6. *Syphilitic keratoderma* demands a few observations. The lesions are characterized by an increase in the horny layer of the epidermis of the palms and soles. They often form gyrate figures of a dull coppery colour covered with a horny layer. They may be mistaken for chronic eczema or psoriasis. In any case of doubt the blood should be examined by the Wassermann test.

7. *Syphilitic Alopecia*.—In the first year after infection the hair tends to fall. In some cases all that is noticed is a general thinning of the hair, but in others there are patches of baldness. These are often characteristic, the bald areas being of small size, as if the hair had come out from numerous spots about the size of the tip of the finger.

I have had cases of this type sent to me as alopecia areata. In the latter affection the bald areas are of round or ovoid form, quite smooth, and tend to spread peripherally. At the margin one is often able to demonstrate hairs thicker at the distal than the proximal end.

8. *Pigmentary Syphilide*.—As an aid to diagnosis I specially desire to draw attention to a curious pigmentary affection occurring in the first two years of syphilis. It consists of greyish or brownish staining of the neck, especially on the lateral aspects. From its situation it is called the "Venereal Collar." The margin of the pigmented area is ill defined, but the surface is studded with white spots, with a sharp outline varying from a split pea to a shilling in size. The dappled appearance is striking and characteristic. It occurs almost exclusively in women. Arsenical pigmentation resembles it closely, but is almost always found on the trunk—that is, on covered parts.

9. Certain drug eruptions may be diagnosed as syphilis. I have known this occur in the case of copaiba, the association of gonorrhoea with a rash leading to the error. The copaiba rash is all of one type, resembling urticaria or morbilli, and there is itching. I have also known an eruption due to iodides diagnosed as syphilis. The iodide eruption is bullous, and commonly affects the face and neck. The vegetating syphilide may be mistaken for an iodide eruption. The history and general symptoms should help in the diagnosis, and in any doubtful case the blood should be tested.

Lesions of Mucous Membranes.—The mucous membrane lesions of syphilis are usually very helpful in making a diagnosis, and on no account should an examination of the fauces, buccal mucosa, tongue, and anal region be omitted. The following points are worthy of notice: Aphthae are rounded yellow, painful superficial lesions occurring on the gums and buccal mucosa. Herpetic lesions in the mouth are also painful. Neither are associated with an eruption on the skin nor with generalized induration of the lymphatic glands. Erythema multiforme, with extensive lesions in the mouth, may be diagnosed as syphilis. The skin eruption especially affects the extremities over bony prominences. There is no general enlargement of the glands, and there is often a history of previous attacks. Condylomata have been mistaken for piles, but the error is due to want of care in examination.

SOME CONCLUSIONS.

I would remind you that syphilis, as Hutchinson taught us, is a great imitator. Always have syphilis in your mind, and particularly when you see what looks like a common variety of eruption with unusual distribution, and where there is an eruption of several types co-existing. Do not make a diagnosis on the rash alone; look for confirmatory signs in the glands and the mucous membranes. Do not pay too much attention to the history, and in any doubtful case take a specimen of the blood and send it to an expert for the "Wassermann" test. Here let me give you some figures as to my own experience with this test. For some years I have sent cases, some hundreds, to Drs. Fildes and McIntosh for "Wassermann" examination. Of cases in which I was clinically certain of syphilis the following results were obtained:

Primary syphilis	...	W.R. positive in 90 per cent.
Secondary syphilis	...	W.R. positive in 99 per cent.
Tertiary syphilis	...	W.R. positive in 95 per cent.
Congenital syphilis	...	W.R. positive in 100 per cent.

(To be continued.)

Lectures

ON

DISEASES OF THE MALE URETHRA.

BY

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LECTURE I.—URETHRITIS.

ETIOLOGY.

URETHRITIS is in most instances established by the direct implantation of a specific bacterium, the gonococcus of Neisser. Do not forget that it may be caused by other germs, such as colon bacilli, streptococci, staphylococci, and so forth. Investigate all urethral discharges under the microscope. In a consecutive series of one hundred cases, a gonococcus was found in eighty-four, a streptococcus in five, a staphylococcus in eleven cases.

How is the disease contracted by the male? It is contracted in the majority of cases after connexion with an infected woman. Do not forget that a man may contract the disease even though he has used a condom. I have known many instances of this. He probably infects himself by soiling the urethra with the fingers after he has removed the condom, or by washing the penis afterwards in an infected utensil, or the condom may have broken. Urethritis due to other germs than the gonococcus may be contracted from a woman who is menstruating, from a woman who has non-specific vaginitis set up by causes such as an unclean pessary, or by rectal coitus. I have instances of all these. Before the war I had seen only a few undoubted instances of urethritis contracted from infected towels, bathing drawers, or water-closets. Since the war I have seen a number of cases contracted from these sources, as the soldiers are often thrown together at the front or even in camp at home under conditions which favour such contagion.

Spontaneous or Haematogenous Urethritis.

I have on several occasions observed a man develop a slight urethritis at the onset of measles, no germs being distinguishable in the discharge, but only pus and epithelial cells. These discharges have cleared up without treatment. I have also observed a case of mumps that began with orchitis and slight purulent urethral discharge. I have also observed several cases of spontaneous urethritis due to the colon bacillus in men who were very run down, who had not been exposed to infection, and who developed urethritis with or without simultaneous attacks of haematogenous prostatitis and pyelitis.

SURGICAL ANATOMY OF THE URETHRA.

An understanding of the surgical anatomy of the urethra is essential in the study of urethritis (Fig. 1).

FIG. 1.—Diagram of the male urethra.

The first conception to get into your minds is that the urethra is divided into two portions, the anterior urethra and the posterior urethra.

The point of division is the compressor urethrae muscle ("cut off" muscle) which surrounds the membranous portion of the urethra.

The Anterior Urethra.

In front of the muscle lies the anterior urethra, 6 in. long. This consists of:

1. *The meatus*, which is the narrowest portion of the canal, the calibre being 24 Charrière in average individuals.
2. *The fossa navicularis*, 1 in. long and containing usually one large gland on the roof, the *lacuna magna*. (Calibre 30 to 35 Charrière.)
3. *The penile or pendulous portion* distal to the scrotum, containing on the roof numerous glands or follicles, and being very resistant to dilatation. (Calibre 28 to 30 Charrière.)
4. *The bulbous portion* extending to the compressor muscle, containing only a few large glands usually on the roof and being very dilatable (calibre 40 to 45 Charrière). The mouths of Cowper's glands open on the floor of the bulb, but these can hardly ever be seen by the urethroscope, and in my experience are only found infected on the very rarest occasions.

The compressor urethrae is a powerful voluntary muscle which passes into spasm on the slightest provocation, as by the stimulus of antiseptics or instruments on the mucous membrane. It can only be relaxed by an effort of will or by desensitizing the mucous membrane with novocain or stovaine.

There are no glands of any importance opening into the membranous urethra, and this part of the canal hardly ever acts as a reservoir of latent urethritis, though it is sometimes the site of troublesome strictures, soft and hard.

The Posterior Urethra.

This is between one and two inches long, and is one of the most highly sensitive and highly absorptive mucous membranes in the body. Half a grain of cocaine in the deep urethra is absorbed in a few minutes and may kill a patient. A few bacteria carried into the deep urethra by an unclean instrument will set up a rigor and may even lead to death from septicaemia. Treat the deep urethra with the utmost care, gentleness, and respect. The deep urethra has a calibre of 35 to 40 Charrière. The roof and sides are seldom provided with glands. On the floor lies the verumontanum—a sensitive erectile structure on the apex of which open the ejaculatory ducts guarded each by a powerful sphincter muscle. On each side of the verumontanum open numerous ductules of the prostatic glandular tubules. The uterus masculinus lies in the centre of the verumontanum, and is a bogey often cited to explain failure to cure. Actually it is very seldom a factor of importance in keeping up a discharge.

The posterior urethra is cut off from the bladder by a weak involuntary muscle, the internal sphincter of the bladder. It used to be taught that the bladder and deep urethra were practically one; and that the internal sphincter did not keep the urethra shut off from the bladder. I am convinced from practical observation that this is not the fact, and that in the majority of cases the internal sphincter is a potent cause in keeping urethritis from spreading to the bladder. The bladder mucous membrane also seems to be highly resistant to the gonococcus. In practice, therefore, consider the deep urethra as distinct from the bladder.

The urethra is not a simple tube; if it were, urethritis would be a simple disease. The tube needs to be kept moist so that the walls, naturally in a state of collapse, can be separated widely during the passage of urine without tearing. For this purpose mucus-secreting glands of various sizes are provided in the walls of the tube, "glands of Littre," "follicles," "lacunae of Morgagni," "prostate glands," "vesiculae seminales." The mouths of the glands point forwards.

If the healthy urethra is inspected by means of the urethroscope the mouths of the secreting glands glistening with mucus can be seen chiefly on the roof of the canal. The glands serve to keep the walls of the canal moist and glistening. In exceptional cases glands both small and large are found on the floor or sides of the canal.

The mucous membrane is lined by epithelial cells stratified in the fossa, but further back columnar. Underneath is found a submucous areolar coat, rich in elastic fibres and blood vessels, which merges with the muscular

and cavernous tissues of the corpus spongiosum. Directly underneath the submucous coat is a well-defined layer of unstriated muscle fibre disposed in circular rings. These rings are very obvious on urethroscopic examination. Underneath this layer lies the cavernous tissue of the corpus spongiosum. The lymphatics of the front portion of the urethra lead to the glands of the groin on both sides. The lymphatics of the deep urethra and prostate lead to the hypogastric and external iliac glands, and so to the lumbar glands.

Look upon the urethra, then, as a tube divided into two parts:

1. *The anterior portion*, non-absorptive and easily accessible.
2. *The posterior portion*, very sensitive, and hard to get at.

Look upon these two portions of tube not as cylinders with smooth walls, but as cylinders with numerous perforations in their walls, these perforations leading to blind tubes or glands of varying length and complexity.

URETHRITIS (GONOCOCCAL).

PATHOLOGY OF THE LIVING AS OBSERVED CLINICALLY.

Incubation Period.

After implantation in the fossa navicularis, the gonococcus lies apparently dormant for a period of two to seven days, during which time it is in reality multiplying itself until it becomes many myriads of germs. In 180 cases the average incubation period was seven days, the shortest one day and the longest twenty one days.

Development of the Disease.

At the end of the incubation period the germs, now present in vast quantities, elaborate poisonous bodies which irritate the tissues and set up inflammation. As a result an exudation is poured out of the blood vessels into the urethra, which exudation appears at the opening of the urethra as a yellow purulent discharge. The urine passing over the inflamed urethra causes pain. These two facts inform the victim that he has contracted the disease. During the incubation period the victim does not know that he or she has any infection, and in many of my cases I have records that connexion with other persons have taken place during this period, with consequent spread of the disease. In this way married men or women who have gone astray have given the disease to their wives or husbands by going with them during the incubation period before they have realized that they are in fact infected or infectious. In 180 cases 24 married men were found, six of whom had thus given it to their wives. Of these 24 married men, it was known that 15 had contracted it from women other than their wives. The remainder had undoubtedly got it from their wives who had gone astray.

Do not be deceived because the incubation period seems to have been unduly prolonged. In reality the patient has had a mild discharge and has not noticed it, and only a bout of alcohol or excessive coitus or some debilitating factor has brought on a more profuse and therefore obvious discharge.

Rate of Ascent.

In cases of urethritis the germs ascend the urethra at varying rates. If the germs are very virulent or if the patient is very run down in health and indulges in excessive alcoholic or sexual excitement, then the germs may ascend quickly and reach the deep urethra in a few days. In the average case it is ten days to a fortnight before they get as far as the deep urethra, and in some cases three or four weeks. How the gonococcus ascends we do not know. All we know is that if we use the urethroscope during the early acute stage (a practice I do not advise) we can see quite clearly how high the inflammation has spread. We see the walls of the tube highly inflamed for some inches and then quite suddenly we see the mucous membrane pale and healthy. Evidently the germ grows steadily upwards in the ordinary cases; but in hyper-acute cases it ascends by some process the nature of which we do not exactly know.

As the gonococcus spreads up the canal it sinks into the mouths of the glands and also sinks into the areolar and muscular tissue beneath the basement membrane, and in severe cases it reaches the dorsal lymphatics and the glands of the groin. The blood vessels dilate and pour

forth plasma and pus cells (inflammation). The mucous membrane can be seen to be red and swollen and bathed in pus; and pus can be seen pouring out of the glands of Littre, the glands themselves being swollen so that their bodies project into the lumen of the canal.

When the germs reach the deep urethra (58 per cent. in 180 consecutive cases that came up to be examined, but almost invariably in untreated cases) they penetrate the tubules of the prostate gland and the seminal vesicles, so that these glands can be felt by a finger in the rectum as hot and swollen. In 15 per cent. of posterior cases the germs spread to the testicles, but they very seldom reach the bladder, and hardly ever the kidneys. The only evidence of bladder infection is greatly increased frequency of micturition. Most cases labelled as gonococcal cystitis are really cases of deep urethritis. The bladder, unlike the urethra, is highly resistant to the gonococcus.

If a case comes to us before the disease has spread to the deep urethra, and if we at once institute irrigation or injection treatment, then it is most exceptional to find the disease spreading at a later date to the deep urethra. It is most important to recognize this fact. If a large number of cases in the early acute stage are observed clinically it will be noted that on the average it takes about ten days to a fortnight before the germs reach the deep urethra and prostate, though there are exceptions to the rule in hyperacute cases.

This is a fact of vital importance.

Treatment of Early Anterior Urethritis.

During the early stages the germs, being confined to the anterior urethra, are easily got at by means of antiseptic applications, and can be got under control and prevented from spreading to the deeper parts. The disease can then be cured in a few weeks often, indeed, in a week. This is a fact that has not been widely appreciated. A fatal doctrine has been taught in many of the English schools—namely, that in the early acute stages injections should not be used. This is a most pernicious fallacy and needs to be eradicated from the mind of the profession. Evidence gathered by modern clinical observers goes to disprove this fallacy. Clinical experience shows that it is in the early stages that antiseptics properly applied in suitable strengths can cure the disease quickly. Antiseptics used to be applied in unsuitable strengths, and that is why this fatal doctrine grew up.

Pace Almroth Wright no disease illustrates better than acute urethritis the favourable reaction of purulent tissues to the application of suitable antiseptics, and this reaction can be used as a constant and living proof of the fallacy of some of Wright's statements or "postulates"—for example, "These general truths are firmly based upon experiment. It can be demonstrated that none of our ordinary antiseptics extirpate microbes . . . in purulent discharges."¹

Anterior urethritis if left alone or treated by vaccines, or irrigated only with salt solution, spreads rapidly upwards. If in the same purulent stage potassium permanganate in suitable strengths is applied to the suppurating mucous membrane of the anterior urethra by injections or irrigations, the discharge is at once lessened, and in a few days disappears, and with it the germs that caused the inflammation. In other words—

"It can be demonstrated every day that an ordinary antiseptic, potassium permanganate, in suitable concentrations can extirpate microbes (gonococci) in urethral purulent discharges."

These "general truths" may be firmly based upon experiments in the laboratory, but they are found not to hold in the out-patient department.

Spread to Posterior Urethra.

If a case is left alone or treated simply by rest in bed, medicines or vaccines, what happens? Or if a case comes to us in which the disease has already spread to the deep urethra, what happens? If we observe a large number of cases we find that almost invariably the disease spreads to the deep urethra and prostate in the course of ten days to three weeks, and sets up acute inflammation in this structure.

The inflammation in the deep urethra remains acute for at least five weeks from the first sign of urethral discharge, and very often for as long as seven or eight weeks.

During this stage of acute deep urethritis the patient is in a hyper-sensitized state, and it is very easy to upset the equilibrium between the germs and the tissues, and to set up blood infection. This explains why considerable wisdom, clinical knowledge, and judgement are required in the treatment of acute deep urethritis, and why such good results are obtained if the patient can be confined to his bed.

Chronic Stage: Carriers.

At the end of this period of five to eight weeks the inflammation suddenly dies down, and the patient seems to develop partial immunity; that is to say, he is no longer in a hyper-sensitized state, and he ceases to produce very much pus. It then becomes possible to employ strong treatment for the deep urethra, and it is much harder to upset the balance by unwise treatment. It is then safe for the patient to get about, take exercise, and try to get fit. At the same period the gonococcus clearly becomes modified also—that is to say, it ceases to produce an intense irritant poison, and does not easily invade the blood stream and irritate the body into producing a large amount of discharge.

A few cases undergo natural resolution at this stage, but only a few. The patient often thinks he is cured, as all burning and pain ceases, and urethral discharge is hardly noticeable. All the same, this state of mind is only due to lack of close observation. A careful observer will note a little gleet discharge in the morning on rising, or will notice threads in the urine, or even a slight turbidity of pus in the urine. A really careful, scientific, trained worker can soon detect the fact that a man is not cured but has passed into the chronic stage; or, in other words, has become a "gonococcus carrier." If he examines the threads he will find pus cells and a few gonococci in them. If he examines the prostatic secretion microscopically he will find pus cells and gonococci. If he uses the urethroscope he will find infected glands of Littre or patches of submucous infiltration, where the gonococci are still lurking under the mucous membrane and setting up patches of chronic inflammation (= early stricture or soft stricture). These facts can readily be detected by a trained clinical observer, but are usually conveniently ignored by those who are after short cuts to cure—a very fatal thing for progress.

In other words, there is a chronic stage in urethritis which has been largely neglected in the past both by patient and doctor, so that the patient is told that he is cured and goes about spreading the disease to other people. If this chronic stage did not exist, the gonococcus would have died out long ago. Very few people will copulate willingly when suffering from profuse urethral discharge, but they are only too ready to return to their old ways when they have entered the chronic stage of urethritis, especially if they have been told by their medical advisers that they need not worry about a slight gleet or a few threads, or have been told to "let it rip"—that classical phrase of the mentally inert.

NOTES ON SYMPTOMS AND SIGNS.

I do not propose in these lectures to describe in detail the ordinary symptoms of acute urethritis, such as burning and discharge and so forth, as they are sufficiently well known both to the doctor and to the layman. What I do want to emphasize here is that these are only the signs and symptoms of the early acute stages (five to eight weeks). What I want to bring to your notice is the importance of not neglecting the signs and symptoms of the chronic stage.

Gleet.

In the chronic stage there may be a slight gleet noticed only in the mornings ("goutte militaire," "bon-jour drop"), or there may be nothing more than a few threads in the urine. A man in the chronic stage may pass perfectly clear urine for weeks at a time, containing not a trace of pus or threads; yet in such a case if we massage the prostate and vesicles we may find the secretion full of pus cells and gonococci. This is particularly true when the disease is confined only to one vesicle. The mouth of the vesicle tends to become occluded and the gonococci may only come out during excessive coitus or after an excess of alcohol.

Chronic Prostatitis and Neurasthenia.

Another very important fact to note is the effect of chronic prostatitis on the general health. A man with chronic prostatitis may lose a stone or more in weight, may become severely neurasthenic, and so depressed as to be suicidal. This neurasthenic condition is often aggravated by a low meat free diet, which the patient has adopted on the advice of his doctor. All this vanishes with the cure of the prostatitis. Probably a chronic toxæmia is responsible, or it may be that subconscious irritation of the complex nerves of the prostate with their close emotional connexion in the mid-brain, may be the cause of the nervous depression. Remember that nothing helps so much in the cure of a chronic prostatitis as cheerful suggestion and attention to the general health. Sea air, a generous diet, and open-air exercise are the most important elements in success in treatment.

"Sciatica," "Lumbago," "Chronic Rheumatism."

Another clinical fact should be emphasized. I find that a very large number of cases labelled as chronic sciatica, chronic lumbago, chronic rheumatism, have their origin in an unsuspected gonococcal focus in the prostate or seminal vesicle. In such cases the doctor is often content to squeeze the urethra and if no discharge is obvious then he dismisses gonorrhoea as a possible cause. More careful observers may even look at the urine. But here again in most cases not even threads are to be seen, let alone pus. The only way to exclude chronic gonorrhoea as a cause of obscure rheumatism is to massage the prostate and vesicles and examine the secretion under the microscope. If pus is detected, then the cause has probably been found. If treatment directed to the cause is instituted, in six weeks to three months all the pains vanish and a brilliant cure is obtained.

Fever.

There is another clinical sign to which I would like to call attention. So long as the disease is confined to the anterior urethra we seldom, if ever, find fever. It seems clear that the anterior urethra is a highly resistant surface and does not allow the passage of fever-producing poisons into the blood. Once the disease has spread to the deep urethra fever is quite common, especially if the patient is not at rest in bed. The deep urethra is a highly absorptive surface and lets through at once the fever-producing poisons. Over and over again I have met with patients suffering from a deep urethritis who have been allowed to get about by their doctors with a temperature of 103° or 104° F. It has not occurred to their doctors that it is necessary to take their temperature. In the case of any other acute disease the temperature would be taken as a matter of routine, and no patient would be allowed to be up and about with such a high temperature. It should become a routine practice to take the temperature in cases of acute posterior urethritis, and if the temperature is raised above the normal the patient should be ordered to bed.

Another interesting fact is that in cases of chronic posterior urethritis which are not doing well a persistent subnormal temperature can often be noted. When the disease takes a turn for the better, simultaneously the temperature rises to normal and remains there.

Haematuria.

Haematuria is not an uncommon symptom at the onset of an acute posterior urethritis. Usually a few drops of blood are squeezed out at the end of micturition. If strong irrigations are exhibited in such cases a profuse haematuria may be set up. In such cases use only the mildest injections, for example, 500 potassium permanganate, and above all do not use a sound or a cystoscope.

Retention of Urine.

This is quite common at the onset of a hyperacute posterior urethritis. In such cases rectal examination always reveals a large abscess of one or both lobes of the prostate. Gentle pressure with the finger will empty the abscess a little, and the retention may at once be relieved.

REFERENCE.

¹ Treatment of Infected Wounds, BRITISH MEDICAL JOURNAL, June 3rd, 1916, p. 793.

DISAPPEARANCE OF MALIGNANT TERTIAN CRESCENTS FROM THE BLOOD FOLLOWING THE INTRAVENOUS INJECTION OF TARTAR EMETIC.

BY

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[PRELIMINARY NOTE.]

THE discovery of the value of cinchona and quinine in malaria has been of incalculable value. Nevertheless, even quinine is not an ideal drug for the disease, because, although it rapidly kills the intracorporeal stage of the parasite and brings about the cessation of the febrile paroxysms, yet it completely fails to destroy the extracorporeal cycle, which is responsible both for the frequent relapses of the ague, and, still more important, for the infection of mosquitos, and through them of other persons. The difficulty in completely eradicating a malarial infection is well known. Thus Norman Chevers relates that he suffered from attacks for eighteen years in India after contracting the disease in Chittagong, and for six years more after he returned to England, and that his friend, Sir Ranald Martin, had frequent attacks of ague throughout his long Indian service, and for no less than thirty years more in England, although both of them took quinine freely for the attacks. Prolonged daily doses of quinine for months at a time will often prevent relapses, but even this measure may fail. A drug which will really cure malaria and destroy the infective extracorporeal stage of the parasite is, therefore, still much to be desired.

The uniform success which I have already reported, in the cure of kala-azar by tartar emetic intravenously, now amounting to over twenty consecutive cases in Europeans, led me to hope that the drug, once it is able to kill the Leishman-Donovan parasites, which are so highly resistant to quinine, might possibly also be inimical to the quinine-resisting stages of the malarial parasites, of which the malignant tertian crescents are the most characteristic. It is well known that once they appear in the blood they remain present for months on end quite uninfluenced by quinine. Thanks to the kindness of my friend Captain N. H. Hume, I.M.S., I have recently had an opportunity of testing the effect of the drug in the following two cases showing numerous crescents in the blood.

CASE I.—*Apyrexic Case showing Numerous Crescents in the Blood treated with Tartar Emetic Intravenously.*

A Russian sailor, aged 20, admitted for general debility, but without fever. Numerous malignant tertian crescents found in the finger blood, one in every few fields of the microscope.

The following tabular statement will best bring out the treatment and its effects:

	Blood Examination.	Treatment.
First day ...	Very numerous crescents	—
Second day ...	" " "	—
Third day ...	" " "	—
Fourth day ...	" " "	Tartar emetic 4 cg. intravenously.
Fifth day ...	Very few crescents	Tartar emetic 8 cg. intravenously.
Sixth day ...	" " "	—
Seventh day ...	No crescents found	—
Eighth day ...	One crescent found	Tartar emetic 8 cg. intravenously.
Ninth day ...	No crescents found	—
Tenth day ...	" " "	—
Eleventh day ...	" " "	Tartar emetic 12 cg. intravenously.
Twelfth day ...	" " "	—
Thirteenth day ...	" " "	—
Fourteenth day ...	" " "	—

The patient left hospital two days later much improved in his general health, and having gained 10 lb. in weight. His temperature was normal while in hospital except for a rise to 100.2° on the evening after the injection of 12 cg. of tartar emetic.