outfit for the mechanical transport should be more
complete, and sufficient for the possible requirements of about 140 men
composing the squadron. Medical and surgical panniers, and a field
fracture box similar to the existing patterns, but reduced in size, would
be suitable, and could be carried on the motor ambulance, which should
accompany the squadron. This equipment, of course, would be used by
the medical officer.

Aircraft have now become so reliable and powerful that it is quite
practicable to have machines specially fitted to carry medical and surgical