grow, but did not become thinner, and he lost all sexual desire. His urine was scanty, but normal. In spite of rest in bed, and an exceptionally ample diet, he continued to lose weight; thyroid gland made him worse, but large doses of opium and bromide relieved the excitement, and his weight became almost stationary. On June 18th, 1911, he weighed 127 lb.; he was given $\frac{1}{10}$ grain of dried parathyroid gland four times daily, and four days later he discontinued the opium and bromide. He gained $6\frac{1}{2}$ lb. in the first four days, 12 lb. the next five days, and $28\frac{1}{2}$ lb. in the first nineteen days. Simultaneously all his symptoms disappeared, and in a month he was well. He continued to take the parathyroid; in January, 1912, he weighed 161 lb., and in December, 1912, 175 lb. He discontinued the parathyroid in November, 1913, but remained well, weighing 189 lb. in February, 1914.

SHRAPNEL WOUND OF THE SPINE, WITH EXCEPTIONALLY LOW TEMPERATURE.

BY

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AND

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LANCE-CORPORAL S., aged 19, was admitted to 13th General Hospital, British Expeditionary Force, on December 23rd, 1914. He was very cold; unfortunately at the time no

low-registering thermometer was available, but the ordinary clinical thermometer, shaken down to well below 95°, did not register any rise. At first he did not speak, and did not appear to understand when spoken to, but later recovered sufficiently to give an intelligent account. The history he gave was that on December 21st he had been hit by a shell, which exploded behind him. He immediately lost the power in his legs, but apparently did not lose consciousness.

In the neck, in the region of the sixth cervical spine in the middle line, there was a small circular wound which had very nearly healed.

Eyes.—The right pupil was larger than the left; both pupils reacted to light and accommodation. Fundus normal; no nystagmus.

Cranial Nerves.—Normal.

Motor System.—Upper Limbs: Both were quite flaccid. No movements were possible, except slight shrugging of the shoulders. Lower Limbs: Rather flaccid. Could draw

up and extend both. The ankle and toe movements were relatively good in the right, but in the left there were no toe movements. **Trunk:** Respiration was wholly diaphragmatic, and there was no contraction of the abdominal muscles.

Sensation.—Prick lost to C₃ on the left side and to C₄ on the right.

Reflexes.—Knee-jerks absent on both sides. Ankle-jerks absent. Plantar reflexes equal and extensor on both sides.

A skiagram showed a large shrapnel bullet at the level of the sixth cervical spine, and almost exactly in the middle line, with fracture of the laminae of this and the spinous processes and laminae of the fourth and fifth cervical vertebrae.

On December 26th two low-registering thermometers were obtained, and the temperatures recorded by each were identical as follows:

			Mouth.		Rectum.
11 a.m.	...	...	80.6° F.	...	80° F.
4 p.m.	...	...	80.4° F.	...	86° F.
11 p.m.	...	...	84.2° F.	...	86.3° F.

On December 27th the patient was transferred to an adjoining hospital—No. 7 Stationary—as there were no small rooms available at No. 13. Here he was put in a room with a fire, and the temperature kept at about 70° F., otherwise no special treatment was carried out. The temperatures recorded during the day were:

			Mouth.		Rectum.
7 a.m.	...	...	86° F.	...	88.9° F.
10 a.m.	...	...	98° F.	...	—
2 p.m.	...	...	102.2° F.	...	—
4 p.m.	...	...	105° F.	...	—
6.30 p.m.	...	...	105.6° F.	...	—

At 8 a.m. he was comatose, and remained in this condition until he died at 6.45 p.m.

Post-mortem Examination.—The cord in the region of the fracture appeared somewhat swollen and softened, and there was some haemorrhage into the central canal. Apart from this nothing abnormal was found.

To Dr. Gordon Holmes we are much indebted for his notes on this case.

NOTE ON A SUCCESSFUL METHOD FOR THE EXTERMINATION OF VERMIN INFESTING TROOPS.

BY

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1ST LONDON DIVISION, T.F.

WITHIN about a couple of months of the troops of the 1st London Division coming into camp under canvas at Crowborough I learnt through the medical officers in charge of some of the battalions that a certain number of the men under their charge were experiencing the unpleasant effects incidental to infestation by lice.

Steps were at once taken to deal with the matter, but our efforts were at first somewhat handicapped owing to the fact that not only at that time had the men not been supplied with a second service suit, but that a number of those affected were found not to be in possession of a second shirt or change of underclothing. Moreover, it was not possible to obtain assistance from the rural sanitary authority of the area in the work of disinfection, as it did not possess any apparatus for the purpose of dealing with infected clothing and blankets.

As a matter of first instance, all the battalion medical officers were called together for the purpose of informing them as to the various aspects of the question, including the life-history of the body-lice, *Pediculus vestimentarii*, an excellent description of which, by Dr. Shipley, was published in the BRITISH MEDICAL JOURNAL for September 19th, 1914. At the same time commanding officers were communicated with as to the necessity for ensuring that all men under their command should be provided with, at least, a second shirt, and, if possible, a complete change of underclothing.

Further difficulty was experienced in providing baths for the men, there being no means at hand of obtaining hot water in large quantities. This was eventually obviated by the purchase of several large second-hand galvanized iron tanks, which were set up near the ablution place in each camp. These tanks were supported over a central trench, on bricks laid in puddled clay. One end of the trench, which extended beyond the tank at either extremity, was fitted with a chimney built up of old bricks, drain-pipes, and puddled clay, while the other end was used as a stokehole. On lighting a fire in the trench, it was found that, even where no cover was provided for the tank, the contained water, to the amount of 200 gallons or more, could usually be brought to boiling point in about an hour.

Bathing was carried out in an adjoining marquee, or, in some instances, in an empty house. Hot water from the tanks was carried in buckets and poured into galvanized iron wash-tubs, in which the men could stand. Recently, however, the troops have been moved into huts, where ablution rooms and bath-rooms supplied with hot and cold water are provided.

The further details of treatment are briefly indicated in

the following copy of a memorandum which was distributed to all the medical officers of the division:

To the Medical Officer.....

Treatment for Destruction of Vermin.

Arrangements should be made for the bathing of affected individuals and other inmates of infected tents.

After drying themselves, men to lather their bodies with cresol-soap solution (water 10 gallons, Jeyes' fluid 1½ ounces, soft soap 1½ pounds), especially over hairy parts, and to allow the lather to dry on.

Shirts to be washed in cresol-soap solution made with boiling water.

Tunics and trousers to be turned inside-out, and rubbed with same lather, especially along the seams. Lather to be allowed to dry on the garment.

The materials can be obtained from the A.S.C. on indent authorized by A.D.M.S. in the form attached.

(Form attached.)

To the Commanding Officer,
Army Service Corps,
1st London Division, T.F.

The following articles are required for the purpose of treatment for vermin. Please supply:

Jeyes' Fluid
Soft Soap
Signed.....

Medical Officer.

Address.....

Date

Infected blankets were at first treated by soaking them in cresol-soap solution, after which they were sent to a neighbouring laundry to be washed, a small contract rate having previously been arranged. In the first week in November, however, a portable Thresh's steam disinfecting apparatus was supplied to the division, through the Second Army, since when no difficulty has been experienced in the disinfection both of clothing and blankets.

Appended to the article on lice by Dr. Shipley, referred to above, was a series of suggestions drawn up jointly by Professor Nuttall and himself, in which the use of paraffin or petrol was advocated for the extermination of lice. Doubtless these substances would be perfectly efficacious for the desired purpose, but their use was not attempted owing to the possible danger not unlikely to be incidental to the use of substances of so inflammable a nature by large numbers of men.

As matter of fact the simple and inexpensive method which has been employed by us over a period of several months has proved so successful that no necessity has arisen for a trial of other means of treatment. It may, perhaps, be mentioned that a number of copies of our memorandum have been distributed in reply to requests from medical officers of health and medical officers in charge of troops. And, in view of the fact that trouble due to the prevalence of lice has been experienced in other camps in various parts of the kingdom, the medical officer to the Local Government Board and other members of the Army Sanitary Committee suggested that a useful purpose might be served by the publication of a method which has been found so efficacious under service conditions.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

GEOMETRIC AIDS TO X-RAY LOCALIZATION.

IN spite of the many complex instruments, scales, and calculations which have been devised to assist in the localization of a foreign body, the simple foot-rule or centimetric measure holds the premier place for rapidity, accuracy, and convenience. With it we can measure the necessary heights and distances and draw any straight line required.

The position of any point is determined if we know the position of any two lines passing through it, and hence two exposures to x rays from different positions of the tube are necessary and sufficient to localize any foreign body.

The orthogonal projection on a horizontal screen of the line joining the anticathode, the object, and its shadow is a straight line passing through the point on the screen vertically above the object; and the intersection of two such lines on the screen gives the point on the vertical line of the object.

1. Where there is some method of indicating on the screen the position X of the anticathode—for example, by cross wires vertically over it—the lines X_1S_1 , X_2S_2 , joining the X_1X_2 to the shadows S_1S_2 of the object, meet at P, the point

vertically over the object. The distance of the object from the plane of the anticathode is given by the formula $\frac{X_1P}{X_1S_1}H$, where H is the height of the screen from the tube.

For the convenience of marking the vertical line on the skin, the anticathode can be brought under P. After the line X_1S_1 is marked on the screen (the foot-rule may be laid down as a guide), the tube is moved so that X_1 moves along the line X_1S_1 till it meets S_1 at P. The anticathode is then vertically beneath the object and P.

The distance T from the anticathode to the table is known, and the height of the foreign body from the table, $\frac{X_1P}{X_1S_1}H - T$, can be indicated by a horizontal line on the skin. This line of known height from the table enables the surgeon to put the limb in the required position—that is, with the vertical mark in its proper position over the foreign body—with the least possible delay or disturbance of the patient.

Provided that the relationship of the photographic plate to the limb is properly recorded, two exposures on one plate will enable it to be used in place of a screen at the time of operation.

2. Where there are no means of recording the position of the anticathode on the screen, the lines X_1S_1 and X_2S_2 can be obtained by moving the screen vertically up or down,

and recording the position of the shadow in two positions S_1 and R_1 for each position of the tube. These lines, of course, meet in P, and the distance of the object beneath P is given by the formula $\frac{PS_1}{S_1R_1}h$, where h is the vertical distance through which the screen was raised.

The distance of the object, and of the horizontal line, from the table is $H - T - \frac{PS_1}{S_1R_1}h$. If the tube be moved in the direction S_1R_1 until S_1 lies on P, the anticathode can be brought vertically beneath the object.

From this it will be seen that by means of two linear measurements on the screen, or photographic plate, the exact position of any foreign body can be ascertained and recorded. The only apparatus required is a holder for the screen which permits of its being placed in any horizontal position over the table and to be raised or lowered. The ordinary upright standard for a lamp can easily be adapted. The fraction-meter will give the values of the formulae without any calculation.

Exeter.

DONALD F. SHEARER, M.B., F.R.C.S.