and valuable capillaries and lymphatics, both by lateral pressure and longitudinal tension, especially at the site of fracture, tends to be avoided.

The details are as follows:

The splint is composed of a Thomas's knee splint frame, telescopically extensible. The upper end is fixed to the leg by a half Thomas's ring, and it is fixed below the fracture by an anklet bandage, or slung in the usual manner, and the limb supported at the seat of fracture by perforated zinc or lint, and the splint is supported by two hoops of iron forming a V and connected to each other and to the splint by hinged joints. One arm of the V is connected above, the other below the seat of the fracture. The weight of the leg tends to increase the angle of the V and thus extension is obtained.

The advantages of this apparatus are:

(1) There is no need to move the limb or splint in slightest degree for dressing or irrigation.
(2) Easy access obtained to all parts of leg.
(3) No absorbent dressings are needed; any discharge can be caught in a dish placed underneath.
(4) Extension decreases as muscles waste.
(5) Extension simplified in the presence of sores or cellulitis.

The same splint is applicable to most fractures and any length of leg, and to lift the patient the whole thing can be made a single unit by fixing the telescopic extension by a screw, and in a similar way the height of the leg from the bed can be adjusted. If additional extension is desired, hang weights on the end of the splint. The disadvantages are that it cannot be used on a full water-bed or if the knee is desired flexed.

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SHRAPNEL WOUND INVOLVING THE BRACHIAL PLEXUS, TOGETHER WITH THE VAGUS, SPINAL ACCESSORY AND PHRENIC NERVES OF THE SAME SIDE.

By Captain Ffrangcon Roberts.

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Rifleman R. was admitted to this hospital last summer, having been wounded by shrapnel on May 22. There were two wounds in the neck; one, stated to be that of entry, was situated at the sternal end of the left clavicle; the other, presumably an exit wound, was situated 2½ inches to the left of the middle line behind at the level of the spine of the fifth cervical vertebra. The anterior wound was discharging, the posterior was healed.

There was loss of power of external rotation and abduction of the humerus and of flexion and supination of the forearm, while the movements of the scapula were limited. Further examination showed com-
Complete paralysis of the spinati, biceps, deltoid, supinator longus; partial paralysis of the trapezius, rhomboids, levator anguli scapulae and flexors of the wrist and fingers. All the above muscles were wasted. The spinati, rhomboids, deltoid, biceps, and supinator longus gave no reaction to the interrupted current and a sluggish response to galvanism. Stimulation of Erb's point in the neck caused no contraction of the above muscle. The upper fibres of the trapezius also showed signs of degeneration.

The wound of entry is shown at the inner end of the scar; wound of exit behind. Note wasting of trapezius, deltoid, biceps and supinator longus.

There were few sensory changes. The patient complained of shooting pain along the front of the upper arm, chiefly at night. Occasionally he felt pins and needles in the hand; this was relieved on rubbing the hand. There was a small area over the deltoid which was deficient in the appreciation of pin-prick and of fine shades of temperature. The borders of this area were variable.

That there was some affection of the vagus was first suggested to us by the patient's hoarse voice and constant dry cough, which he said he
had complained of ever since he was wounded. An examination of the larynx by Captain Murphy showed that the left vocal cord was paralysed in the cadaveric position. On phonation the right cord came over the mid-line to meet the left. A second examination a few months later showed that slight movement had returned in the vocal cord. The cough slowly disappeared and the hoarseness became less marked. There was nothing abnormal in the pulse so far as we could ascertain.

The condition of the phrenic nerve was investigated by observing the movements of the diaphragm under the X-rays. The two sides showed a marked contrast. While the right cupola performed the normal respiratory excursions, the left on normal respiration appeared to remain motionless, while on deep inspiration it moved slightly upwards, apparently owing to the increased abdominal pressure. It was interesting to note that in spite of the complete paralysis of one half of the diaphragm, the rate and rhythm of respiration were normal; there was no dyspnoea even on exertion.

The X-ray examination revealed incidentally yet another point of interest. Lying near the left border of the heart and moving with each beat was a foreign body about the size of a pea. As there was no wound in the thorax one must assume that a small fragment had migrated from the neck.

When the anterior wound had completely healed, an operation was performed by Major H. B. Roderick. The fifth cervical root was found...
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to be completely severed, while the surrounding parts, including the junction of the fifth and sixth roots, were involved in cicatricial tissue. The ends of the fifth root were trimmed and united and the adjoining parts cleared of scar tissue. A search was then made for the spinal accessory. The central end was found to terminate in the scar tissue, This was dissected out and the end trimmed. As no trace of the peripheral end could be found the central end of the nerve was inserted into the trapezius and sutured in position.

Diagram of brachial plexus showing site of injury; the shaded part is that which was involved in scar tissue.

Such an injury to the brachial plexus is not uncommon. In ten months' neurological work I have come across four cases, in two of which an operation was performed. A similar injury occurs occasionally in obstetric manipulations, when it is known as Erb's palsy. Sherren states that the fifth cervical root supplies the deltoid, rhomboids, supinator longus, spinati and biceps. In the second case which I have seen
operated upon (under the care of Lieutenant-Colonel Deighton) the fifth root only was involved (constricted by scar tissue). In this case the biceps, though completely paralysed at first, soon recovered, its power being almost normal before the operation. These two cases would thus seem to show that a large proportion at least of the fibres to the biceps come not from the fifth but from the sixth cervical root.

A TRENCH CYCLE STRETCHER.

By Captain R. Kennon.
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The evacuation of wounded from the trenches is fraught with so many difficulties that even when "all is quiet" occasions arise that permit of their removal only under cover of darkness. In addition to the length and irregularities of the communication trench, it is frequently necessary to expose the patient and bearers to full view of the enemy when negotiating a difficult traverse. It was in such trenches, and before the issue of the short trench stretcher, that Captain Jeavons and myself cast about for some means of minimizing the exposure and obtaining rapid evacuation by daylight in the trenches we then occupied. Our ideas were materialized by Messrs. J. H. Brookes, of Birmingham, who produced the Victor stretcher. Reference to the accompanying photograph will readily explain its features, the keynote being an ordinary cycle saddle upon which the patient sits strapped to the stretcher whilst he is pushed wheelbarrow fashion round the most intricate traverse. The main advantage is the economy of time and labour. Whereas formerly a party of five or more men were required for each patient, two