

venereal sores, both the Indian ink method and dark ground illumination were employed in each case to compare the methods. Sunlight was the means of illumination employed with the dark ground condenser, and, although one had to watch for the appearance of the sun on a dull day, few days occurred in which the sun could not be utilized for a short time. The conclusion arrived at is that little difference exists between the two methods. The dark ground illumination gave a positive result on two occasions, in which the ink gave a negative one. And on one occasion the ink method was positive when the "dark ground" failed to show any *Treponemata*. The time taken to find the organism varied from at once in most cases to twenty minutes, the longest time to obtain a positive result. The average time has been one minute in diagnosing the last thirty syphilitic sera.

(3) The success of Burri's method depends on the even distribution and the requisite thickness of the film (consisting of two parts of Indian ink to one of serum from the chancre), and the absolute freedom of the slide from grease.

Lastly, it has been noted recently that when both *Spirochæte balinitidis* and *T. pallidum* are mounted on the same slide with ink that there is much more distortion of *S. balinitidis* than of the *T. pallidum*, probably owing to the greater resiliency of the curves of the latter organism. This point requires further investigation, for if it is true it enhances the value of Burri's Indian ink method of diagnosis in syphilis.

---

#### BIER'S HYPERÆMIC TREATMENT: A PLEA FOR ITS MORE EXTENDED USE.

BY CAPTAIN V. T. CARRUTHERS.

*Royal Army Medical Corps.*

PROFESSOR BIER introduced his hyperæmic treatment in 1892. It is surprising that its progress in public esteem has not been more rapid.

The writer has used it for the last eight years—his first patient being himself with a poisoned finger when he was a house surgeon. The treatment consists of three different systems: (a) elastic compression proximal to the lesion; (b) suction by vacuum-glasses; and (c) hot-air appliances. Of these the first is by far the simplest, and, on account of the cost of the apparatus required for the other two, elastic compression is practically the only method of producing hyperæmia that the military surgeon can consider at present. In any case he will probably have to buy the elastic for himself; but the satisfactory results will amply repay him for the small outlay.

It is not proposed here to give any detailed description of the treat-

ment, but merely to sketch the outlines of the method of using the elastic band, with some practical hints that the writer believes in, but which are not commonly mentioned by the authorities. There is now an excellent English translation of Bier's book, and numerous articles have appeared recently by British surgeons, notably by Mr. Waterhouse. This surgeon has also written a concise and lucid summary of his experience for Hutchison's and Collier's "Index of Treatment."

The type of case for which hyperæmia will be chiefly used in military practice will be septic conditions of the extremities. Professor Bier advocates it for tuberculosis of joints, lungs, skin, &c., chorea, coryza, scoliosis, varix, and innumerable other diseases. It is possible that the bulk of the profession will not be able to follow him into every branch of healing. We must take into account his exceptional skill and experience; and even (if such a thought may be for a moment hinted at) we may make a little allowance for the zeal of the inventor. The method has been extolled as the greatest surgical discovery since Lord Lister's; at any rate, we can say that surgeons of experience who have given it a fair trial speak very highly of its virtues.

Let me, then, mention some details which may help the inexperienced to make a start. All that is required for a beginning is some two or three yards of garter elastic. With this the treatment of septic infection of the limbs can be quite effectively carried out. Any stronger elastic bands are to be condemned. A practitioner with experience of the method may use broad elastic webbing or rubber tubing with safety and success, but in the hands of a beginner great harm may, and often has been known to, result from their employment.

The band should be applied to the arm above the elbow and to the lower extremity above the knee. Even if the lesion is an onychia this rule holds good. The reason being that more blood can be caused to enter the inflamed area by congesting the whole limb than by causing hyperæmia of a part only.

The degree of tightness should be such that the limb becomes gently congested and dusky; but it is of supreme importance that the arterial flow be not stopped. Within a short time pain should be relieved. This is one of the golden rules. If pain is increased at the end of, say, half an hour, one of two things is wrong; either the band is too tight or else there is pus under tension. Pus under tension must be let out. A very much smaller incision may be used for this purpose than could be allowed without congestive treatment.—the object being merely to relieve tension. Bier says that the tiny incisions of the general practitioner are converted by hyperæmic treatment from bad into good practice. However, this is a statement that need not be too much emphasized at present. Everybody knows what hideous suffering timid incisions may give rise to in septic conditions, and large incisions are always safest whatever auxiliary treatment is used.

If, therefore, pain goes on increasing for half an hour after the application of the congesting band, it is necessary gradually to slack off the constriction until pain ceases. If pain will not cease or abate until all constriction is removed, then pus is almost certainly present, and should be let out. After incision the band is re-applied, and it will be found to ease the pain. In addition a very copious discharge of serum will be caused, so that fomentations under waterproof may often be discarded, as the serum keeps the dressings moist. If in any case there should be free venous hæmorrhage the congesting band should not be applied until some hours have passed, for it is plain that the flow of blood from a severed vein must not be aggravated. As to the time per diem that the elastic should be worn opinions differ. Professor Bier advocates twenty hours out of each twenty-four, but English writers do not keep to this rule, and seem to obtain good results even with two hours' application morning and evening. The writer generally keeps the constriction on all day and removes it at night. The merits of each case of course have to be considered. We are now, let it be quite plain, discussing acute septic conditions only. For the treatment of tuberculosis, rheumatism, &c., the rules are different and cannot be considered here.

The effect of the congestion is to cause a considerable and alarming œdema. This is a laudable condition, and should not cause anxiety. After the constriction is removed the limb must be elevated on pillows until the time for re-application of the elastic comes round. This is a very important part of the treatment, and must be carefully remembered. As much as possible of the œdema should be in this way daily, or rather nightly, removed. If it does not entirely disappear it does not matter.

To produce the above effects a yard of garter elastic will be enough for most arms and about twice that amount for the thigh. It should be applied over a fairly broad area of skin in order to prevent deep pitting of the tissues. Those who are inexperienced in the treatment should see their patient very frequently while the congestion is present, and test the pulse and general condition of the limb. After some experience two visits a day, once to apply and once to remove the bandage, will be enough.

In chronic septic trouble the congestion may be more severe and of longer duration, and the most excellent results may be anticipated.

As for the second method, i.e., suction by cupping glasses, something may be done, even without the regular apparatus, by the judicious use of the common breast-pump and cupping glasses in such diseases as boils and persistent sinuses. The writer used a common ball breast-pump with almost dramatic effect in curing a case of inveterate sinus following liver abscess and empyema, in which all his labours at the operation were in a fair way to be forgotten by his patient on account of the refusal of the tube-track to heal.

A somewhat severe, dry cupping will also sometimes heal a chronic sore or sinus that has resisted months of other treatment.

Of the use of the congesting glass to the penis in anterior urethritis, the writer has no personal experience, though he hears excellent reports from his civilian friends.

In conclusion, these notes are not intended to instruct those who already use the hyperæmic treatment, but to encourage those who have not yet begun it to make a start.

The references to Professor Bier's opinions have throughout been taken from the French translation of the fourth edition of his "Hyperämie als Heilmittel." The later editions are not at present accessible to the writer.

### FRACTURE OF THE ASTRAGALUS.

BY MAJOR W. J. P. ADYE CURRAN.

*Royal Army Medical Corps.*

RECENTLY five cases of fracture of the most posterior portion of the astragalus have come to my notice. Attention was directed to the first case owing to the severity of the apparently sprained ankle, following a comparatively small degree of violence, viz., kicking a football.

Subsequently the other cases were detected by examining all skiagraphs of sprained ankles admitted to hospital. The mode of injury in these cases was falling down steps, twisting the ankle by stepping on a stone whilst walking, alighting on the heel on a tuft of grass in jumping over an obstacle. In two of the cases the patients had apparently been well for some time, but on walking they complained of pain at the seat of injury, and an examination by "X" rays revealed a fracture.

The portion of the astragalus broken was the small posterior process which articulates with the os calcis below, and is grooved on its upper portion for the tendon of the flexor longus hallucis. The fracture involved the joint. Swelling was particularly noticeable on either side of the tendo Achillis. In one case only was the whole process broken off.

The fracture seems most likely to occur when the foot is hyperextended and violence is at the same time applied to the heel, or dorsum of the foot, driving the os calcis upwards. In this position the astragalus is kept fixed by the tibia and the small process of the astragalus is unsupported, and therefore in a position to be easily broken off by the os calcis being driven upwards.

As I have not seen the condition specially mentioned, it would be interesting to know if the fracture has been noticed by others, as it seems possible that some of the severe sprains which do not easily yield to treatment, and where the pain persists, may be due to this cause.