

The Bradshaw lecture on prognosis in relation to treatment of tuberculosis of the genito-urinary organs : Delivered before the Royal College of Surgeons of England, December 1907.

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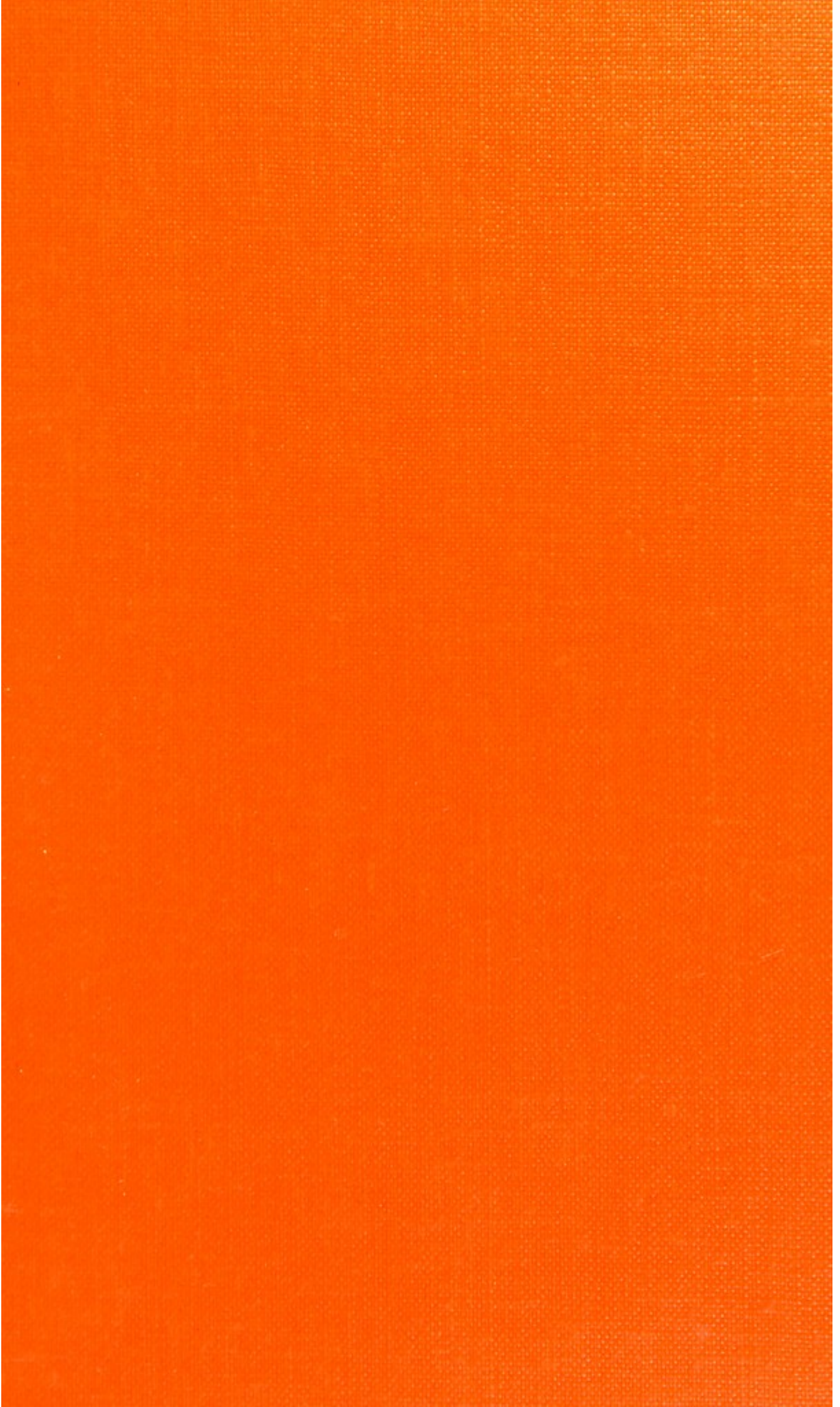
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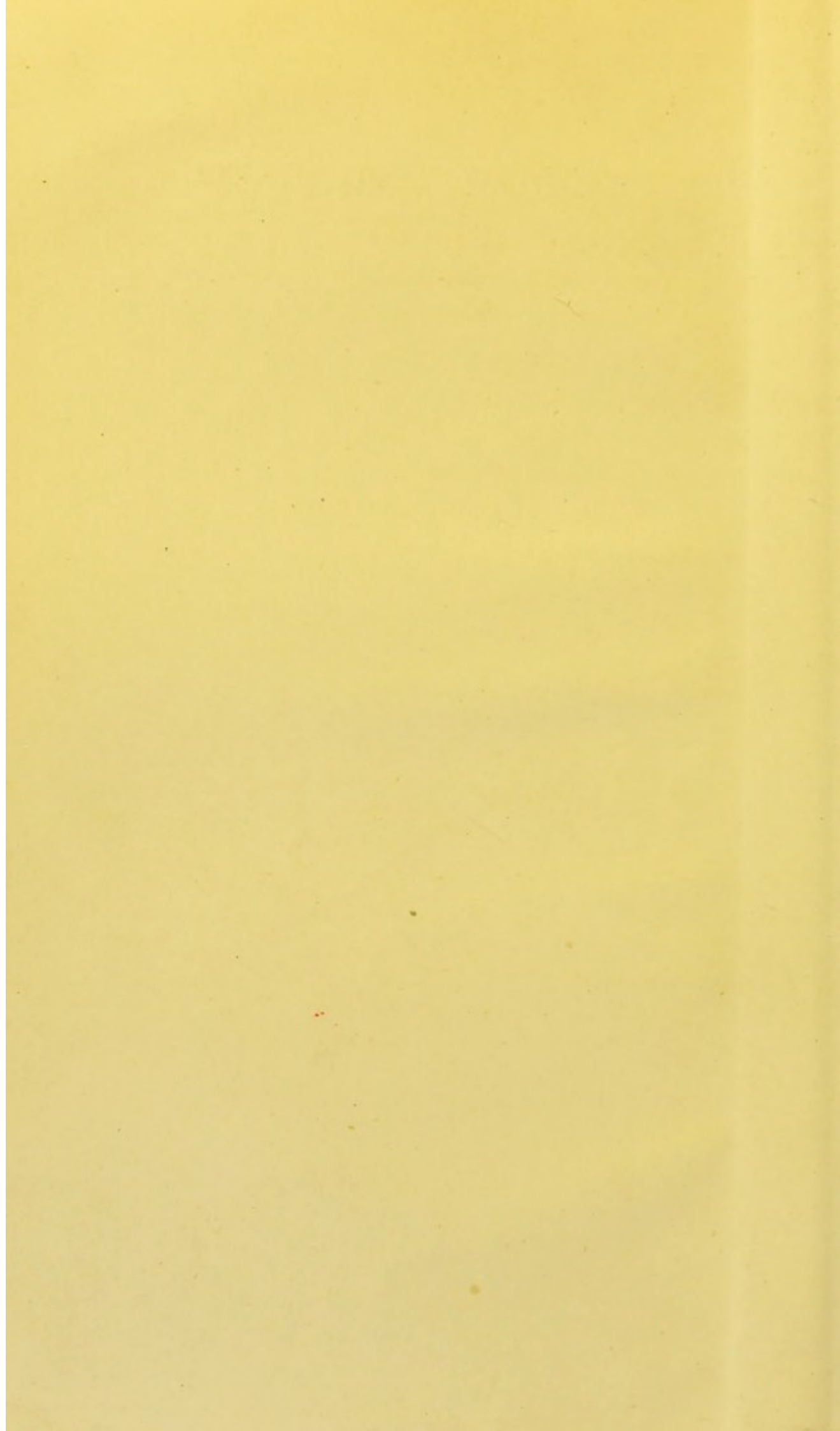
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THE BRADSHAW LECTURE 1907

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The Bradshaw Lecture on . . .
PROGNOSIS IN RELATION TO
TREATMENT OF TUBER-
CULOSIS OF THE GENITO-
URINARY ORGANS. Delivered
before the Royal College of Sur-
geons of England, Dec., 1907. By
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to the King; Surgeon to University
College Hospital.

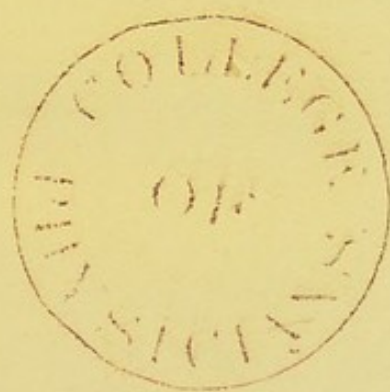


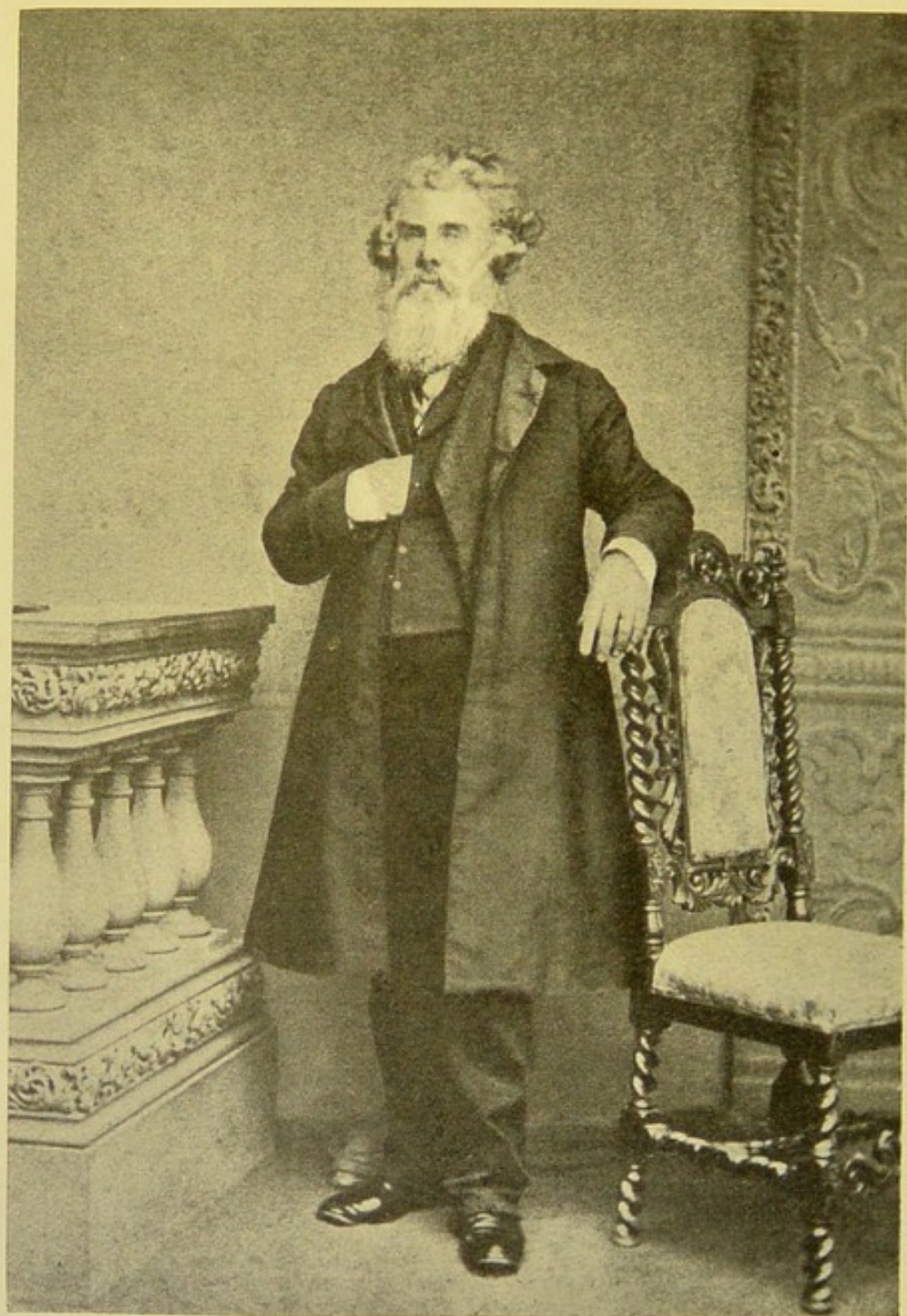
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Dr. WILLIAM WOOD BRADSHAW,
1862.

*PROGNOSIS IN RELATION TO
TREATMENT OF TUBERCU-
LOSIS OF THE GENITO-
URINARY ORGANS.*

THE PIOUS FOUNDER.

THE simplest method of securing a limited immortality is that which involves the periodical mention of the name of a beneficiary by speakers or lecturers. As long as the Royal Colleges of Physicians and Surgeons exist, and 3 per cent. Consols bring in any income, and as long as men can be found to deliver lectures, so long must the name of Dr. Bradshaw be twice annually revived in London. I can imagine Dr. Bradshaw, if he was a cynic, in an exalted state of purity and wisdom, looking down complacently year by year upon those who undertake this task; watching them rack their brains for ideas during the summer months, or more likely feeling the prickings of conscience for failing in this duty. If he reflects upon his own peaceful life—not much worried with the

cares of practice, not greatly embittered by the aggravations of public life—it may be hoped that he is grateful to those who thus vicariously keep his memory green.

Staying as I often do not far from Reading, and knowing something of Andover, I have made some inquiries into his history; but already, though he died only forty-one years ago, very little is to be made out concerning him. There is an aged member of our profession at Andover who still remembers him, and an old retired tradesman there who knew him well. Speculation as to his birthplace seems to have remained unsatisfied; he was said to have dropped from the clouds, and there were the usual rumours about exalted connexions, but I have discovered that he was the son of James Bradshaw, of St. James's Parish, Bristol. He was a man of some refinement and eccentricity, who wore his hair long, and possessed a somewhat theatrical manner. He never did much practice, either at Andover or at Reading, though at the latter place there is a tradition that he incurred some odium by seeing patients for nothing at a chemist's shop. He is said by Sir James Paget, who may possibly have known him, to have been "a home-loving and studious man, who diligently cultivated his

mind in both literature and art." This is consistent with the fact that he was the possessor of numerous distinctions, but, like his monument which I am helping to erect, they grew from a small basis. After studying at Westminster and Middlesex he obtained the M.R.C.S.Eng., on December 13, 1833, being then 29 years old, and he was admitted a Fellow by election in 1854. In 1833 he also obtained the M.D.Erlangen, which was probably not a very serious ordeal. In 1841 he became an Extra Licentiate of the Royal College of Physicians of London, which means that he passed an examination of rather low standard by the President and "Elects" giving the licence to those who practised beyond seven miles from London. On the strength of this he was granted the M.R.C.P. during the so-called year of grace 1859 without examination. In 1844 he matriculated at New Inn Hall, Oxford, at the age of 43, and was "created" M.A. in 1847 without any sort of examination. I cannot say where his degrees of D.C.L. and LL.D. were obtained, but certainly not in England, and I commend this object of research to the next Bradshaw lecturer.

He was a member of the Oxford University Art Society and an honorary member of the

Royal Jennerian Society. He wrote papers on the use of cod-liver oil in chronic rheumatism ;* on the operation of narcotics ;† on a case of chronic abdominal abscess ;‡ on a case of spontaneous cure of cercocoele ;§ and on the history of sheep || besides various articles in the *Miscellany* and other periodicals signed "Beta."

He married the widow of a rich jeweller in Andover, whose money was left away in case she remarried ; but Dr. Bradshaw and his wife bought the reversion for a sum down, and it was after this that he moved to Reading, where he lived till the time of his death, at the age of 66. Mrs. Bradshaw was many years older than her husband, whom, however, she survived for fourteen years, and it is the bequest in her will, dated 1875 and proved in 1880 which places me in my present unhappy position, and therefore it is against her and not her husband that the grudge, if any, is to be entertained. Dr. Bradshaw himself, it appears, had offered to endow a pathological department in connexion with the Reading Hospital, but for some reason or another this was not accepted. At some period of his life

* *Provincial Med. and Surg. Journ.*, 1845.

† *Ibid.* ‡ *Lancet*, 1846. § *Ibid.*, 1834.

|| *Oracle*, 1844.

6 / he added a final "e" to his name, which accounts for the fact that a doubt has arisen as to its correct orthography. It is thus spelt in an obituary notice which appeared in the *Reading Mercury and Oxford Gazette* for August 25, 1886, in which we read: "With much regret we have to record the death of Dr. Bradshawe of this town, which took place on the 18th inst., after a protracted illness. . . . The deceased gentleman had been a contributor of professional subjects and miscellaneous articles to various publications. He was a kind and warm-hearted friend, and during a residence of many years in this town he was ever ready to alleviate the sufferings of the poor by affording gratuitous relief, and by those his death will be especially felt."

THE RESISTANCE OF THE BODY TO TUBERCLE.

The subject of this lecture seems small when contrasted with the larger themes of those distinguished men who have preceded me, but, besides its intrinsic interest, there is a wider one, because it opens up the whole question of the resistance of the human body to the attacks of the tubercle bacillus.

It is instructive from this point of view to look back upon the accepted teaching with

regard to tubercle in general at the time when I was a student. Although what were considered exceptional cases of cure of pulmonary tuberculosis came under the immediate cognizance of all, it was generally held that this was an almost invariably fatal disease. At the same time it was obvious that a large number of tuberculous affections in other parts of the body which were either imperfectly treated or not treated at all, had a natural tendency towards recovery. I am speaking of about 1870, when the excision of tuberculous joints was a comparatively recent invention, when tuberculous glands were either left alone or if they suppurated were only incised, when lupus (which, however, at that time was not recognised as tuberculous) was only treated with nitric acid or the cautery, when nephrectomy was hardly thought of, and when few would have advised the removal of a tuberculous testicle. Many of my hearers must be old enough to remember that it was then, as now, not uncommon for tuberculous joints, if taken early and treated with absolute fixation and counter-irritation, to make almost complete recoveries; they will also remember how common it was to see people, otherwise in good health, whose necks were marked with the frightful scars caused by suppurating glands

or resulting from the ravages of lupus, and that suppurating tuberculous testicles did not even frequently continue to discharge for the remainder of the patient's life. All this is of course perfectly well known, and yet the modern student is tempted, as the result of modern teaching, to overlook the fact that he often sees old cured tuberculous lesions in the *post-mortem* room—cicatrized lungs, calcareous glands, strumous kidneys and the like—evidences of long past acute tuberculous trouble in patients who have died of some totally different disorder.

The modern teaching to which I refer, to put it baldly, is that if there is one obvious tuberculous focus, and no evidence of any other, it should be extirpated root and branch, lest there should be left behind some root of bitterness from which the whole body may at some future time be infected. This teaching has no doubt much to be said for it, but the first part of the proposition must not be divorced from the second, and it is not only important to know whether there is at the time any active tubercle elsewhere, but also whether, in the case of twin organs, there is a reasonable chance of the fellow escaping, even although it be apparently healthy at the time the affected one is removed, and what the

effect upon the system is likely to be if only one of such twin organs be left and it fall a victim subsequently to the attacks of the tubercle bacillus.

TUBERCULOSIS OF BONES AND JOINTS.

It is also interesting to recall the immediate effect of the introduction of the antiseptic principle upon the treatment of tuberculous affections of bones and joints. Before this period the opening of a psoas abscess was in the majority of cases the signing of the patient's death warrant, and it was therefore postponed till the latest possible moment. In the same way the bursting of an abscess in connection with a tuberculous joint was almost always the precursor of excision or amputation. Not of course that in either case the tuberculous process was aggravated, but because septic organisms entered in, like the seven other spirits in the parable, and the last state became, therefore, much worse than the first. But as soon as it was possible to eliminate or keep in check the septic element, it was shown that tuberculous caries of the spine could be arrested and heal and cicatrize, at least as well when it communicated with a sinus leading to the surface as when no supuration had taken place. And in the case

of joints two methods of treatment were introduced, one by Lister and the other by König, which for a time had a considerable vogue, but which have long fallen into disuse. Lister's plan consisted in making long and deep incisions into the pulpy synovial membrane, say one 3 in. long on each side of a knee or an ankle, and then trusting to complete fixation and rigid antiseptic treatment. König's was for tuberculous hydrops articuli, in which the synovial membrane becomes converted into a substance which he compared to boiled bacon rind. He made two long incisions, one on each side of the joint, and pulled out through each as much of the boiled bacon rind as he could get hold of, but without making any attempt to remove the whole of it. The result was often excellent; and yet no attempt was made to remove the whole of the affected synovial membrane. I adduce these two examples, not that there is anything very remarkable in them, though they were remarkable enough at the time, but in order to emphasize two well known facts—first, that it is not essential to take away the whole of the diseased tissue from a tuberculous part, and, secondly, that, by partial removal or simple drainage, a degree of physiological

usefulness may be retained which excision or amputation can never secure.

Doubtless it was not then, nor is it even now, in these more enlightened days (with all respect to Sir Almroth Wright, to whose work I shall have later to refer), completely understood in what way the treatment led up to the cure. Formerly we spoke about the relief of tension, the removal of congestion, and complete immobilisation, now we have our attention directed to tryptic ferments and bacteriotropic substances. The problem remains complicated. The hypothesis upon which the treatment was founded was different from that which now explains the cure. At the present time the most important effect of the incisions might be held to be the removal of stagnant fluids from the source of infection and the douching of this infected focus with fresh lymph charged with bacteriotropic substances. These new ideas are intensely interesting, as indeed were the old ones, and few imagine that the last word upon the subject has even yet been said.

ILLUSTRATIVE CASES.

Let me now briefly refer to a few of the cases which have made me choose the subject of my lecture, and begin by sadly owning that

the only advantage of growing older is that one has reaped the fruits of the experience of what (in our short lives) we reckon as many years, and can therefore speak from personal knowledge in such a matter as that of the prognosis of a chronic disease.

I know a man, aged 53, who would pass muster in a crowd for a healthy man. He comes from a stock in which tuberculous disease has occurred rather frequently, but he himself escaped till the age of 34, when he suffered from left pleurisy, and was treated by Sir Andrew Clark, whose name in this connection will remind many of the extreme chronicity of some tuberculous affections and of the grand life work which a tuberculous man may accomplish. In the following year, 1889, he came under my care for tuberculous epididymitis of the right side, and I removed the testicle. This was followed in 1890 by caries of the sternum, and in 1891, as is so common, by disease of the other testicle, which I scraped, leaving only a paltry fragment of the organ. He afterwards had tuberculous cystitis and degeneration of the prostate, an abscess about the right kidney, and symptoms of caries of the spine. The bladder was treated by rest and injections of silver nitrate and iodoform, the abscess round the kidney

by incision, and the sternum by scraping. No abscess formed in connection with the spine, but a certain amount of kyphosis ensued. Everything has now been in abeyance for eight or nine years. The remains of the testicle have enlarged so as to form a very decent approximation in shape and consistence to a normal organ, and the prostate is not to be felt. The only obvious abnormality is the presence of a small amount of *débris* in the urine, in which, however, no pus cells and no tubercle bacilli are to be found. The patient can play two rounds of golf a day with comfort, can attend evening parties or church, and can hold his water sometimes for three hours by day and for five hours in the early part of the night. So it must be owned that the result is not unsatisfactory.

One case only is as unconvincing as volumes of statistics, so I must ask your forbearance while I relate a few more. But I want to make myself understood as suggesting that they are not exceptional but rather common.

In 1897 I saw with Dr. Ringer, a young lady, aged 19, who nine years previously had had tuberculous disease of the right hip, from which she made a recovery with ankylosis of the joint. At the time she came under my notice she was suffering from tuberculous

ulceration of the bladder of ten months standing, which, according to the teaching of that day, but I think rather against the wise instinct of my colleague, I treated by scraping and the application of iodoform. I do not think it did a particle of good, and it led to the introduction of other organisms into the bladder besides the tubercle bacilli. But, notwithstanding this, the disease rather quickly subsided and the bladder symptoms disappeared. She became well and fairly strong, and was able to enter with zest into the amusements suitable for a healthy young woman. For the last ten years she has been free from any tuberculous lesion, and she leads an active life occupied with parish work, playing golf and dancing (they say she waltzes really well but cannot manage a polka). The urine is normal, and guinea-pigs inoculated with it in October of this year were not affected with tubercle.

One of the earliest recollections and causes of wonder of my childhood is that of a boy some years older than myself with marked kyphosis from spinal caries. He was thoroughly well able to enjoy the pleasures of life, which included a Cambridge career and a shooting box in Scotland. He was twice married, and had one child by the first marriage. Within

a few years of his death, which occurred at the age of 46, he developed tuberculous epididymitis which suppurated. But the abscess, which was opened and scraped, healed and gave no further trouble.

There is a lady, aged 51, delicate certainly, but quite able to enter into the occupations of a woman of society, who has had renal symptoms for ten or eleven years. I saw her five years ago, and was able to place beyond dispute the fact that she had at least one tuberculous kidney. I expressed a very strong opinion against any operation on it, being led to this principally by the fact that the specific gravity of the urine was low, 1012, and it contained one-sixth of albumen. This opinion was not shared by all her medical advisers; but it was followed, and the result fully justifies the course adopted, as her health has much improved under ordinary treatment.

A strong, healthy-looking man, aged 64, a monorchid, after spending fourteen years in China, returned home in 1878, and has enjoyed, he says, splendid health since. He was married in 1875, and has four children, varying in age from 29 to 23. Four and a half years ago he squeezed his testicle in mounting his bicycle, which made it swell, and in two and a half months an abscess

formed, which he was told was not tuberculous. The sinus gradually closed. I saw him in February of this year, and there was not any doubt about the diagnosis, as the epididymis, the lower part of the cord, and the vesicula were very hard and craggy, and there was a small hydrocele. The diagnosis was confirmed by finding tubercle bacilli in the flocculent *débris* and mucus, which were present in small quantities in the urine; and rodents inoculated with it died of tuberculosis. He rested for a few weeks, and then returned to his country home, from which he comes up to business in the City; not certainly an ideal life, but it is his daily bread, and in spite of warnings he does not see his way to stop it. In the meantime he had gained 7 lb. in weight when I last saw him in July, and nothing is to be done to the testicle.

I know, of course, that some of these patients are walking on the edge of a more obvious precipice than the rest of mankind. Here, for instance, is a case I had hoped to bring forward as a striking example of chronicity.

A stockbroker, aged 34, came under medical care for irritability of the bladder, emissions, erections, &c., in 1896, at which time the urine contained pus and tubercle bacilli. Irri-

gations were employed and the symptoms disappeared. The following year he was sent for a voyage, and there was some thickening of one epididymis. He spent the winter of 1897-8 abroad, and in 1899 one testicle swelled. I saw him in 1900, and found both testicles and epididymes much swollen, hard and painless, and much induration of both vesiculæ seminales. The right kidney was much enlarged and hard. The urine had a specific gravity of 1015 to 1010, and contained pus and occasionally a speck or two of blood and numerous tubercle bacilli, but no more albumen than the pus would account for. The only symptoms were slight frequency, especially in temperate as opposed to warm climates, and inability for very hard work, and occasional aching in the right loin. His appearance was robust. To summarise rather copious notes, this patient was allowed to return for short spells to his business in the summer, but made to winter abroad, and he went on very well indeed, the enlarged organs all becoming less obvious and the general health remaining good, though the urine became somewhat more albuminous. However, after working rather harder than usual, his health showed signs of failure in 1904-5, and he could not pick up after an attack of

influenza in March, 1905, and died unexpectedly of heart failure in June of that year—that is, nine years after he first consulted a doctor.

But as a contrast take this, the last case I will inflict upon you—of a doctor, now aged 45, who is known to have had tubercle of the prostate and vesiculæ seminales in 1896, and on this account was sent to South Africa. His troubles had begun four years previously, so that he probably had a tuberculous bladder fifteen years ago. I must not enter into the details of his case, his two residences in South Africa, his attacks of pyelitis, and his final settlement in 1899 (at which time tubercle bacilli were still to be obtained from the urine) in the South of England, where he is still carrying on a busy practice. Not that he is robust; but he has lost almost all his bladder symptoms, and there is no longer pus or blood in the urine. The urine, however, occasionally has an offensive smell which he subdues with urotropine. Its specific gravity is 1026. The only actual symptom is a dull ache in the right loin which does not prevent him from doing his work, and he keeps in fair general health and nutrition. I saw him on November 21 of this year, and found him well nourished

and with no obvious physical signs of disease in kidney, bladder, or prostate.

I could produce many similar cases from my notebooks, which are not those of a specialist, but of what is called a mere surgeon. But while stating my belief that tuberculous diseases of these organs are at least as chronic as, and perhaps even more disposed to undergo spontaneous cure than, those of other parts, I am aware that there is another side to the picture. Tuberculous disease of the bladder may cause intense trouble, and exhaust the patient by the irritation it produces; tuberculous nephritis with a blocked ureter may be a practically hopeless condition as far as the kidney is concerned, and tuberculous affection of the Fallopian tube may give rise to dangerous and fatal complications.

I recall the case of a young man, aged 32, of tuberculous stock, whom I saw in 1895 with my late colleague, Dr. Poore, on account of polyuria and great frequency of micturition, his symptoms having been noticed about six months. He passed water every hour, and the amount reached 8 pints a day. His urine had a specific gravity of 1002, and contained sometimes some small clots, but always a little pus and tubercle bacilli. He had lost flesh, but was leading an active life, hunting and so

on ; and his friends almost resented the grave prognosis we were forced to give, but he only lived a few months after our interview with him, and is said to have died of tuberculosis of the kidneys.

I thought at one time that it might be possible to make a prognosis depending on the specific gravity of the urine, but the problem is too complicated, there being so many other renal conditions commonly met with in tuberculous patients. I have, moreover, already adduced one case which is pursuing a calm and equable course in spite of albuminous urine of low specific gravity. It is, indeed, most difficult to say which cases will go rapidly or slowly down hill, and which are likely to remain stationary or improve—an important fact to bear in mind when we are asked to congratulate a surgeon upon the brilliant results of a single operation, or even a dozen, for it would be generally possible to cap them with similar successes obtained by pursuing a Fabian policy.

PROGNOSIS AND TREATMENT OF THE VARIOUS ORGANS UNDER DISCUSSION.

Let us now proceed to consider very shortly what the diseases are which are under discussion.

We may at once put out of consideration the miliary affections, because, although the earliest stage of a tuberculous lesion always consists in the deposit of miliary tubercle, it is not until one or other of the degenerative changes has set in that symptoms arise suggesting surgical interference, and it is from the point of view of the advisability and the nature of surgical interference that the question of prognosis is to be discussed.

Tubercle of the Adrenals.

Tubercle of the adrenals is such a medical disease that it may seem pedantic to refer to it in a surgical lecture. It is said always to be progressive, though its course is chronic, and always to give rise to Addison's disease. I can recall, however, two cases of surgical interest which alone would make me shy of operating when this condition was suspected. One was that of a middle-aged man who was under Lord Lister's care in 1888, on account of an almost acute abscess in the substance of the vas deferens as it lay in the inguinal canal; the vas and the testicle were removed, and the latter contained a few grey granulations. He had had tuberculous testis as a boy, and six years before the orchidectomy, caries of the spine with a psoas abscess, from

which he had recovered. His skin was bronzed. He died, collapsed a few days after the operation, and his adrenals were found to be enlarged and no doubt tuberculous.

The other was a young man in the Brompton Hospital, whose skin was deeply bronzed and who had enormous glands on one side of the neck which displaced the trachea considerably to the other side. It was suggested that they were lymphadenomatous, but he went rapidly downhill, and at the autopsy all the lesions in glands and adrenals were found to be tuberculous.

Kidneys.

The conditions in the kidney which give rise to symptoms are the cheesy or calcarous degenerations of tuberculous deposits, or the breaking down of these deposits into abscesses which may or may not burst into or communicate with the pelvis of the kidney or the perirenal tissue. It is not common to meet with these conditions unassociated with more or less pyelitis, and pyelitis with a normal kidney is practically unknown.

If the tuberculous deposits have simply undergone cheesy degeneration, there is probably enlargement of the kidney, but symptoms may be almost entirely absent or very

slight, such enlarged kidneys being sometimes discovered accidentally. Almost the whole of the kidney may be affected in this way, but on the other hand, there may be one or several cheesy masses in a kidney the rest of which is comparatively healthy.

The question of dealing with such a kidney if there are no urgent symptoms depends upon what views are held as to the likelihood of its being the only tuberculous focus in the body, and especially as to the probability of the other kidney being at the moment or in the future affected. It is unlikely that by the time the kidney can be diagnosed there will be no other deposits in the body, and I am therefore opposed to nephrectomy from the point of view of eradicating all the existing tubercle from the system.

A word may here be said as to the sequence of events in the affections under discussion. It is certain that primary tuberculosis of one kidney occurs, and that the other may escape for a long time ; and it is, I think, also certain that the disease may spread down the ureter to the bladder. The fact that the early symptoms are often vesical does not prove that the bladder is affected at the time these symptoms appear, for any vesical symptom may be caused by a renal affection. Some go so far

as to suggest that primary tuberculosis of the bladder only occurs as a part of tuberculosis of the prostate, but this I do not believe to be the case; and, holding the view that it is a curable disease, I maintain that *post-mortem* evidence on the subject is likely to be deceptive. My own opinion is that it may spread from the bladder along the ureters to the kidneys in the same way that septic troubles do; but while this is an easy matter to argue about, it is not a simple one to prove.

It is or may be possible, by means of various separators or by means of catheterizing the ureters to ascertain whether the secretion from the opposite kidney has a respectable specific gravity, and whether it does or does not contain tubercle bacilli; but such an observation does not settle the point as to whether or not there are any deposits of tubercle in the organ. There is, however, now no excuse for making the mistake that I once witnessed in the early days of nephrectomy, of removing the only functional kidney. The remorse of the very sensitive surgeon to whom this happened is not easily forgotten. No change in the mental condition and but little in the physical occurred for several days, and then, almost at the moment

of the hospital visit, the end came suddenly with an epileptiform convulsion.

But seeing that it is impossible to be sure of the state of the opposite kidney, and that it is likely, or at all events possible, that it will be affected later, and that the chance of life must be a poor one if there be only one kidney and that tuberculous, I am opposed to removing the obviously affected one which causes no symptoms, even if the evidence is against the presence of any disease in the other. It appears that there is a good chance of the unaffected kidney escaping for a long time or altogether if the affected one be not removed, which is an argument against the likelihood of one kidney being infected from the other, and, therefore, in favour of letting the diseased one alone if it is not a source of inconvenience.

We come now to the question, What is to be done when the symptoms are sufficiently severe to warrant exposure of the kidney? It is presupposed that an attempt has been made to ascertain the state of the other kidney, and that, if its secretion does not suggest the absence of tuberculous disease, the cautious surgeon will always select the least serious operation. The kidney then is exposed, and one of these conditions is found :

Pyelitis with a fairly healthy kidney.

Patches of tuberculous disease, possibly cheesy or calcareous, in a fairly healthy kidney with or without obvious pyelitis.

A disorganized or atrophied kidney with probably extensive pyelitis. It may be a mere shell of renal tissue enclosing large collection of pultaceous cheesy matter (*phthisis renalis*).

Such a kidney as the last I should, if the other kidney were supposed to be normal, unhesitatingly remove with as much of the ureter as I could get hold of, and hope that the patient might long be spared from the incidence of disease in the opposite kidney; and I should quite expect that there would be a considerable improvement in his general condition and that his resisting power might thereby be increased. As to the removal of the capsule, it depends upon the amount of thickening and adhesion to surrounding parts. If there be much adhesion, the removal of the capsule involves much more hæmorrhage and shock. On the other hand, if left behind it does not, in my experience, do much harm. If the capsule be removed it is far more easy to remove the whole of the pelvis and to deal with the probably diseased ureter.

But if the disease were confined to localized

patches of tubercle, and the remaining portions had a healthy or moderately healthy appearance, I should have faith in the recuperative power of the organ and should not be influenced by the—shall I say—sneers of some of the strong advocates of nephrectomy, but should remove the diseased foci and bring the sides of the wound together with trustworthy absorbable catgut, putting a drainage tube either down to the kidney or into the pelvis, as occasion might require. This conclusion is arrived at not simply from reading what others have written, but from the experience of such cases as the following :

A farm bailiff, aged 43, of robust appearance, had hip-joint disease as a boy, which resulted in ankylosis with $1\frac{1}{2}$ in. shortening. He also had keratitis, no doubt tuberculous. For some time he had complained of symptoms strongly suggesting stone in the right kidney ; but on exposing the organ it was found to contain numerous cysts, some of which contained limpid fluid and others cheesy material ; they occupied mostly the lower pole of the kidney, and the remainder of the gland presented a normal appearance. The cheesy material was scraped away, and the cyst walls as far as possible were cut away, which entailed the removal of about one-third of the kidney. A

drainage tube was inserted, which was dispensed with on the eighteenth day. There was some shock after the operation, and on the following day the urine contained 2·2 per cent. of sugar, but, except for this, recovery was uninterrupted, and he left the hospital on December 2, 1906. When seen in November, 1907, he was in excellent health and had lost all his pain. He rides about his work and has no complaints. The lower end of the right kidney can be felt. There is no sign of active tubercle, and no tubercle bacilli are to be found in the urine.

A railway porter, aged 24, was transferred from the medical wards with the diagnosis of calculous pyelitis; he was passing blood and pus, which segregation showed to be coming from the left kidney, the urine from the right being normal. No tubercle bacilli were found in the urine, and a skiagram showed a shadow. My colleague, Mr. Johnson, found extensive peria-
dentis, and that the lower pole of the kidney was hard and nodular—partly caseous and partly calcareous. The affected part was cut away with scissors, in the early part of April, 1906, the kidney was drained, and the patient made a good recovery. I saw him on October 10, 1907—he looks and feels perfectly well; the kidney can be felt, but there are no marked

physical signs anywhere. The urine contains some pus cells, but no tubercle bacilli were found. There is a little albumen. He has returned to his laborious occupation.

Perhaps these may be thought to be rather exceptional cases, but they are far from unique, and I believe the same arguments as to treatment apply to those in which there are one or a few abscesses. I always adopted the plan of opening and draining such abscesses before the methods of segregation had been perfected, chiefly from fear of the catastrophe referred to above, but also for the sake of estimating if possible the state of the other kidney, and the degree of success obtained seemed to me to justify the course pursued. Moreover, if what I have said about the chronicity of the disease and its tendency to become quiescent is true, it is surely another and a strong argument for dealing in this unheroic manner not only with these cases, but still more with those where the principal trouble is pyelitis. If there are no symptoms, I have already said I would leave them alone. If symptoms are present, I would drain for a time, unless, of course, the ureter is blocked, in which case it is almost certain that the kidney will be disorganized or atrophied, and nephrectomy will be the only resource.

Amongst those who advocate nephrectomy

as the ideal and practically the only operation for tuberculous nephritis is Krönlein. His paper* is most interesting and carefully worked out, and represents admirably the views of those who hold an opposite view from mine. It deals with fifty-one cases, in 92 per cent. of which the evidence was in favour of unilateral affection; but his records go back to 1880, when the methods of segregation of the urine were rudimentary. He, however, agrees with the strongly-expressed opinion of Israel that, in spite of modern improvements, it is impossible to be certain that the other kidney is free from disease. He, however, says:

“We surgeons are all of opinion that tuberculosis in the overwhelming majority of cases affects first one kidney and the other later—often much later.”

And he points out that this is the opinion of a surgeon who sees his patients during life, and is to be contrasted with that of the pathologist who sees them only after death. He thinks the kidney is usually affected through the blood stream. In his practice nephrotomy and partial nephrectomy have given place to complete nephrectomy, which, to be what he calls typical, includes the removal of the capsule, and he

* *Archiv für klin. Chirurgie v. Langenbeck*, vol. lxxiii., 1904, p. 277.

thinks it one of the most successful of operations. He considers that the presence of numerous other tuberculous foci or advanced cachexia forms no absolute contraindication to nephrectomy. So long as it could be established, or appear to be established, first, that the other kidney was intact and functioning, and, secondly, that the principal trouble and immediate danger depended on the renal condition, nephrectomy was, in his opinion, indicated. Of thirty-four nephrectomies, ten at the time of publication had died, eight of these deaths having occurred during the first year, one having survived seven years, and another eleven years. Of the remaining twenty-four, no less than fourteen had survived the operation more than three years, and three of these more than nine years. Naturally the mortality was highest—36 per cent.—amongst the cases in which complications were known to exist. Of the twelve cases which were supposed to be uncomplicated, not one died of the immediate effects of the operation, and only one had subsequently died of tuberculosis (of the lungs, bladder, and kidney), and that after six years.

These results are striking and give matter for serious thought. It is open to the advocates of nephrectomy to say that such cases

as those which I have described who have survived and "recovered" without nephrectomy might have done the same if the kidney had been removed, and might have been saved the tedious process of convalescence. But, on the other hand, it may be replied that even the most successful cases of nephrectomy might have "recovered" without the operation; and that those who died—certainly those who died of the immediate effects of the operation—might, and probably would, have had a longer lease of life if they had been left alone. I am not a blind opponent of nephrectomy, but an advocate for a very careful selection of cases; and I think that those who adopt this view will have a still smaller mortality to record than even these admirable results of Professor Kronlein.

Ureters.

From the surgical point of view it is useless to consider the tuberculous affections of the ureter as distinct from those of the kidney; from that of the pathologist it is interesting to note that the earlier changes consist in the formation of small submucous plaques, such as are occasionally seen under the mucous membrane of the urethra; that these may go on to the formation of superficial ulcers or

tuberculous growths which may completely obstruct the ureter, and that the process is accompanied by extensive fibrous thickening of the outer coat. The result of this latter change also is the diminution of the lumen and sometimes of complete stenosis. This is, however, not the invariable nor indeed a very common result, but if it should occur it must lead to a hopeless disorganisation of the kidney or a permanent renal fistula. There is no proof that the earlier stages of ureteric tubercle can be recovered from ; but the clinical evidence that this may occur is strong. It consists in the fact that, after a patient has had symptoms and signs of tuberculous disease of the bladder and kidney, there may come a time when no pus corpuscles and no tubercle bacilli can be discovered in the urine.

If it be determined to remove the kidney, and the ureter is found to be diseased, it is undoubtedly wise to remove the latter as far as possible, which means rather nearer to the bladder in the male than in the female ; but I cannot regard the removal of the vesical extremity with a corresponding portion of the bladder as anything else than a surgical feat, and not one to be recommended for general adoption.

Bladder.

The subject of tuberculosis of the bladder is difficult to discuss because it presents itself in such varied aspects and is often complicated, especially in the male, with disease of other parts of the genito-urinary tract. It is not, however, for the moment with these complicated cases that I am concerned, but with those in which the disease is chiefly if not altogether confined to this organ. And, while admitting that there are cases where ulceration is considerable and involves the trigone and the neck of the bladder, in which the symptoms are very severe, I think that the more common type of the disease is one in which the only symptoms, except, perhaps, some failure of the general health, are frequency of micturition, possibly accompanied by a certain amount of pain during or after the act, and the only sign observed by the patient is that the water is thick. I call to mind many instances of young women who have endured this inconvenience for months or years without thinking it worth while to consult a doctor, and in whom the diagnosis has been made by a bacteriological examination of the urine. I believe that those of long experience will confirm the statement that if

these patients are placed under good hygienic conditions and otherwise left alone except for the administration of various drugs, such as urotropine and salol, which may or may not be of much service, many of them will pursue a very chronic course, and the symptoms and signs will often very much subside or completely disappear. And probably many of the cases of simple cystitis which were in former days unexplained, and which recovered, or became mildly chronic, were of this nature. Such, for example, is that of a lady now between 40 and 50 who had cystitis twenty years ago, and who still suffers from a certain amount of frequency, but, except for some neuroses, is now in excellent health. A brother and two sisters have had pulmonary tuberculosis, and a sister and a niece died of tuberculous meningitis, and therefore, even if an examination of the urine at the present time did not reveal the presence of tubercle bacilli I should not be convinced that her original trouble had not been tuberculous cystitis.

We must remember that it has been positively asserted, though by others it is denied, that tubercle bacilli may be present in the urine of persons with general tuberculosis who have no gross tuberculous lesion in the genito-

urinary tract. Metchnikoff,* after summarising the evidence, states positively that micro-organisms, after their entrance into the refractory animal, are not eliminated by any of the excretory channels which serve for the elimination of many of the soluble poisons. Joseph Walsh,† on the other hand, brings forward strong evidence on the other side. Be that as it may, it is certain that none may be discoverable in the urine of those who have had tuberculous lesions of this nature, although pus or excess of mucus or epithelial *débris* may still be present. The persistence of turbidity depends upon the fact that septic organisms are commonly present in the urine of those who are the subjects of tuberculous cystitis; which leads up to the observation that while it may be difficult to say what ought to be done actively in such cases it is easy to point out that many of the possible active treatments may do actual harm. First comes the question of catheter specimens. It is of course satisfactory to have a specimen of urine which is beyond suspicion, and it is often said

* "Immunity in Infective Diseases," Cambridge, 1905, p. 46.

† "Third Annual Report of the Henry Phipps Institute," p. 259.

that our methods of catheterisation are so perfect that there is no danger of introducing sepsis by this simple process. But how is the catheter specimen, as a rule, obtained? Is it not, if the patient be a female in the hospital, usually entrusted to a sister or a nurse? And can any of us say that we have never seen, even in modern days, sepsis started by catheterisation? Surely not one of us. And once in, how almost impossible it is to eradicate these organisms! I believe, therefore, that in cases of tuberculous cystitis, if the surgeon requires a catheter specimen, he ought, if possible, to be himself responsible for obtaining it. And what is to be said about the use of the cystoscope? This is delicate ground, because I know how extensively it is practised, and recognise the satisfaction of making an exact diagnosis, and so I will only say this, that it is a surgical operation which demands the most scrupulous attention to all the details of antiseptic treatment.

The days of draining the bladder, scraping the ulcers, and other heroic treatments are, I suppose, for the present over. Injections of silver nitrate ($\frac{1}{8}$ grain, aq. ad. oz.), when frequency and pain are urgent and severe, sometimes appear to do good; but, speaking generally, I believe that the more cases of

simple tuberculous cystitis are left alone the better the prognosis will be.

For the moment I am reserving the question of treatment by bacterial vaccines; but I think, with our present lights, that it should be employed on all suitable cases of tuberculosis of the bladder.

Testes.

Tubercle of the testicle is more easy to write about, because it is a common, tangible disease on which it is possible to form a definite opinion from personal experience, I have come to the following conclusions:

(1) That it is usually a chronic disease, and that a majority of those cases which appear to be acute or sub-acute have been preceded by a slow enlargement of the organ which has escaped the attention of the patient. And this is based upon the facts that thickenings of the epididymis are often discovered accidentally, and that, in operations on the acute or sub-acute cases, more extensive cheesy masses are usually met with than it is possible to suppose could have been formed since the apparent onset of the disease. No doubt the acute process does occur. I saw, for example, a policeman whose testicle enlarged rapidly as the immediate result of a well-known trick of the

criminal classes whilst they are being arrested and became the seat of acute tuberculous degeneration, and I have also seen the disease very quickly developed in children, but I maintain that these are exceptional cases.

(2) That it is so common as to be almost the rule for the second testicle ultimately to be affected whether the first has been removed or not.

I have given up removing every tuberculous testicle, however, quiescent, if no sign of the presence of tubercle could be found elsewhere, because it has so often led to disappointment, the patient returning before long with the opposite testicle affected. And from the same point of view I have always deprecated extensive operations upon the vas deferens and the vesiculæ seminales; not from the intrinsic difficulty of the operation, but because I do not think the idea of eradicating all the tuberculous material from the system by such a procedure is a reasonable one. I do not hesitate to remove one testicle which is completely disorganised, both body and epididymis, if it is causing much pain or inconvenience, and under such circumstances would take away as much of the vas as can easily be got at; but in most cases removal of the epididymis appears to be the better

practice and equally efficacious. Thorough curetting often gives excellent results.

And certainly if after orchidectomy the other testicle is subsequently affected, it should not be removed, but the obviously diseased portions should be cut away or scraped. The internal secretion of quite a small portion of the organ appears to be sufficient to ward off the unpleasant results of complete castration, and the moral effect of an empty scrotum is not to be overlooked. I have already pointed out that even a small portion left by a partial operation may enlarge sufficiently to assume to the naked eye and finger the appearance almost of the healthy organ. It is interesting however, in this connection to note that while some men with undeveloped testicles, and all those whose testicles were removed in infancy are obvious eunuchs, others retain their manly characteristics, especially, I think, if atrophy has occurred after puberty owing to mumps or other causes; also that removal of the ovaries even in young women is not always, it might be said not often, followed by the loss of the feminine characteristics, the growth of hair and so on. Again, the method of castration of rams and bulls by bistournage, or by crushing of the testicles, does not, I believe, preserve the fierceness or the other

male characteristics of the animals who have been submitted to these operations.

Vas Deferens.

Tubercle of the vas hardly requires a separate notice except, perhaps, to state that the enlargement and induration that so frequently are observed accompanying tuberculous epididymitis may, like other tuberculous processes, become smaller and practically disappear, but it may, as I have said before, give rise to an acute abscess. I should like also to mention the case of a healthy young officer who had a small hard nodule either in the lower part of the vas or the epididymis which I took for a solid tumour. It was a small tuberculous abscess, which I cut out. The wound healed perfectly, and whilst he was under observation, which lasted for a considerable time, there was no sign of any further tuberculous trouble.

Vesicula Seminalis.

It is well known that the vesicula seminalis is often indurated before the disease in the testicle has advanced beyond the early stage, and before there is any obvious affection of the vas deferens. In the course of time the

induration may disappear. Removal of the vesicula, either by a posterior or a perineal incision, is not difficult, and is not to be recommended.

Prostate.

A very considerable deposit of tubercle may occur in the prostate without causing any symptoms whatever, and the process may go on almost to complete atrophy of the gland without giving rise to much or any trouble. But sometimes an abscess forms, which may cause complete retention, and if it does not burst into the bladder, necessitate a perineal opening; or the deposit may break down, and cause or be associated with ulceration about the neck of the bladder, when great frequency of micturition and much pain may ensue. These cases are undoubtedly grave ones, and if the patient is in a dilapidated condition from pulmonary or renal complications the pain and exhaustion they cause may hasten his death. But even these, if no such complications are present, may under the milder forms of treatment settle down and become to all intents and purposes cured. The milder treatments consist in rest under the best hygienic conditions obtainable, and the most approved local applications and

sedatives. The more radical, if abscess has formed, consist in a perineal incision and possibly scraping the prostate, though this may be followed by a chronic urinary fistula. It is a long time since I have resorted to suprapubic drainage, and the results obtained from this once fashionable procedure were in my hands very disappointing.

Urethra.

I pass over tubercle of the urethra with the observation that I have seen it *post mortem*, and that the appearances are very like those seen in the ureter, and with the mention of the case of an obviously tuberculous young man who contracted gonorrhœa which no ordinary treatment appeared to influence. At last he informed me that he contemplated matrimony, which I told him was quite out of the question, but he paid no attention to my advice, and he wrote afterwards to tell me that his wife was not affected, and that she had had a healthy child, but I had no opportunity of following the case up.

External Genital Organs.

I know practically nothing of tuberculosis of the external genitals; but it is a condition that is described in all monographs upon the

subject and apparently is of the same nature as other tuberculous affections of skin and mucous membrane.

Female Genital Organs.

For the same reason, namely, lack of personal experience, I must pass rapidly over the tuberculous lesions of the uterus and ovary, merely mentioning that besides the miliary affections, both small and large tuberculosis masses have been met with in the ovaries.

But there is one affection of the female genital organs to which more detailed reference must be made, namely, tubercle of the Fallopian tubes. Whatever view may be taken of the probable course of this affection, and that it may be very chronic all will agree, it seems at first sight to stand upon a footing of its own, because, although dilatation is uncommon, there is undoubtedly a risk of the bursting of such a tube, especially if the infection be a mixed one, and of its giving rise to acute septic peritonitis; and from my personal experience I should have been inclined to advise that, as this risk is always imminent, the source of danger should be removed whenever it is diagnosed. Another argument in favour of this position is the fact that the

chronic peritonitis which ensues is often the cause of matting together of the intestines and consequent intestinal obstruction, and that the longer this process goes on the more difficult it is to deal with. I am, however, informed that in Germany, and more especially owing to the teaching of Martin, opinion on this subject has been undergoing a change in the direction of that which I have been advocating with regard to tuberculous affections of other parts of the genito-urinary system. The tendency now is said to be to avoid laparotomies and the more radical operations, and to treat these cases, when possible, by means of vaginal incisions. It is most interesting to me to hear of the advocacy of these views by so high a gynæcological authority as Martin.

BACTERIAL VACCINES : OPSONINS.

So far I have hardly referred to opsonins, and have been discussing the prognosis and treatment, as though the claim had not been put forward that many of the diseases we are dealing with were amenable, and some indeed especially amenable, to the "opsonic treatment." Such is, however, the case, and there is a large amount of evidence that tuberculosis of testicles, bladder, and kidneys have been

successfully treated in this way. It is, therefore, evident that this is a question which we must all, both now and for a long time to come, most carefully consider and try to consider without prejudice.

I am a great admirer of Sir Almroth Wright, of his energy, of his original mind, his fertile imagination, of his unbounded enthusiasm; and I am conscious that my personal experience of the methods he recommends is not yet sufficient in quantity or time to justify me in coming to a definite conclusion; and thus I feel almost ashamed of attempting to criticize even a small part of his work. Yet it must be owned that he rather seems to invite attack by the airy way in which he picks up, merely to drop upon the scrap heap such trifles as the antiseptic treatment of wounds, the removal of foci of tuberculous disease, the expectant treatment and other methods which have been hallowed by time, or which appear to have stood the test of experience. One rises from the perusal of the commencement of his lecture before the Harvey Society of New York,* which I have read and re-read again and again, with the notion that, instead of one or two workers at a hospital, there should be a small

* *Lancet*, August 17 and 24, 1907.

army dealing with all cases of bacterial disease, and that in the treatment of these conditions the physician and the surgeon should stand aside after making a diagnosis, while the miracle of cure is affected by means of bacterial vaccines. Although this is the general impression which this lecture produces, I will allow that it is not quite a fair way of stating the case, because it is evident that he could not expect that bacterial vaccines can deal with, say, such an organ as a kidney or a knee-joint which has been disorganized by a tuberculous or a mixed bacterial affection, though he does expect them to cure masses of cheesy, if not calcareous, glands.

I must not allow myself to comment on the statement that antiseptics are now by general consent abandoned in connexion with the treatment of ordinary surgical wounds, but must make some observations on the last of the five methods which, in the lecture, he says, "we have to-day at our disposal for the treatment of bacterial disease"—namely, the expectant treatment. Let me draw your attention to these sentences :

"The really serious ills of life are the various localized bacterial infections which sooner or later fasten upon every man, never afterwards releasing their hold. It follows from this that

a graver allegation is brought against the general value of a method of treating bacterial disease when it is alleged that such method has no application in connexion with localized bacterial processes, than when it is pointed out, as it has been here, in connexion with the expectant treatment, that it is a method which utterly disappoints in many varieties of generalized infection. . . .

“ Now the graver charge of having no application in connexion with localized bacterial diseases may be brought against the expectant method of treatment. It is only, if I rightly apprehend the matter, in the case where life is threatened by the entrance of bacteria or bacterial products into the blood—and, as we shall see later, not even invariably in that case—that Nature addresses herself in a serious manner to the task of immunization. As long as a bacterial invasion is still strictly localized Nature seems to oppose to it nothing more than a passive resistance. It follows that it is idle in connexion with localized infections to wait upon Nature and to expect from her any work of immunization. I am wont to insist that the statistics of the expectant method of treatment in the case of localized bacterial infections are hardly more favourable than those of the Pool of Bethesda. You will

remember, in connection with that pool, that an angel was wont to come down and trouble the waters once in seven years, and that, after that event, the man who stepped down first into the waters was cured."

This is a striking simile, made all the more striking by the fanciful introduction of the seven years, for which no support is to be found either in Holy Writ or in Baedeker. "At a certain season" are the actual words. One is inclined to ask, why not seventy years or even seventy times seven?

But seriously the question is whether the statement it illustrates is true; and I maintain that it is not. I appeal to the teaching of our great clinicians. Nay, I appeal to the experience of any careful observer who has been even a few years in practice. Is it or is it not a very rare thing for caries of the spine to be cured by rest and fresh air without the formation of an abscess; or for a tuberculous knee or hip to get well as the result of similar treatment? Do not glands that almost certainly contain tubercle disappear from view during a residence at the seaside? And is all that I have been saying about tuberculous diseases of the genito-urinary organs nothing but a myth? I sometimes doubt if Sir Almroth Wright's personal experience of these things can be so

great as it undoubtedly is of the treatment by bacterial vaccines.

It must also be pointed out that the expectant treatment is not "committing the destiny of the patient—so far as that destiny is involved in the issue of his conflict with the invading microbes—entirely into the hands of chance" (I am quoting his own words); but consists essentially in feeding and nursing the patient, and giving him the amount of rest which his case requires under the best hygienic surroundings. And this treatment is usually going on *pari passu* with the treatment by bacterial vaccines. Not always, of course. One of my cases in whom the injections appear to have been of considerable service is that of a young man in a lunatic asylum who has tuberculous disease of the shoulder and of a metacarpal bone. His surroundings remain the same. It will be most important, in estimating the value of the "opsonic treatment," to record most accurately the results in such cases, because it is otherwise so difficult as to be almost impossible to separate the effects of the two factors. For it must be remembered that the expectant treatment not only goes on *pari passu* with the "opsonic treatment," but that it goes on for a long time, it may be for months or even years. And if

it were granted, for the sake of argument, that opsonins were the only weapons with which the body can combat and perhaps conquer the tubercle bacillus, it is certain that there must be other means of providing this defence besides the periodical injections of tuberculin. Reflect, for instance, on another case of which I have notes, and in which much improvement is recorded. It is that of a cellarman whose testicle swelled in July of this year, and who now, instead of sipping his heel-taps in a cellar, spends his time reclining on a sofa by the open window, or sitting in Regent's Park with his scrotum in a suspensory bandage and drinking one or two pints of milk a day. I have seen subacute tuberculous epididymitis subside with even less care bestowed upon it than this. The patient had six injections of what was supposed to be $\frac{1}{2000}$ milligram of tuberculin, but what I gather was really $\frac{1}{10000}$ milligram, between July 21 and October 4. I take this opportunity of drawing attention to the note to Chart 1 in Wright's last paper* from which it appears that the tuberculin with which he has been supplied in all his previous work has been one-fifth as strong as it was supposed to be. As I am told that all the

* *Ibid.*, November 2, 1907, p. 1218.

tuberculin used in this country probably comes from the same source, a similar correction must be made as regards all English work. It comes as rather a shock, though it makes the results all the more striking.

I now wish to refer to one or two other points that are stumbling-blocks to me. One is the lack of finality about the treatment. No one can watch the records without being convinced that, so far as the changes in the opsonic index are concerned, it is a true bill. If the injections be made wisely and not indiscriminately the results usually follow in due order. But the invariable, or, at all events, the common, thing seems to be that the index shortly goes down to the level at which it started, and one is reminded of the amazingly brilliant results which we obtained when Koch first launched his discovery upon the world. Chronic lupus of the face, mixed infection though it was, used to disappear as though by magic, but, of course, only to return when the treatment was stopped, and I want to know how long the treatment is to go on now. One supposes until the last tubercle bacillus has disappeared from the local infection. But how is one to know when the period has arrived? And must the injections be continued for an indefinite period after all physical signs have

disappeared unless it is shown that the opsonic index remains steady within normal limits? Since writing this sentence the answer is supplied in the tables at the end of the paper just referred to. One must irritate the part and see if it modifies the opsonic index, and go on with injections until this no longer occurs. I confess this appears almost a counsel of perfection, and I can appreciate the state of mind of a doctor of whom I have been told that, having a tuberculous family under his care, he proceeded to inoculate them periodically, all round, for life one supposes, reminding one of Bernard Shaw's satirical suggestions of a dose of antitoxin three times a day before meals.

The second point is that it so happens that in most of the cases that have recently come under my notice the opsonic index has not actually transgressed the limits of what is considered normal, and yet Dr. Bunch and Mr. Embleton, who have kindly undertaken the treatment of my cases, and who have worked long and carefully at the matter, have not hesitated to make their injections when the index is not particularly high.

Lastly, there is the chance of error, the difficulty of obtaining uniform results and the

really dreadful nature of the task. I have watched the process with awe,

Count—count—count

Till the brain begins to swim ;

Count—count—count

Till the eyes are heavy and dim !

and have thanked my stars that my duty does not lie that way. And thus, while fully recognising the value of the principle, one reads a paper like that of Simon* with the hope that some simpler method, one less open to error, and involving less labour upon the observer, may bring the matter more within the region of practical politics than it seems to be at present.

If I were to read out the actual results which I have obtained during this year—that is, since I have been thinking about this lecture—it would, I am afraid, be too tedious for you to follow. The net result would not differ much from those that have been published by others. In some there has apparently been more improvement than could have been expected from the other treatment that was applied at the same time. In others I could not satisfy myself that any influence was exerted upon the local condition—in two of them tuberculous testicles broke down and

* *Journal of Experimental Medicine*, September, 1907.

suppurated, and in one, a youth with cervical glands of such size and number and so adherent that I did not think it possible to remove them, the glands have certainly diminished much in size, but he has developed pulmonary tuberculosis in spite of the fact that he has been undergoing a pretty complete open-air treatment. So that I am driven to the conclusion that it is impossible at present to promise uniformly good results, and I am far from convinced that the treatment by bacterial vaccines is destined to replace all other medical and surgical therapeutic measures. But at the same time I hope and earnestly strive to preserve an open mind, and shall continue if possible to carry out the treatment in suitable cases, especially those of vesical tuberculosis, while not omitting other forms of treatment that appear to be necessary. Above all, I shall try to remember what little things may, according to Wright, upset the opsonic equilibrium—a country walk, a little massage, a surgical operation, or some trivial excitement; the daily visit of a strenuous doctor might almost be expected to fortify his patient by increasing the output of opsonins.

CONCLUSION.

Do I hear a murmur that this has been a wasted hour? That, instead of reaping the combined wisdom of all the ages and all quarters of the globe, one has been merely listening to the vague impressions of a single observer; that it is only necessary to cross the street to obtain a statement at least as positive of a diametrically opposite view? To such a complaint I can only answer that it would have been a simple matter—though no easy task—to collect oneself or by proxy elaborate statistics of the precise incidence of these diseases at particular ages, of the proportion of cases in which, *post mortem*, one kidney is found affected without the other, of the proportion of cases of those dying of pulmonary tuberculosis in which some affection of the genito-urinary tract is met with, and a variety of other information bearing upon the subject. If anyone is seeking for this sort of knowledge, I can tell him where it is to be found. The new edition of Professor Cornet's gigantic work "*Die Tuberculose*," which has appeared this year, provides a monumental bibliography of which no less than fifteen pages are devoted to the urogenital apparatus—a truly glorious field for (original) research. I did indeed myself at

first propose to try to make comparative observations on the records of, say, the Brompton Hospital, a general hospital, a children's hospital, a workhouse infirmary and my private notebook. But I found on starting with the Brompton Hospital, the records of which might have been expected to be uniform, there had been such a complete change in the last few years, owing to the different class of patients who are now admitted, that I not unwillingly gave up the attempt, for which, indeed, it became at once obvious that an amount of time would be required which was not at my disposal. Moreover, the work has been done over and over again, and is being carried out still, as is illustrated by an elaborate paper in the third annual report of the Henry Phipps Institute, by Lawrence F. Flick, on the kidneys in tuberculosis.

And after all what does all this knowledge lead to? It is really no satisfaction to a patient to know that such and such a mortality has followed nephrectomy for tuberculous kidney, and that it has been reduced so much since such and such a year; or that of those who have had one kidney removed a certain percentage have apparently had no affection of the opposite kidney after so many years,

while another definite percentage have exhibited signs of tuberculosis. What he wants to know is what his particular chance is if he parts with his kidney, and still more he is anxious to know what are his chances if he does not submit to the operation. And this is a knowledge which no statistics can yield. Each case must be judged on its own merits, and it is only experience that can justify an approximate answer to these momentous questions. If it were only possible for one surgeon to retain his vitality and his faculties for some hundreds of years, like Mr. Rider Haggard's "She," and, if it were thinkable, not to become stale in the meantime; or that it were really possible for a man of prolonged experience to hand it down to a young man so that he could actually start where the other has left off, and not have to sow his wild oats before he begins to gather in his harvest, how we should all flock to such a one to help us in casting a horoscope! But that not being possible, we must be content with slowly feeling our way; we must not be disheartened at the constant changing of views nor be disappointed that it is often necessary *reculer pour mieux sauter*.

When I remember, Mr. President, your great work in the subject of which I have

chosen such a small portion for my theme, I hardly dare to bring it forward in your presence, and I am reminded of that sounding ode of Horace which begins with the words :—

Pindarum quisquis studet aemulari.

The poet you will recollect, in contrasting his work with that of Pindar, likens himself to the bee of Matinus :

Grata carpentis thyma per laborem
Plurimum.

(The Dircaean swan you know, and the busy bee and the bank whereon the wild thyme grows.) He assumes an air of the greatest humility, and yet he seems to show a certain smug consciousness of the value and the longevity of his song. Perhaps I also may think my homily is not unimportant, though I expect for it no more than an ephemeral existence. These questions of treatment, which at the moment appear of such vital importance to those who are considering them for the first time, are, as all who have lived long enough to watch two or three swings of the pendulum know well, certain to be modified almost as soon as they are established, perhaps only to be revived again before the present generation has passed away. And, casting the prophetic eye into the future, say a thousand

years—say two—for what, as I said before, is to prevent this painful spectacle from being repeated *ad infinitum*?—it is impossible to believe that any of these earlier discourses, if remembered at all, will be thought of in later days as other than the miserable gropings after light of the people of a barbarous age.

Such as it is, however, this is my exiguous message. Such, O Shade of Dr. Bradshaw! is the little stone, a mere pebble, which I cast in passing upon your monument of fame. But, should it be the means of preventing one unnecessary or pernicious nephrectomy, or preserve to one poor wretch the internal secretion of his testicles, neither your bequest nor my labours will have been expended quite in vain.

* * * * *

Since this lecture was delivered, I have, through the kindness of my friend Dr. Francis Hawkins of Reading, discovered a few more facts about Dr. Bradshaw. The most important acquisition is a photograph taken in the year 1862, which appears as the frontispiece, and, as will be seen, confirms the description of him given in the text. As a tail-piece I have reproduced his coat of arms. I also have in my possession a small book printed in Reading

in 1845 ; it is entitled " Thoughts on the Lord's Prayer," and consists of a sort of paraphrase, partly in prose and partly in verse. I propose to deposit it in our library. Lastly, Dr. Hawkins has found his tomb in the Reading Cemetery, at the back, and to the right of the Church of England Chapel. It bears an inscription, in which it will be seen that yet another name is added to those which I had ascribed to him. It also makes a statement with regard to the derivation of the LL.D. degree which is at variance with that in the text, but the evidence for the latter appeared to be so clear that I have not modified it. The inscription reads thus, and I have printed it as it stands :—

‘O Βίος Βραχὺς

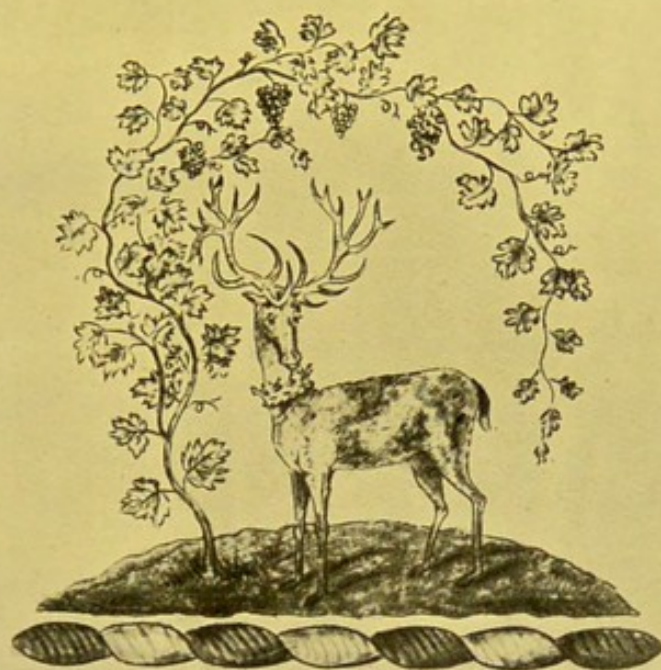
MEMENTO MORI. INFRA JACET QUAD. MORTALE ERAT

GULIELMI WOOD AUGUSTUS FITZ-MILTON BRADSHAW.

A.M. OXON : D.C.L. LL.D. CANTAB. M.D. ERLANG. M.R.C.P. F.R.C.S. F.R.C.M.
QUI DE SEculo MIGRAVIT ANTE DIEM XV. KAL : SEPT. A.N. DOM. M.D.C.C.C.LXVI.

ÆTAT : SUÆ LXVI.

NON SOLUM NATI FUIMUS ÆQUUS NUNQUAM DEFLORESCET.



Dr. William Wood Augustus Bradshawe.



