the thigh and trousers, and there was local trauma that he did not notice. If this be not the explanation, then it is a case which is more suggestive of the origin from strain than any I have seen or read of. It happened as he was finishing work, he went straight home, had pain all the time, and although he made an effort the next morning to go to work, the testis was then swollen and too painful to allow him to continue. This is the sequence I should expect in a true traumatic epididymitis—the immediate onset of pain of some severity, the continuance of pain becoming more acute until the inflammatory process is fully established, and not a latent period of several days without symptoms. In neither of my cases was there any ecchymosis to be made out. This case, I believe, was due to a definite traumatism. The former case I feel just as sure was not.

A few years ago I treated a boy, aged 16 or 17, whose right testis suddenly swelled up in the night. When I saw him the next day body and epididymis formed an indistinguishable mass which was acutely tender, and it resembled a very acute gonorrhoeal epididymitis. I was very doubtful at the time as to whether it was a case of torsion. In a day or two the pain and swelling subsided, but the testis remained permanently atrophied; there was no connexion with mumps to be made out. He had been at gymnasium on the night it came on, but there was no account of any strain whatever. He told me he had no recollection of injuring the testis in any way or of experiencing any pain whilst at the gymnasium. I regret that I took no notes of this case, and merely give it from memory.

The theory of the *coup de fouet* can, I think, be dismissed. The sluggish contraction of the cremaster muscle, when eliciting the cremasteric reflex, and a view of the scattered muscular bands which compose it, when dissecting or performing the radical cure of hernia, will hardly impress one with its powers of striking the testicle a violent blow against the pillars of the ring.

It might be conceivable that in violent straining efforts the blood pressure in the vena cava could be so raised that such veins as those of the pampiniform plexus lying outside the abdomen, and therefore not supported as those are inside, might be ruptured; at the same time, it appears very unlikely. Dr. Edwards's suggestion is that in a violent action of the abdominal muscles the cord is nipped and the veins are compressed by the muscle, whilst the arteries, being more resistant, remain patent, as happens in any form of torsion or strangulation of a viscus. He suggests that the fibres of the rectus do this, but as these are inserted into the pubic and not the iliac crest this is an anatomical impossibility. What Dr. Edwards doubtless means is the action of the arched fibres of the internal oblique and transversalis muscles. Such an action, however, would be so brief, that I find it difficult to believe sufficient congestion could be produced to rupture any of the veins. In one of his cases there was some slight ecchymosis in the groin, but how or why even an extensive haematoma of the cord should cause epididymitis I find it difficult to see. If the bleeding occurred into the epididymis itself then I should expect immediate swelling and pain, which would not pass off rapidly, only to again manifest itself some days later. If it were so slight as not to cause this I cannot see why it should set up inflammation later.

From the very rigorous examination made by Dr. Edwards in his two cases, a urethral origin seems definitely excluded. But can the same be said of a general cause? Dr. Edwards mentions gout, rheumatism, and malaria, but only to dismiss the first two; but orchitis or epididymitis are well known to occur in mumps, typhoid, and other infective diseases, and I have seen epididymitis in pyaemia. I was told the other day of two cases of epididymitis occurring one after the other in members of the same family that were attributed to influenza, and it seems not an improbable assumption that it may occur as the result of a mild infection in some other of these cases of obscure origin quite as probably as from a doubtful trauma.

The one really weak point in Dr. Edwards's two cases and in the first of my two is the delayed onset. The testis, vas, and cord are well supplied with nerves, and are acutely sensitive to any traumatism, and I cannot conceive that such can occur, whether directly or indirectly, without pain of some severity occurring at once and persisting. In my second case this is what happened. The man felt severe pain at once, he left his work, the

pain continued to increase, and in the course of twenty-four hours the pain and swelling had fully developed. This, in my opinion, is strongly confirmatory of a traumatic origin. I cannot, however, but think that this was of the nature of a squeeze, and not a strain, and a mistake by the individual as to what exactly happened is quite conceivable.

The idea of strain as a cause is so difficult to imagine as being effective that I should prefer to assume some other unrecognized general condition of the nature of a mild infective process in the other, and that the supposed injury did not stand in the relation of cause and effect.

I have seen two or three cases of undoubtedly gonorrhoeal epididymitis, verified by staining specimens of the pus, which were unblushingly attributed to strains whilst at work. If, therefore, in such cases a history of strain is so frequent, how much more may it be expected where no obvious cause is apparent!

NOTES ON SLEEPING SICKNESS:

SUGGESTIONS AS REGARDS GLAND PUNCTURE
AND THE TRAPPING OF TSETSE FLIES.

BY

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HAVING just returned from a visit to the Lado district of Mongalla Province in the far southern Sudan, whither, as a member of the Sudan Sleeping Sickness Commission, I accompanied the President, Colonel H. B. Mathias, D.S.O., I would like to direct attention to two points, one of minor interest, the other having an important bearing on the question of prophylaxis.

1. A Gland Holder.

I have frequently found that the little operation of gland puncture is by no means so easily performed as might be imagined. This is specially true when one is working unaided and when the suspected glands, though enlarged, are small and comparatively hard. It is frequently difficult to fix the gland, none too easy to pierce its capsule, while sometimes one is apt, when exercising the necessary force, to run the needle right through it, possibly to the danger of one's own finger. Difficulty or failure is all the more exasperating when, as is usually the case, the patient's skin is greasy and slippery, the operator's fingers are in like condition, he himself is bathed in perspiration and worried by flies, and the needle is none too sharp.

It has occurred to me that a little instrument, which may be termed a gland holder or a gland fixer, would be useful. I hope when in London to have one made for me, but the accompanying sketches, for which I am indebted

Two types of proposed gland fixer.

to Mr. George Buchanan, will give an idea of the kind of thing which I think might serve the purpose. It will be seen that, in one form, that intended for a large gland or a mass of glands, it consists of two central curved blades the edges of which can be protected by rubber or leather, and which are intended to close in behind the gland and the skin covering it, thus isolating the gland and obviating any danger to the operator's fingers, or the risk of making two holes instead of one in the patient's skin. The blades

are operated by short handles, the degree of pressure exerted being controlled either by a catch system or a screw. The latter is shown here.

Tapes are attached to the distal extremities of these handles, and they can be carried round the neck and tied together. In order to make the fixation more complete a couple of short metal processes project from the other extremities of the central blades, and are also furnished with tapes. The other form differs only in the central blades being straight, and is not unlike a pair of nut-crackers. It would probably be more generally useful. With this little instrument in position the operator will have both hands free, and should not have to dig more than once at the gland. Aspiration will be easy, and if the first trial is not successful the gland is still there ready for number two.

I have had a rough model made in the Gordon College workshops, and, though not exactly like the instrument it is intended to represent, its use indicates that the latter would be likely to serve the purpose for which it is intended. I fear there may be parts of the neck where it cannot be used, but it could be employed in most situations, and I am inclined to think will fill a want.

2. Fly Traps.

Any one who has visited a sleeping sickness area, or indeed any one conversant with the recent literature on the subject, must, I think, have been driven to the conclusion that the crux of the whole matter, so far as prophylaxis is concerned, rests with the destruction of the tsetse fly. The fact that a special entomological commission is proceeding to Rhodesia for the express purpose of increasing our knowledge regarding the tsetse and its habits, shows that this fact is fully recognized. Hitherto efforts have more or less failed to deal effectively with the insect carrier. No natural enemy has been found which might be utilized on a large scale or which promises well; trapping by bird-lime and other sticky preparations has not done much good; tsetsefuges appear to be of little value, while in most places it seems hopeless to try to destroy the pupae on a large scale.

Not long ago I paid a visit to an area under cotton cultivation on the Blue Nile, and saw for the first time the ingenious "Andres-Maire" process for trapping insect pests and especially moths. It consists in using what are called "kiosk" traps, which are like large lanterns standing on legs. The sides are formed of metallic canvas, and thick canvas bands soaked in the liquid which attracts the insects to the traps are suspended in the interior. The moths are attracted by the strong smell of this special proprietary liquid, and flapping against the shutters find a narrow entrance between them and enter the trap. They remain on the bands all night, and in the morning when they want to fly away find they cannot do so owing to the way in which the trap is constructed. A basin filled with water and a little petroleum completes their discomfiture and forms their grave. These traps are said to be very successful, and it seems to me that something on the same lines might be tried in the case of tsetse flies. It should be easy enough to construct a trap into which a hungry tsetse fly could penetrate but out of which a gorged one could not get. As bait, blood might be used—preferably, perhaps, citrated—or fresh pieces of raw meat from cattle or antelope might serve the purpose, and would, I think, act as infallible lures. It should not be difficult, either, to invent a clockwork arrangement in connexion with a small petroleum tank at the top of the trap whereby once in the twenty-four hours—that is, at night—a spray of oil might descend on the occupants of the trap and slay them wholesale. Such traps would be more or less self-acting, while possibly the petroleum tank and spray might be dispensed with altogether and the flies left to the tender mercies of the native attendant responsible for fixing the bait or adding the blood, as presumably he would have to attend nightly to the traps. It would require no great intelligence to do so properly. A little experience would soon show the best way of operating them. They could be placed in the neighbourhood of villages, but sufficiently far away to prevent them merely serving to increase the visits of "fly" to the villages themselves. They could also be placed near watering places and at such other spots—

* Messrs. Andres, Maire, and Co. are an engineering firm in Alexandria, Egypt.

that is, places where native roads cross infected *khors*, etc.—as might seem desirable. I admit this is merely a suggestion, but so far as I can find out it has not hitherto been made, and it seems to me worthy of a trial, for, until we can destroy the tsetse on a large scale, we are, I believe, more or less helpless against the spread of this dread disease, and can only achieve partial results with great difficulty and at very great expense.

A Native Trap.—Since writing the above I have been given some interesting information by Mr. J. W. Sagar, one of the Government inspectors in Southern Kordofan, to whom I mentioned my suggestion about these traps. Formerly the district where Kawalib, a limited "fly" belt, is situated, was under his jurisdiction. The fly is *G. morsitans*, and the belt is quite peculiar. There is no water save that in the wells and what collects during the rains. The tsetse flies are not found near the latter. They haunt the area served by the wells, and are found only in the proximity of rocks and hedges. The belt is about twenty miles long and three or four in breadth. There is no evidence as regards the existence of the flies in any of the adjoining districts. This limited and peculiar distribution is said by the natives to be due to the fact that the fly was intentionally brought here from the river (presumably the Bahr-El-Ghazal) for purposes of revenge! This may or may not be true, and Major Morant's statement, quoted in our second report (pp. 29 and 30), says nothing about such an origin, but certain it is that at the present time the natives trap the fly in gourds containing blood as a bait and then liberate them in spots where the cattle or horses of their enemies are grazing or are collected together. The trap is a spherical gourd with a hole cut in the top. It is half filled with blood and carefully watched. As soon as a number of flies have entered it in quest of food, the native rushes forward and claps his hand over the aperture. He then closes the hole in some more permanent fashion, and carries off the flies in triumph for the future discomfiture of those with whom he has a feud. This native custom would certainly seem to indicate that a blood trap is a feasible method of dealing with one of the greatest pests from which Africa, the land of pests, has ever had to suffer.

THE NECESSITY FOR THE USE OF COLOUR NAMES IN A TEST FOR COLOUR BLINDNESS.

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NOTHING, in my opinion, has retarded the knowledge of the subject of colour blindness more than the statement (attributed to Holmgren) that in any test for colour blindness names were not to be used. It was usual to state that on no account must the examinee be asked to name a colour; if any explanation were vouchsafed at all, the writer added the following, which he appeared to regard as final: "When a man matches a colour, he is doing something definite with his hands," or it was stated that a man might know the difference between colours quite well and yet name them wrongly.

I have never come across a man who was a candidate for an employment in which he had to distinguish between red and green lights, and who on examination called green "red" and red "green" through colour ignorance, and who was really able to distinguish between these colours and had a normal colour sense. I believe that I am right in stating that though the Board of Trade has regularly employed a test for colour ignorance, it has never yet found a case in which it has existed. All the tests for colour blindness which have been proposed during the last few years have been naming tests, and those who are best qualified to judge have recognized that the use of names is a necessity. There are, however, many who still adhere to the old statement that names should not be used, and I therefore propose in this article to analyse the difference between matching and naming colours, and to show that the use of colour names is a necessity, and that no test for colour blindness can be efficient which ignores them.

If an examinee be placed before a number of coloured