

diseases. The first impression obtained, however, is a promising one. It seems probable that the light will be of distinct value in the treatment of superficial ulcerations, especially those which are of a purulent character. Investigations should be made to determine how this light compares with other arc lamps. The exposure required with it is a short one which is an obvious advantage. It seems possible that in some diseases cures will be obtained more quickly than with other treatments. Beyond a slight reaction, which is quite definite when a long exposure has been given, no bad results have been seen.

## HYPERTHYROIDISM AS A CAUSE OF THE IRRITABLE HEART OF SOLDIERS.

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THE following cases seem to us worth recording as they may explain many of the so-called "irritable hearts" which are now so common in men home from the front.

CASE 1.—The patient, aged 28, admitted into the Herbert Samuelson Hospital for Officers, and first seen by one of us (C. P. W.) on April 13th, 1915, had been at the front for eight months, and had there been subjected to great strain. As all his work had to be done at night he had been very short of sleep. He complained of palpitation, the pulse even in bed varying between 90 and 100 per minute, though quite regular. There was no cardiac murmur; the apex was in the nipple line. The temperature was slightly raised; he suffered much from sleeplessness. He improved to a certain extent while in hospital and left on May 6th to go home and to lie in the open air. He did fairly well until the middle of August, when he became very breathless and was hardly able to walk a hundred yards. He came under observation again on Sept. 30th. I had seen him only once since he left London, and I was much struck with the change. The thyroid gland was enlarged, he had well-marked Stellwag's sign, fine tremor of the hands, a pulse-rate of 120, apex in nipple line, and no murmur. He was breathless on the slightest exertion. All the typical signs of Graves's disease were present; he came into hospital again. The pulse-rate after a few days' complete rest varied from 98 to 84, and the respirations were 28 to 34 per minute.

After three weeks' rest in bed one of us (F. H.-J.) gave him some X ray treatment. Sittings were three times weekly, and it was only possible to give seven in all. The patient then said that he felt so much improved that he considered himself equal to travelling north to attend to urgent business affairs. It is difficult to say how much of this alleged improvement was imagined as the result of the patient's wish to escape. All that can be said on the physical side is that during the last few days while he was up the pulse was no worse than when he had been confined to bed. In civil practice a few cases certainly do show definite benefit from X rays in a fortnight, but a month is generally necessary for any effect to be seen.

CASE 2.—The patient had been wounded at the base of the neck and the left shoulder (June 28th) after two months' campaigning in Gallipoli, during which time he was under fire the whole time. He was confined to bed between two and three weeks. As soon as he was allowed to get up he began to be troubled with profuse sweats. He slept badly and felt restless and unsettled. His legs "seemed scarcely to belong to him," and any exertion made him breathless. He was first seen by one of us (F. H.-J.) early in September, when he still complained of all the above symptoms, though, of course, in somewhat less degree than when he first got up. He thought, however, that there had

been no improvement for a month or more. He complained much of aching in the wound, which, though healed, presented an angry-looking scar. To look beyond the natural effects of exposure, shock, and continued pain to furnish an explanation of the symptoms had not been thought of. Consequently treatment by high-frequency vacuum electrode was prescribed for the neck and shoulder, together with the sinusoidal bath as a general tonic. Under this treatment the pain lessened, but the general condition remained unimproved. He complained of night sweats which left him limp in the morning. Belladonna was prescribed for these, and it produced some improvement. So matters stood at the beginning of October, when it was thought desirable to re-examine the patient carefully in the light of Case 1. There was slight exophthalmos, definite enough when looked for; also the pulse was 120. The hands showed tremors when held out. The thyroid gland was definitely enlarged, and pulsation was distinctly visible. The clinical picture was thus illuminated as by a flash, and the whole of the symptoms fell into their proper place. It was, in fact, a typical, and—rightly looked at—obvious case of Graves's disease. Exophthalmos, enlarged and pulsating gland, tremors, sweatings, tachycardia, breathlessness, irritability—nothing was lacking.

The patient was doing light duty, which he was very anxious not to relinquish. He was unwillingly allowed to continue this for a time while X rays were being tried. He has had treatment for two months. The pulse is 100. Sweating is now of very occasional occurrence. The tremor has gone. The thyroid gland is smaller in size, and there is very little pulsation. Exophthalmos remains unchanged, but it was never very marked. The patient states that he feels himself to be making progress every week.

CASE 3.—The patient, aged 40 years, had in February, 1915, been sent to Egypt. At that time he felt in perfect health, and carried out all his duties for a period of three months. His work was of an extremely arduous nature, and he began to feel the heat very much about the beginning of May. Towards the end of that month he began to feel unsteady on his legs and to be troubled with shortness of breath. He was sent home in July, and was first seen by one of us (F. H.-J.) on Oct. 1st. At that time there was marked exophthalmos, and fine tremor in the hands, which felt clammy to the touch. The pulse-rate was not markedly high (84). The patient was doing a certain amount of duty, and his chief complaint was that the least extra exertion made him short of breath.

X ray treatment was commenced and was given three times a week. The patient announced an improvement after four weeks. In two months he stated definitely that he could go upstairs without feeling "puffed," and that he felt it would not be very long before he was fit for full duty.

With regard to the first of these cases, the interest of it lies in the fact that many cases of irritable heart may be explained by a condition of hyperthyroidism, a sort of pre-Graves condition: the rapid pulse, sleeplessness, and tremor being the only signs present. We know that prolonged strain and shock are common predisposing causes of exophthalmic goitre, and these factors are, of course, present in marked degree in most instances of so-called "soldier's heart."

The patient in Case 2, although showing all the typical signs of Graves's disease early in October, had been seen by several medical men since he was invalided home without the diagnosis being arrived at. It is probable that the full clinical picture developed gradually, and that, had one been on the alert, the condition could have been recognised at an earlier date and treated accordingly.

Case 3 provides a kind of link between the Graves's disease of civil practice and that presumably brought on by the rigors of active service. This patient had not actually been under fire, and, of course, his trouble might have developed in any event.

There was no sort of *a priori* certainty that the same excellent results obtainable by X rays in

ordinary cases could be duplicated in the "military" form of the disease; but, so far as our experience has gone, this treatment appears beneficial.

It is to be specially noted that the patients in Cases 2 and 3 continued to do a certain amount of duty. That the third patient should be practically cured and the second very much improved in two months under such circumstances may, we think, be considered encouraging; but it is probable that rest is even more desirable in military cases than in those occurring in private practice.

The treatment of irritable heart in soldiers has hitherto been decidedly of an "expectant" nature, and it would at least seem reasonable that in all cases where there is a suspicion of hyperthyroidism X rays should be tried, other suitable measures, of course, not being neglected. We are of opinion that investigation and treatment on the lines above suggested will alter for the better the prognosis in the type of case known at present as "irritable heart of soldiers."

## Clinical Notes:

### MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

#### CASE OF SHRAPNEL INJURY TO RIGHT PARIETAL CORTEX,

SHOWING PARESIS OF LEFT LOWER EXTREMITY, TOGETHER WITH CORTICAL SENSORY LOSS AND THALAMIC OVER-RESPONSE.

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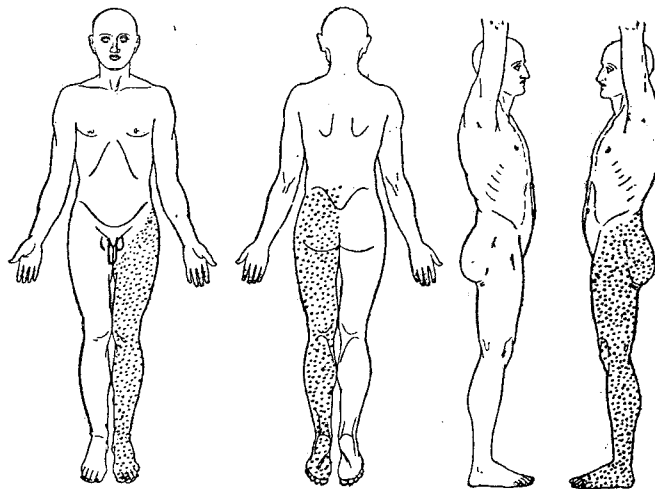
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We consider that the following case is of sufficient interest to publish as it shows a comparatively rare combination. There are two definite sensory changes to be distinguished. First, there is the sensory loss due to functional disturbance probably of a circulatory nature arising from local pressure on the post-Rolandic cortex. This accounts for the loss of posture, the inability to distinguish compass points, the persistence of deep touch, and possibly for the blunting of cotton-wool touch over hairless areas. On the other hand, we have to consider the over-reaction to stimuli of an affective nature such as heavy prick and stroking. This is of thalamic origin, and is explained by the throwing out of action of the cortex which normally exerts an inhibitory influence over the thalamus. The reason why thalamic over-response is seldom a well-marked feature of the cortical sensory lesions seen in this war it is difficult to say; in this case the amount of brain damage was small and the consequent shock slight—a possible explanation. The area determined by the line of change is interesting in that it approximates more closely to a "mind" or hysterical loss than any other area due to an organic lesion. On the motor side the involuntary movements are undoubtedly of reflex origin, and probably represent the efferent expression of the thalamic level. In support of this hypothesis we have their relation to affective stimuli, especially when arising from the mucous

membrane of the glans penis. As such they are comparable to the well-known involuntary movements which accompany certain emotional states, such as shyness.

Private — was admitted to a general hospital on July 31st, 1915, suffering from a wound of the head received on the 26th. He gave a history that after being hit by shrapnel he was unconscious for about 10 minutes. He was carried to a dressing station, being unable to walk on account of weakness and numbness of the left leg. Since then he had complained of numbness of the left leg and headache. On admission there was a small perforating wound at  $8\frac{1}{2}/14\frac{1}{2}$ " .....  $1\frac{1}{4}$ " to the right of the middle line. There was no cedema of the scalp or tenderness of underlying bone. The X ray showed two pieces of metal in the outer table of the skull in the posterior parietal region with a depressed fracture below. Examination of the nervous system revealed no abnormal changes in the eye movements, the pupils, or the visual fields; the face and tongue were straight, there was no weakness or ataxia of either upper extremity. The right lower extremity reacted normally to all tests. In the left lower extremity all movements were possible, but there was definite weakness of the toes, and the extensor longus digitorum was observed to act more strongly when the patient dorsi-flexed the ankle than when he attempted to extend the toes. On the left side the knee-jerk was exaggerated, ankle clonus was just obtained; the plantar reflex was extensor and the abdominal was abolished.



Over the dotted area shown in the chart there was marked over-reaction to pin-prick, and passing from above downwards the line of change was quite definite; over the whole limb moderate prick was less "sharp," and heavy prick more painful than on the right side. Over the hairless areas of the leg and foot there was blunting to cotton-wool touch; cotton-wool over hairs was well appreciated, but felt different from the right side. Temperature sense, vibration on bone and on pinched up skin were normal. There was considerable persistence of deep touch from the sole, and compass points could not be distinguished at 6 cm. along the inner border of the foot. The position of the hip and knee was impaired, and there was complete loss of position of toes. Localisation was accurate. Spontaneous movements of an irregular and jerky character affecting the whole limb occurred from time to time or could be elicited by any painful stimulus applied to the leg or by gently stroking the limb with cotton-wool; these movements were, however, most marked on tickling the sole of the foot or on gently pricking the left side of the glans penis, the latter causing great discomfort to the patient. Stimulation of the sole gave a feeling like an electric current passing through the leg.

On August 2nd an operation was performed. A penetrating wound of the outer table was found with depression of the inner table; a blood clot occupied the interval between the two tables. The depressed portion of bone measured  $\frac{7}{8}$  inch by  $\frac{3}{4}$  inch, and was driven down on to the dura to the extent of about a quarter of an inch. The dura was intact. After operation the sensory changes began to clear up rapidly. On the patient's discharge to England on August 13th he reacted normally to gross tests.