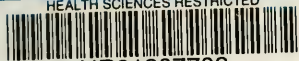


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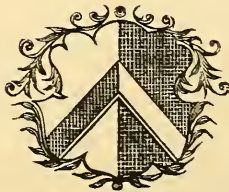
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VOL. XXV.

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An Index to the first twenty volumes, prepared by Dr. Church, is issued in a separate volume, price 3s. 6d. to Subscribers, 5s. Non-Subscribers.

January 1, 1890.

SAINT BARTHOLOMEW'S HOSPITAL REPORTS.

NOTES OF TWO CASES OF HEART-DISEASE (AORTIC REFLUX),

WHICH RECOVERED RESPECTIVELY FROM SEVERE
ENTERIC FEVER AND DIPHTHERIA.

BY

SIR DYCE DUCKWORTH, M.D.

The two cases which I propose to record briefly are of interest, because they illustrate favourable results in patients with a grave form of heart-disease, who were also the subjects of serious attacks of acute specific fevers.

CASE I.—J. M., a draper, æt. 28, was admitted to John Ward on April 2, 1888, having been ailing for three weeks. At first he thought he had taken cold. Diarrhœa set in four days, and aphonia six days before admission. No history of rigors or of headache. On admission he looked anæmic. The pulse was 112, sudden and collapsing; temperature 102.6°. Tongue covered with creamy fur. Slight tremors of hands. Voice husky. Next day the face was flushed and dusky, and the conjunctivæ suffused. Tongue dry in centre, furred at edges. There was both pharyngitis and laryngitis. The under surface of epiglottis and epiglotti-arytænoidean folds were bright red. The chords acted well. Tremors more marked, and some

sweating. In the lungs were signs of diffuse bronchitis. The cardiac apex was found in the sixth left space, more than an inch to left of the nipple-line. A double "see-saw" murmur was audible all over the præcordia, loudest over the aortic area. The pulse was sudden, slamming, and characteristic of aortic reflux. In the urine there was a thick cloud of albumen.

The history indicated that he had twice had rheumatic fever, the last time nine years ago, and since then had suffered somewhat from palpitations. His parents, though aged, were alive. He was treated with dilute hydrochloric acid, and starch and opium enemata were used to control the diarrhœa. Brandy two ounces. He got some opium at night by the mouth. On the 4th April there were still tremors and some tympanites, also sweating. On the 7th hæmorrhage occurred twice from the bowels in considerable amount. The brandy was withdrawn, and an enema of starch with ℥xxx. of laudanum was given. This was repeated later, and as much laudanum was also given by the mouth. The pulse was 108 and more jerky. The enema and opiate by mouth were repeated on the 8th, and the bowels had not acted since the second hæmorrhage. On the 10th there was fair progress, but the heart's action was feebler. Brandy was resumed, and some hydrochlorate of quinine was added to the acid draught.

Note on April 11.—Cardiac murmurs very soft. Pulse anacrotic; profuse sweating. Strychnia was now given.

On the 12th there was a semi-solid motion void of blood. The cardiac action was stronger. Sweating continued. From this date there was gradual improvement, and the temperature fell by lysis from the 13th to the 18th, when it reached normal, but rose the same evening to 101.6°. On the 19th it was 99°, and reached normal on the 21st, becoming slightly subnormal for some days. On the 20th, in addition to five ounces of brandy, mutton essence, milk, and wine-jelly were given; on the 22nd, custard-pudding; and on the 24th, bread and milk. The pulse was now 96 and less jerky. The voice was becoming natural.

On the 21st April the patient got on to a sofa, and had some whiting. On May 2nd, minced mutton chop was given. On the 4th, the patient got up. Next day the temperature rose to 100.4°, so he was kept in bed, and ordered essence of beef and nourishing slop-diet. The temperature rose to 100°, or over, for nine evenings subsequently. One or two semi-solid motions were passed daily. Fish was resumed on the 16th and minced chop on the 20th. Half-diet was given on June 6th, and the man was up and about thereafter, going down to the square, and being carried back to the ward. Quinine and iron were

now given. He went to the Convalescent Hospital at Swanley for three weeks, and returned in very good condition.

This case was one beset with dangers. The chief fear throughout its course was that the heart might fail, and after the severe hæmorrhages the circulation was very feeble. Opium proved here of supreme value, as it commonly does in cases of late hæmorrhage in enteric fever; and every care was taken to sustain the general strength and fortify the heart.

CASE II.—F. F., stableman, æt. 30, was admitted to John Ward under my care on 23rd July 1888, complaining of sore throat. On the 20th he had headache; two hours later sore throat came on. No rigor. Headache, languor, and much sweating since. Looks fairly healthy. Slight flush on cheeks. Icteric tinge of conjunctivæ. Mucous membranes rather pallid. Tongue clean. Voice hoarse but painless. Velum palati and fauces dusky and red. On the uvula and right tonsil some dirty white membrane is seen. Throat very irritable. Some enlarged glands at angles of jaw. Pulse 88, sudden and collapsing, of aortic reflux type; radial artery thickened. Heart, apex in sixth left space, an inch outside nipple-line. In the fifth left space sinking in is observed with the systole. Impulse forcible. Systolic murmur at apex, heard up to base, followed by diastolic murmur, heard down the sternum and at apex. Pulmonary sounds natural. Temperature 100°. Abdomen natural. Urine, sp. gr. 1.030, void of albumen. Bowels relieved; motions solid.

There was a history of two attacks of rheumatic fever, the first ten, and the second six years ago. The patient complained of shortness of breath on running, and of occasional sick-headaches and articular pains.

The throat was painted four times daily with a solution of two grains of corrosive sublimate with as much ammonium chloride in an ounce of glycerine, and fifteen minims of solution of perchloride of iron were given with glycerine and water every six hours.

Nourishing slop-diet with two ounces of brandy daily. (There was a good deal of severe diphtheria prevailing at this time.) The membrane spread over the fauces, and began to ensheath the uvula completely. The adjacent mucous membrane was livid and deeply injected. On the morning of the 24th July, the temperature fell to 98°, and rose that evening to 99°. On the 25th (sixth day) the evening temperature was 100.2°, the highest recorded. On the seventh evening it was 99.8°, and

fell to normal on the eighth morning, becoming thereafter sub-normal for ten days. On the 25th the pulse was 70. Swallowing was painful, the pain extending to the right ear, and there was a tendency to regurgitation of food. On the 29th (tenth day) the membrane began to clear off, but a good deal remained on right pillars of fauces. By 1st August the membrane was nearly all gone. A trace of albumen was now found in the urine for first time.

A few days later the voice had a nasal sound. Got up on 2nd August for a short time. On the 5th, up all day. Put on full diet with four ounces of wine. Fauces no longer painted. Some strychnine was now added to his medicine.

August 15.—No albumen was found in the urine after the 8th August.

In this case there was naturally anxiety as to the heart's condition under the stress of the depression so common in diphtheria. The disease fortunately clung to the fauces, as it so often does when well pronounced in that part, and did not spread into the nasal or glottic passages. The circulation was but little depressed, and the patient passed very favourably through the illness. The pyrexia was mild, as it commonly is in diphtheria unattended by lung complications.

Cases such as these now related are encouraging.

Vulnerability, tissue-proclivity, and endurance are personal matters in the subjects of disease. Accurate prognostics can only be framed on a due recognition of this fact, but, unhappily, not seldom, we have no means of obtaining such knowledge at the very time we most need it.

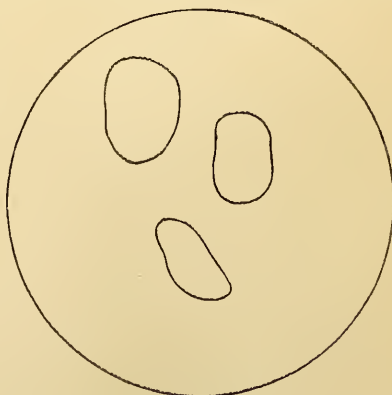
NOTE ON
SOME ANOMALIES OF THE PAPULAR
ERUPTION IN ENTERIC FEVER.

BY
SIR DYCE DUCKWORTH, M.D.

Some cases of enteric fever which have recently come under my observation have presented unusual characters in respect of the attendant eruption. In two of these there was great abundance of papules, which were found not only on the front and back of the trunk of the body, but also on the legs, arms, and the face. They occurred in young adults, and no other noteworthy features occurred in the course of the fever. The cases were somewhat severe, and there was a good deal of diarrhœa.

In two other cases the anomaly consisted in the large size of the papules.

The first was that of L. S., a nurse in the Hospital, æt. 46, who died on the forty-first day of her illness. Her symptoms were severe from the beginning. The pyrexia was high, with but slight morning remissions. On the ninth day spots were first observed, and abundant crops came out daily. There were headache and vomiting, with a good deal of diarrhœa. On the fifteenth day some large rose spots appeared on the chest and abdomen. From the sixteenth to the twenty-second days there were blood-clots in the motions.



Fresh large spots continued to appear for some days subsequently, and were not observed to fade till the thirty-first day. The diarrhœa continued and nervous exhaustion increased. There was severe tympanites. A severe rigor, lasting half an

hour, occurred on the twenty-sixth day. Vomiting continued at intervals all through the illness.

The large papules became darker day by day before they faded, and gradually assumed a coppery tint. I here depict (p. 5) the size and shape of the largest, which occurred on the trunk.

In the second case, that of a girl *æt.* 13½ years, which presented very grave symptoms for some time, there was abundant papular eruption, with several unduly large spots. These became coppery in colour after a time. The first spots appeared on the ninth day. There was characteristic diarrhœa and enlargement of the spleen. Some pneumonic consolidation occurred in each lung. Crops of spots continued to appear up to the twenty-third day. It was observed that some of the papules on the back were becoming painful and pustular on the twenty-sixth day, and did not show signs of healing till the thirty-sixth day. By the forty-fourth day they were soundly healed and pigmented.

The temperature ran a characteristic course, touching normal on the twenty-second day, and remaining so after the twenty-fifth.

At one time the inflamed spots presented the appearance of *ecthyma cachecticum*. If this peculiar condition was due to a general lowering of bodily nutrition, it is strange that it should not be oftener met with. I never saw or heard of a like case.

On admission the pulmonary symptoms were most prominent, and pneumonia was suspected. Rigors had occurred, but no labial herpes was ever present. The occurrence of herpes labialis at the early stage of an indeterminable febrile disorder is commonly believed to militate against a diagnosis of enteric fever, and I believe this to be a good general rule. I have, however, met with it in one or two instances of enteric fever.

The occurrence of papules of a dark rose colour, situated symmetrically over the ends of the *ulnæ*, was a peculiar feature in a well-marked case of enteric fever which I saw in consultation this year. This was the case of a youth, *æt.* 16 years, who gradually sickened and presented the ordinary characters of this fever. Before any papules were detected on the trunk, there were found during the second week on the inner sides of the wrists a number of papules. They were rather closely grouped together, void of any itching, and certainly darker than ordinary rose spots. They did not completely fade on pressure. They corresponded to no form of lichen known to me, and were certainly not herpetic, bites of vermin, or merely erythematous. Two days after their appearance the ordinary papules came out in crops over the trunk. Those over the wrist gradually faded, and no more of a similar kind appeared elsewhere. The pyrexia was moderate, never exceeding 104°. The spleen was enlarged, and diarrhœa was a marked symptom. A good recovery ensued.

THE USE OF
SALICYLATE OF SODA IN DIABETES MELLITUS,
AND ITS CONNECTION WITH GOUT.

BY

A. HAIG, M.D.

A year or two ago, when working at the excretion of uric acid under salicylate of soda,¹ I came across one or two cases of glycosuria and diabetes, in which, both in history and symptoms, many of the minor manifestations of gout were very strongly marked; and this led me to try whether salicylate of soda might not be of some use in these cases, being at that time unaware that the drug had been used in this disease by others.

I soon found that it appeared to be of very great use, and though I at first somewhat distrusted my results, I have now seen it do good in a very considerable number of cases besides those of which I am going to give notes, and have very little doubt that it is really the most useful drug that we have in this class of disease. Opium, and possibly antipyrin, come next to it, though a good way behind; but I shall have something to say of their action later on.

Cases of diabetes cured by salicylate of soda have been recorded, and my object in this paper is not merely to add to these further cases of relief or cure, but to call special attention to the interesting fact that diabetes, a disease which has long been known to be in many cases intimately connected with gout, is often promptly amenable to treatment by salicylate of soda, a drug which has, as I have shown,² a most powerful influence on the excretion of uric acid; and further, to indicate to some extent the important bearing that this fact may have on the etiology and pathology as well as the treatment of the disease.

Sir A. Garrod says,³ "In the course of practice I have seen several cases in which gouty patients have become affected with

¹ Med. Chir. Trans., vol. lxxi. p. 125.

² Med. Chir. Trans. (prev. ref.).

³ Gout and Rheumatic Gout, 3rd edit., p. 472.

saccharine diabetes or glycosuria;" and he narrates the case of a gentleman of 60 who had had gout for twelve years when diabetes suddenly came on, and for more than four years there were no gout attacks; then the diabetes was checked, and the gout soon returned.

Sir W. Roberts says,¹ "The subjects of obesity and of the gouty diathesis are very prone to a mild form of diabetes."

Professor Latham² has written about a form of diabetes which originates, he believes, in some error in the metabolism of muscular tissue, and he says that in this form salicylic acid treatment is of the greatest importance. These patients, he says, often have excess of uric acid in their urine and suffer from "neuralgic" pains in the joints and limbs.

Again, Sir W. Roberts says, "Diabetic patients have frequently been observed to belong to families in which phthisis and epilepsy prevailed." I have previously spoken³ of the association of gout and phthisis in the same family history, and have quoted the opinions of others upon the point, and I have tried to show,⁴ and believe strongly that it is a fact, that attacks of epilepsy have in some cases an important relation to the excretion of uric acid, and the amount of it in circulation.

Frerichs⁵ says whenever the amount of sugar in the blood exceeds certain narrow limits, it at once appears in the urine; and it is interesting to remember that this is the exact parallel of what Semmola⁶ says with regard to albuminuria; and further, Semmola refers the excess of diffusible albuminoids in the blood to deficient activity of one or both of two organs, the liver and the skin; and one, at least, of these organs (the liver) is very commonly implicated in diabetes. Thus Frerichs says (prev. ref., p. 28) various poisons generally cause glycosuria, as curare, carbonic oxide, and others he mentions; and then he goes on to say that it is noticeable that all these cause considerable congestion of abdominal organs, as the liver, kidneys, &c.

Now a certain amount of congestion or similar change in the liver has been noted in diabetes by a great many observers. Thus, Dr. Wilks believes that the liver of diabetes can be distinguished by its appearance (especially its firmness and dark colour) from that of other diseases. Dr. Dickinson sees signs of

¹ Urinary and Renal Diseases, 4th edit., p. 256.

² Brit. Med. Jour., vol. i. (1886), p. 737 *et seq.*

³ St. Bartholomew's Hospital Reports, vol. xxiii. p. 208.

⁴ Neurologisches Centralblatt, March 1888.

⁵ Ueber den Diabetes, p. 5.

⁶ Archives de Physiologie, 3rd Series, iv. p. 306. See also my paper "On the Connecting Link between the High Tension Pulse and Albuminuria," read in the Section of Medicine at Leeds, 1889.

long-continued hyperæmia in the livers of diabetic patients. Prout observed a gorged condition of veins terminating in the portal system.¹ Dr. Pavy's² central factor in the causation of diabetes mellitus is the supply of arterial blood to the liver in place of venous, owing to vaso-motor paralysis of the chylipoietic circulation; and it is at least probable that the various brain and peripheral lesions which sometimes cause glycosuria act by affecting the liver circulation, as Frerichs³ points out that puncture of the fourth ventricle only causes glycosuria when the liver contains glycogen.

Then, again, some congestion of the liver is very common in gout, and Sir A. Garrod,⁴ speaking of the most common form of gouty dyspepsia, says, "These are generally accompanied with sluggish circulation in the portal system and congested livers;" and he goes on to speak of fulness and tenderness in the hepatic region as symptoms of this congestion; and my own experience is completely in accord with these remarks of Sir A. Garrod. And, indeed, I have come to believe that I can produce this amount of congestion of the liver by influencing the excretion of uric acid with drugs; but I shall have a good deal more to say on this point when I am able to publish my experiments bearing on it, especially with regard to the way in which uric acid may bring about congestion of the liver.

The occasional association of glycosuria with ague⁵ is perhaps an instance of some influence on the circulation of the liver and spleen causing glycosuria; and enlargements of the spleen, whether due to ague or other causes, have often been noticed to be associated with great fluctuations in the excretion of uric acid. A fact which it is easy to explain if one adopts the theory of Sir A. Garrod, which I have often used to explain my experimental results,⁶ viz., that the spleen is one of the places in which uric acid is retained when it overflows from the kidney into the general circulation. My results, I believe, show that 5-6 grains of uric acid may be retained at any time in a normal spleen, and I have good reason for thinking that relatively enormous quantities may be retained in the enlarged spleen of ague or splenic leucocythæmia, thus accounting for the frequent association of gout, gravel, or calculus with these diseases.

The exact relation of cause and effect is not in either case very evident, for if we grant the fact that gout and liver con-

¹ Above references from Sir W. Roberts, pp. 275-276.

² Brit. Med. Jour., vol. i. (1883), pp. 863-866.

³ Ueber den Diabetes.

⁴ Gout and Rheumatic Gout, pp. 231-232.

⁵ Progrès médical, October 1888, p. 238, and L. ii. 1888, p. 743.

⁶ Journal of Physiology, vol. viii. Nos. 3 and 4, p. 213.

gestion are frequently associated, and further allow that the uric acid is the cause of the congestion, there are several ways in which it may bring about this result; for we may suppose that uric acid, by accumulating in the liver and spleen, may directly produce congestion of these organs. On the other hand, excess of uric acid in the blood, by contracting the arterioles, especially those of the skin, may produce congestion of the chylo-poietic viscera, just as cold is supposed to do. Frerichs says (prev. ref., p. 185) that diabetes is more common in men in the proportion of two or three to one woman at 40-60 years of age, and in the higher ranks; and this is just what one would expect if it is connected with congestion of the liver and the gouty dyspepsia of excess in nitrogenous food so common among the upper classes.

Slight glycosuria is common in pregnancy,¹ and my impression is that some congestion of the liver is extremely common in pregnancy, and I have seen several patients who appeared to suffer from it somewhat severely. Jaundice, also, is not very uncommon in pregnancy. I have also pointed out² the relation which pregnancy seems to me to bear to excessive nitrogenous metabolism and high arterial tension.

Dr. James Anderson, in an extremely interesting paper in the *Ophthalmic Review* (February to April 1889), mentions in many places the connection of gout with diabetes, and at p. 18 says, "Many clinical facts go to show that gouty arthritis and diabetes mellitus are in certain cases merely transformed symptoms of the same diathesis, not present at the same time, but the one taking the place of the other." This, as will be seen, corresponds exactly with my previous quotation from Sir A. Garrod. Further, Dr. Anderson makes some most interesting quotations from Fagge's "Principles and Practice of Medicine," tending to show that both gout and diabetes are due to disorder of hepatic function, one quotation being as follows: "Diabetic patients, even those whose urine is normal in amount, rarely discharge much uric acid—that is to say, when they are actually diabetic; at other times there may be a copious deposit in a highly acid urine." This is very interesting, but the proper inference is probably the reverse of that drawn; for the less acid urine, which did not deposit uric acid, probably contained much more of it than "the highly acid urine" which gave a deposit. (See, farther on, remarks on Contrexéville waters.)

With regard to alkalies in diabetes, Frerichs³ says that soda carbonate in some cases for a time diminishes the sugar, but

¹ Dr. Matthews Duncan, *Lancet*, 1882, p. 944. Quoted by Sir W. Roberts, p. 256.

² *Brit. Med. Jour.*, vol. i. (1889), p. 290. ³ *Prev. ref.*, pp. 264-265.

he thinks that the alkaline waters, as of Carlsbad, Neuenahr, and Vichy, are much more useful than soda carbonate alone, though often the cure is only temporary: they are most useful, he thinks, in gouty cases, though he has been surprised at the good they do even in cases due to local brain lesion. The Carlsbad waters, according to analysis, contain excess of sulphates, as 20.3 grs. sulphate to 11.5 grs. carbonate, and would, I believe, act like a sulphate,¹ and cause retention of uric acid, a result which is common to them and two other drugs which are useful in diabetes (*viz.*, opium and antipyrin). The waters of Neuenahr and Vichy contain excess of alkaline carbonate, and may cause a plus excretion of uric acid, though the Carlsbad water appears to have more effect in diabetes, and to be better known in this respect than these others.²

The most remarkable statement which I have ever seen with reference to the connection of diabetes with the uric acid diathesis is that of Dr. Debout D'Estres of Contrexéville, who says:³ "La clinique de Contrexéville met en relief la communauté d'origine du diabète et de la diathèse urique: l'élimination d'acide urique par la cure hydrominérale a armené la disparition du glycosé dans 89 p. 100 des cas de diabète qu'il m'a été donné d'observer;" and goes on: "Ce fait clinique est facile à constater à Contrexéville, ou l'on voit par exemple l'acide urique apparaitre sous le microscope dans l'urine d'un diabétique au fur et à mesure que le sucre disparaît."

My impression is that Dr. Debout D'Estres, if he only examined the urine with the microscope, may here be mistaking a deposit of uric acid for a plus excretion of it—two very different things; and that the Contrexéville water really caused a retention of uric acid, driving it at the same time out of the blood, where its presence in excess may, as I am suggesting, affect the arterial circulation, the skin and the liver, and so produce a glycosuria; and many of the symptoms of cases of diabetes, especially the irritability of temper, the malaise, and depression of spirits, point, I think, strongly to an excess of uric acid in the circulation.

The waters of Contrexéville, like those of Carlsbad, contain an excess of sulphates (as 1.4 grs. of sulphate to 0.4 grs. of carbonate); they would probably raise the acidity of the urine, and cause a deposit of some of the uric acid excreted. A similar specific action in diabetes is claimed for the waters of Bridesles-Bains, and they also contain excess of sulphates.⁴

¹ See Paper on "Influence of Phosphate of Soda on the Excretion of Uric Acid," *Med. Chir. Trans.*, 1889.

² *Brit. Med. Jour.*, vol. i. (1888), p. 946.

³ *Progrès médical*, May 1888, p. 397.

⁴ *Brit. Med. Jour.*, vol. ii. (1889), p. 762.

With regard to salicylate treatment of diabetes, Frerichs¹ classes them along with carbolic acid and benzoates, as doing good probably by deranging digestion; but he nevertheless recommends their use in some cases. With regard to this point, I can only say that none of the cases I have seen had any dyspepsia or loss of appetite; they improved in every way on the drug, and one of them, as will be seen, came back to me after a long interval to ask for more of it.

Of Professor Latham's experience I have already spoken. Dr. Broadbent² has found salicylates useful with mercury and a mixed diet in the diabetes of stout elderly gouty subjects with high arterial tension.

Dr. Ringer says:³ "Ebstein and Julius Müller report two cases of diabetes mellitus cured by salicylate of soda. They do not vaunt this remedy as a specific, but the two interesting cases they cite, after a prolonged trial of various drugs, notably of carbolic acid, got well under the salicylate of soda."

I do not for a moment believe that salicylate of soda is a specific for diabetes, or that further experience would not show me plenty of cases in which it is little or no use, because I do not believe that glycosuria is always due to one and the same cause; sometimes the liver, sometimes possibly the skin or muscle, may be most in fault. But I would ask any one who may read this paper to give it a careful and patient trial in every case they meet with, and especially not to think that they are doing this when they prescribe gr.x. of salicylate of soda three times a day.

There are some who say that salicylate of soda is no use in gout,⁴ though I think that at the present time they are probably in the minority. I can only say that I have never seen a case in which this was so, though I have used it in five or six times as many cases of gout as of diabetes; and I think that the case of gout, the notes of which I published in the Reports of last year, must of itself be taken as some evidence of the value of salicylates in gout. It shows up also the point on which I now especially wish to insist, viz., that gr.xv. even four times a day may be too small a dose. And generally my experience leads me to believe that in no disease connected with uric acid is it much use to give the salicylate of soda in smaller doses than \mathfrak{v} i. in twenty-four hours, and it may be necessary to go to \mathfrak{v} iss., or even the full doses commonly used for acute rheumatism; and given in these quantities in divided doses, freely diluted and on

¹ Ueber den Diabetes.

² Brit. Med. Jour., vol. ii. (1886), p. 312.

³ Handbook of Therapeutics, 12th edit., p. 550.

⁴ Ringer, Handbook of Therapeutics, 12th edit., p. 549.

a full stomach, I have never seen it fail to relieve promptly the pain of acute gout.

No doubt there are some who from idiosyncrasy cannot take even a few grains without unpleasant symptoms, and these, unfortunately for themselves, must look to other drugs for help. But where it is given in good doses, and where a strong reaction in the urine shows that it is absorbed, I should be ready to assert that the pain which it fails to relieve is not due to uric acid.

The drugs which are probably most in favour at the present time in the treatment of diabetes are opium and antipyrin, and both raise the acidity of the urine, diminish the excretion of uric acid, and lower arterial tension, and it will be seen from what I have previously said that the waters of both Carlsbad and Contrexéville have probably a similar action. With regard to the action of antipyrin on the acidity and excretion of uric acid, I would refer to a note of mine in the *Brit. Med. Jour.*, vol. i. (1888), p. 1007, claiming that it cures migraine by acting as an acid; and with regard to the effect of opium on acidity of urine, excretion of uric acid, and pulse tension, I would refer to a paper read in the Therapeutic Section of the British Medical Association at Leeds, which will, I hope, soon be published.

Frerichs says (p. 263) that opium is very useful, especially in cases *due* to anxiety or worry. I should consider that the anxiety and worry were symptoms of excess of uric acid in the blood, and its resultant high arterial tension.¹ I do not wish to deny the existence of anxiety and worry outside the region of pathology; but a man who has a normal cerebral circulation can get over these anxieties and worries comparatively easily, while a man whose cerebral circulation is hampered by the high tension of uric acid cannot do so, and slight troubles weigh him down to the ground. Dr. Broadbent² records cases of mental depression and melancholia which were cured by mercury, which reduced the tension; and I can answer for it that acids,³ opium, or salicylate of soda will do equally well, and the way in which opium produces this effect I have discussed in the paper previously referred to.

It may be said that all these drugs and waters which cure diabetes cause, according to my showing, retention of uric acid, while salicylate of soda causes an enormous excretion of uric acid, and yet both do good in diabetes; but salicylate of soda has also one point in common with opium and antipyrin, viz., that it cures or prevents a uric acid headache and mental

¹ Practitioner, November 1888.

² Croonian Lectures, 1887.

³ Brit. Med. Jour., vol. i. (1889), p. 289.

depression, and the plus excretion of uric acid under salicylate is, as I have often pointed out before,¹ a totally different matter from the excretion under alkalies. When uric acid is held in solution by a salicylate, it is not affected by any acids it may meet with while circulating in the blood and tissue fluids, and these do not affect its solubility or lead to its deposition, as is the case when it is only combined with an alkali; and further, a plus excretion of urate under salicylate causes no headache, and has little or no effect on arterial tension, while a plus excretion of urate combined with an alkali is the overflow from blood containing much of a similar compound, and this compound contracts the arterioles and causes high arterial tension, which in turn produces headache and mental depression;² and if an acid is given, the urate is quickly thrown out of solution and tends to be deposited in the cartilages and ligaments of joints, causing pricking and shooting pains in them, and its excretion in the urine suffers corresponding diminution;³ but if an acid is administered while a salicylate is in the circulation, the excretion of urate goes on unhindered, and there are no pains in the joints; and I have inferred from this that the different behaviour of urate in solution with alkali from that in solution with a salicylate depends on differences of solubility,⁴ especially with regard to the effects of acids on solubility.

We have now seen that gout and diabetes have been observed by several authorities to alternate. When there was gout (*i.e.*, retention of uric acid in the joints, liver, and spleen, but little in the blood, and only a small excretion of it in the urine, even though high acidity might cause a deposit), there was no glycosuria, and conversely, when there was glycosuria there was no gout, that is, no retention of uric acid, but a free circulation of it in the blood and tissue fluids of the body, and a free excretion of it in the urine, this condition being accompanied, as is usual,⁵ by more or less high tension of the pulse, which has, as I have previously said, been noticed in some cases by Dr. Broadbent.

And lastly, we have seen that two drugs and probably some waters, whose effect is to cause retention of uric acid, thus clearing the blood of it, curing depression or uric acid headache, precipitating an attack of gout, do tend to cure glycosuria while acting in this manner.

Another point of some interest is the action of fever, for it is well known that in diabetes during intercurrent fever the

¹ Med. Chir. Trans., vol. lxxi. p. 134.

² Practitioner, November 1888.

³ See also paper on Case of Gout, Hospital Reports, 1888.

⁴ Med. Chir. Trans., vol. lxxi. pp. 134-135.

⁵ Brit. Med. Jour., vol. i. (1889), p. 289.

sugar diminishes or disappears.¹ Now fever dilates the peripheral arterioles, and removes high tension of pulse;² it also diminishes the alkalinity of the blood³ and tissue fluids; it has, therefore, many effects in common with opium, antipyrin, and the waters I have been speaking of.

How far we may be justified in building on these facts must, I think, be left for the future to show, and, first, we want to know in what proportion or kind of cases salicylates are most useful; and second, whether the above relation of glycosuria to the excretion of uric acid is constant in all cases.

I shall now give the notes of the few cases I have been able to observe, and then examine as shortly as possible some of the points that appear to be of interest in connection with what has previously been said.

Mary A. D., *æt.* 55, came to the out-patient room at Waterloo Road, complaining of irritation of the vulva, and of passing and drinking much water, also of some dyspepsia. Has had rheumatic fever twice, twenty years ago. No signs of morbus cordis now.

January 12, 1888.—Urine brought to-day is pale amber, sp. gr. 1020, acid; no albumen; sugar (by Pavy's test) 3.2 per cent. Patient was put on alkalies and *nux vomica*, and remained much the same, and the sugar continued to be present in about the same quantity.

On February 2 she was put on salicylate of soda, gr. xv. t.d.s. She continued to take the salicylate till March 8, when she brought a specimen of urine which gave a dark purple salicine reaction with perchloride of iron; had sp. gr. 1014; contained 0.8 per cent. of urea; no albumen, and no sugar.

My note made at this time was, "Is this a case of intermittent glycosuria and the improvement a coincidence? or is it the result of taking salicylate of soda?"

She feels better in herself, and is quite clear that she is drinking much less than before she began this last medicine.

A week or two later I left off the salicylate again, and on April 12 she brought a urine which was very pale amber, sp. gr. 1020, and contained more than 3 per cent. of sugar.

I then again gave her the salicylate, and on April 26 she brought a urine which was pale, turbid; sp. gr. 1011; gave a distinct salicine reaction, and contained no sugar that could be estimated, and she again said that she was passing less water.

I continued the treatment, and on May 3 the report was that

¹ Frerichs, *prev. ref.*, p. 75.

² Dr. Broadbent, *Croonian Lectures*, 1887.

³ See paper by Dr. Peiper, *Virchow's Archives*, June 1889, p. 337.

the improvement in symptoms continues; she is drinking and passing less water, and the urine has the same characters as at the last note. After this I unfortunately lost sight of her.

Mrs. C., *æt.* 45, came to the same Hospital in May 1888, saying that she had been told by a medical man that she had diabetes.

She brought some urine, which had *sp. gr.* 1032, and contained sugar.

On May 31 she brought some more urine, which was amber, *sp. gr.* 1040, and no albumen, and contained 5 per cent. of sugar. Thinks she passes about three pints of urine a day.

She is stout and well nourished. Pulse is slow, with some slight increase of tension. Nails slightly reedy.

She had whooping-cough, measles, and variola as a child. Has suffered from "rheumatic pains" in her joints for some years. Occasionally dyspepsia and feelings of sinking in the epigastrium. Her father's father had gout in the toe. Her father, one brother, and one sister died of phthisis. One son has rheumatism and swelling of his joints.

She was now put on salicylate of soda, as in the previous case, and on June 7 she brought a specimen of urine of *sp. gr.* 1035, and amber colour with a well-marked salicine reaction with iron, and containing 2.5 per cent. of sugar, *i.e.*, the sugar had diminished by a half in seven days.

June 21.—Brought more urine, and reports that she is drinking less, and passes less water; she takes the salicylate, *gr. xv.*, three times a day, and thinks she is decidedly better. Urine is dark amber, and not at all diabetic in appearance; has a red uric acid deposit, a *sp. gr.* 1030, and a strong salicine reaction; urea 2.4 per cent., sugar (Pavy) about 0.5 per cent., but the uric acid present might almost account for all the reaction obtained, and I think it is doubtful whether there is any sugar at all. Under the microscope the urine deposit shows large masses of highly coloured uric acid, some epithelium, and oxalate crystals.

I now tried to alter the diet while keeping on the salicylate, on the view that the glycosuria was really due to gout. She had been dieted by the medical man who told her that she had diabetes, and was taking meat and eggs in considerable quantities. I advised her to lessen the meat and eggs, and to take vegetables, fruit, and a pint of milk in the day.

On July 19 urine was *sp. gr.* 1031; strong salicine reaction; urea 1.9 per cent., and little or no sugar, as before. She reports that potatoes and bread cause diuresis and make her feel worse, but she can take fruit, peas, and milk without injury. Thinks she is not losing weight, and thinks the medicine does her much good.

August 2.—Keeps on the salicylate, and is getting on well. Says she can take a little bread and sugar without harm; cannot manage potatoes yet; takes fruit well; urine about two pints a day; weight, 9 stones.

August 16.—Not quite so well to-day; the water is more in quantity; states that she has taken some bread or something injurious; urine, sp. gr. 1015, and contains 1.6 per cent. of sugar; it gave no salicine reaction with perchloride of iron. Has she been taking the medicine regularly?

On inquiry, it came out that the medicine had been different from usual, and as the urine gave the reaction of an iodide with nitrate of silver, she had probably been taking iodide of potassium by mistake.

October 11.—Has been attending more or less regularly. Says she has been eating too much bread and some potatoes. When she does this, she first gets a pain and feeling of emptiness in the epigastrium, and then there is a rush of pale urine.

She seems cheerful, and is not losing weight, which remains at 9 stones. She is quite sure the salicylate does good, and that she would be worse if she left it off.

The urine has a pale straw colour, sp. gr. 1010; a slight salicine reaction, and contains less than 1 per cent. of sugar.

She now suddenly ceased to attend.

October 3, 1889.—Came again to-day, and said that her sudden departure was due to her husband having to leave the district in search of work.

It is nearly a year since her last visit, and she looks paler and less well nourished than she did, but is not by any means thin.

She asks to have her medicine as before; nothing else has done her so much good, and she is worse without it.

Has more pain in the abdomen than formerly, and it is specially severe just before there is a rush of water.

Urine brought to-day is sp. gr. 1030, full amber colour, acid, no albumen, and contains:—

	Per cent.	Total in 300 cc.	
Sugar . . .	5.7	263 grs.	} Uric acid to urea . . 1-17 Urea to sugar . . 1-3.8
Urea . . .	1.5	69 ,,	
Uric acid . . .	0.08736	4 ,,	
Acidity . . .	...	13 ,,

We have here, then, a plus excretion of uric acid, the very reverse of a gout attack, and a glycosuria accompanying it.

October 17.—Returned to-day, having had fourteen days' medicine, but was unfortunately only given enough to enable her

to take it twice a day (*i.e.*, sodii salycl. gr.xxx. in twenty-four hours). Urine brought to-day is dark amber and sp. gr. 1032; no albumen. Salicine reaction fairly strong, and it only contains 0.6 per cent. of sugar, as compared with 5.7 per cent. without drugs; so that once again in this case sugar has been reduced almost to nil.

Henry F., *æt.* 54, a gouty patient with glycosuria in John Ward, under the care of Sir Dyce Duckworth, who kindly allowed me to examine the urine. After two days the patient was put on salicylate of soda gr.xv. 6tis horis.

Unfortunately he was an extremely ill-disposed and unruly patient, and the urine could only be collected with great difficulty, so that the results do not come out nearly so well as might otherwise have been the case. Still I give them for what they are worth. His board was headed "Glycosuria—acute gout," and his history was as follows:—

Polyuria fifteen years ago, especially at night, and since rheumatic fever, ten years ago. Boil on right thigh eighteen years ago. Present illness began sixteen days ago with pain in right thigh and hip and swelling of right knee and foot. Six days ago right elbow and wrist were affected. Urine on admission sp. gr. 1034, acid, trace of albumen, and contains glucose. Father died at age of 70, and had ulcerated leg. Mother died at 65 with hæmoptysis. Maternal grandfather rheumatic, but lived to 80. One brother and one sister died of phthisis. One brother died of morbus cordis suddenly. Patient takes three pints of beer at night, or more. Has lost two stones in weight in the last two years. Highest temperature while in Hospital 100.2°.

Urine of twenty-four hours ending 9 A.M. on 24th November 1888:—2100 cc., very pale amber, turbid, sp. gr. 1035.

	Per cent.	Total.	
Urea . . .	0.8	258 grs.	| Uric acid to urea . . 1-48 Urea to sugar . . . 1-6.2
Uric acid . . .	0.01680	5.4 ,,	
Sugar . . .	5.0	1617 ,,	

Urine of 25th November:—1650 cc., and some loss, pale amber, turbid, sp. gr. 1036.

	Per cent.	Total.	
Urea . . .	1.1	278 grs.	| Uric acid to urea . . 1-33 Urea to sugar . . . 1-5.9
Uric acid . . .	0.03360	8.5 ,,	
Sugar . . .	6.0	1650 ,,	

Urine of 26th November, first day of salicylate:—(?) 1650 cc., sp. gr. 1036; salicine reaction present, but not strong.

	Per cent.	Total.	
Urea . . .	0.8 (?)	203 grs.	Uric acid to urea . 1-2.2
Uric acid . . .	0.03696	11.7 ,,	Urea to sugar . 1-8.1(?)
Sugar . . .	6.0	1650 ,,	

Urine of 27th November, second day of salicylate:—900 cc.; said to be urine of night only. It is dark amber, clear, and like natural non-diabetic urine. Patient says he is cured of his diabetes, and the urine has been much less the last two nights. Sp. gr. 1041; strong salicine reaction with iron.

	Per cent.	Total.	
Urea . . .	1.1	152 grs.	Uric acid to urea . 1-15.7
Uric acid . . .	0.07056	9.7 ,,	Urea to sugar . . 1-5.4
Sugar . . .	6.0	831 ,,	

Urine of 28th November, third day of salicylate:—Total of twenty-four hours = 2100 cc., divided into two portions, viz., 900 cc. representing the night, and 1200 cc. the day period of twenty-four hours.

900 cc. of the night, sp. gr. 1040, amber.

	Per cent.	Total.	
Urea . . .	1.2	166 grs.	Uric acid to urea . 1-15.8
Uric acid . . .	0.07392	10.5 ,,	Urea to sugar . . 1-4.1
Sugar . . .	5.0	693 ,,	

1200 cc. of day, pale straw, slightly turbid, sp. gr. 1023.

	Per cent.	Total.	
Urea . . .	0.7	129 grs.	Uric acid to urea . 1-23.4
Uric acid . . .	0.03024	5.5 ,,	Urea to sugar . . 1-5.7
Sugar . . .	4.0	739 ,,	

Total of twenty-four hours:—

Urea	295 grs.	Uric acid to urea . 1-18.4
Uric acid	16 ,,	Urea to sugar . . 1-4.8
Sugar	1432 ,,	

It was not possible to carry the examination further, as the patient was up and going about, and would not help in any way with the collection of the urine; but even this record of fragments has some points of interest, though I should be inclined to rely more on the relative than the absolute quantities.

After this the patient went out, taking some salicylate mixture

with him. He returned on December 8th, saying that he had been drinking beer freely, and was again passing more water.

On December the 11th he came for more medicine, and was again drinking freely beer and brandy.

After this he was not seen again.

The results of my examination of his urine are appended to the case in the form of curves, but these do not show very much, except the large excretion of uric acid under salicylate, and I have thought it better to give the results in this paper in the form of tables.

From these it will be seen that he was only on salicylate for three days, and yet the sugar was reduced by nearly 200 grains in the day, and urea was to sugar as 1-4.8 at the end of the time, as compared with 1-6 before the salicylate was begun; and I have very little doubt that a longer period and somewhat larger doses would have given much more decisive results.

These cases might be classed as slight diabetes, glycosuria, or gouty glycosuria; but the last case of which I shall give notes is, I think, one of severe diabetes, tending to a rapidly fatal issue unless drugs can be found to control it.

Jane B., æt. 33, came to the Metropolitan Hospital in November 1888, complaining of being weak, languid, and tired. She said that she was drinking all day long, and passed much water, especially the last two months. She had had some irritation of the vulva and excess of thirst for about eighteen months.

Is married, and had eight children, six living now; last, nine months old, and still nursing. No miscarriages. Her mother had "rheumatics." Her father died of phthisis many years ago. Patient had "fever" as a child, and used to suffer with the "bile" on and off, and does so occasionally still.

She is taking ordinary food at present.

Urine brought to-day is pale amber, sp. gr. 1043, and contains—

	Per cent.	Total in 300 cc.	
Urea . . .	0.6	27 grs.	Uric acid to urea . . . 1-30
Uric acid . . .	0.02016	0.9 "	Urea to sugar . . . 1-17
Sugar . . .	10.0	462 "	

I gave her mist. gent. alk. with ℥x. of tinc. of nux vomica, and told her to diet herself as far as possible at home.

December 1.—Says she is slightly better, and has less thirst and diuresis, but is still languid. (I should say that at her first visit the languor was so marked as to bring very promi-

nently before me the possibility of impending coma.) Has been keeping to diet ordered as far as possible. Urine to-day pale straw colour, sp. gr. 1045; contains 0.7 per cent. of urea, and sugar, as on previous occasion, 10 per cent. She was told to wean her child, and was given salicylate of soda gr.xv. ter die, and to continue the same diet.

Note.—The diabetes may have originated in her last pregnancy, as the date of onset corresponds with that.

December 8.—Not so tired, thirst less, and urine less also. Thinks the medicine affects her eyes; but it does her good, and she feels brighter. Urine, sp. gr. 1040; urea, 0.8 per cent.; sugar, 9 per cent. Salicylate continued. Was asked to estimate roughly the amount of water in twenty-four hours.

December 15.—“Deal better this week,” not so tired or near so thirsty. Passed about 20 pints of urine yesterday. Sight gets better. Has given up nursing the child. Thinks that she used to pass considerably more than 20 pints in the day. Urine, sp. gr. 1042; sugar, 8 per cent. Continue salicylate gr.xv. 6tis horis.

December 22.—Not quite so well; more tired again. Has been eating more puddings of late. No salicinism. Takes two pints of beer in the day. Would not like to leave off the medicine. Urine pale amber, sp. gr. 1040; urea, 0.65 per cent.; sugar, 8 per cent.; relation of urea to sugar, 1-12.

January 5, 1889.—Going on well; thirst and diuresis less; only passed 10 pints yesterday. Asked to have fourteen days' medicine. Urine to-day pale amber, sp. gr. 1040; urea, 0.8 per cent.; sugar, 6.6 per cent. Day's excretion, calculated on 10 pints—urea, 739 grs.; sugar, 6098 grs.; relation of urea and sugar, 1-8.

Has not been taking the full dose of medicine. Says she had a “bilious attack” about ten days ago.

January 19.—Going on well; has occasional attacks of thirst and diuresis, especially in the afternoon. Urine, sp. gr. 1042; urea, 0.8 per cent.; sugar, 7 per cent.; relation of urea and sugar, 1-10.

February 2.—Had a bilious attack, and could not take her medicine, and this was followed by feelings of temporary debility and depression. Urine about 11 pints in twenty-four hours; pale amber, sp. gr. 1040; urea, 0.8 per cent.; sugar, 7.0 per cent.

Urea in 11 pints	. 813 grs.	| Relation of urea to sugar . 1-8.7
Sugar . . .	7114.0 ,,	

Salicylate repeated, and acid mixture given for bilious attacks.

March 2.—Looks well and stouter; has a fair colour in her face. Says she has been so well, she did not feel the want of

any medicine, and has now been fourteen days without any. Amount of urine keeps about the same.

The acid mixture relieved the bilious attacks and kept them off. She thinks she is cured. Urine to-day pale amber, not nearly so pale as it was, sp. gr. 1042, and contains 6.6 per cent. of sugar. It hardly gives any salicine reaction with perchloride of iron. Both mixtures repeated.

April 3.—Has again been without medicine for some time, but now the tired feelings and vulvar irritation have returned.

Salicylate and acid mixture repeated.

April 17.—Note says she was better, and salicylate was repeated. (I was away from duty now and at the next date.)

May 1.—On this day salicylate was stopped, and m. gent. alk. c. tinc. nucis vom. \mathfrak{m} x. repeated; reasons for change not stated. The patient afterwards told me that this mixture made her worse, and she threw it away after two or three doses.

August 17.—Has taken no medicine for some time; has been worse; looks pale and feels feeble. Pulse-trace to-day shows some plus tension, considering the quick rate, 96, after exertion. Did not bring urine to-day.

Given salicylate of soda gr.xv. 6tis horis as before.

August 24.—Says she is decidedly better and thirst much less; began to feel better at once on taking the medicine; when thirst is great, nothing under two pints of water at a time is any use. Urine to-day pale amber and no albumen, sp. gr. 1040; sugar, 10 per cent. Strong salicine reaction with perchloride of iron.

September 7.—Not taking medicine regularly, and not so well. Urine, sp. gr. 1038; sugar as before.

September 14.—Still tired at times, especially in the afternoon after dinner. Urine, sp. gr. 1040; sugar, 10 per cent. Salicine reaction with iron not at all strong.

September 21.—Still tired and thirsty at times, but drinks less on the whole. The salicylate mixture occasionally causes nausea, and she was told to take it much more diluted.

Urine pale amber, clear, sp. gr. 1042; salicine reaction not very strong; gives a fairly strong acetone reaction with nitroprusside of sodium. Sugar about 6 per cent.; urea, 1 per cent. Total urine about 10 pints.

Total urea .	924.0 grs.	|	Urea to sugar as 1-6.
Total sugar .	5544 „		

Salicylate gr.xv. to be taken six times a day if she can do so without unpleasant symptoms.

September 28.—Has been taking salicylate 4tis horis, and has not had any salicinism. Still somewhat tired, and thinks the

amount of urine is about the same. Had not enough medicine, and has been without any the last twenty-four hours. Appetite very good.

Urine brought is pale amber, sp. gr. 1038; only gives pale brown with perchloride of iron, therefore very little salicine. Sugar, 5.5 per cent.; urea, 0.9 per cent.; relation of urea to sugar, 1-5.5. The acidity is low, probably the urine of the alkaline tide.

October 5.—Says that the urine she brings is generally passed about the middle of the previous day. Has no trouble with the salicylate, which she takes 4tis horis, but has been eating some potatoes and been troubled with dryness of the mouth. She was advised not to take any more.

Urine, sp. gr. 1040, acid; strong salicine reaction; urea, 1 per cent.; sugar, 5 per cent. Totals on 10 pints of urine: sugar, 4620 grs.; urea, 924 grs.; relation of urea to sugar, 1-5.

Whether, if this patient could be taken into hospital and the salicylate given regularly and the more injurious articles of diet eliminated, a further reduction of sugar would take place, must remain doubtful. She is unable to leave her children, and as she considers that she is getting on fairly well as an out-patient, refuses admission.

But imperfect as the records of such a case necessarily are, it will be seen that the amount of urine has on two occasions been reduced from 20 pints or more in the twenty-four hours down to 10 pints, and the sugar from 10 per cent. down to 5 per cent., so that the total sugar has been reduced to one-fourth of its original quantity. She is fully as well now as when she first came, nearly a year ago, so that I have very little doubt that her life has been prolonged by the treatment. It is interesting to note that on one or two occasions, March 2 and April 3, 1889, the improvement appeared to continue for several days, or even a week or more, after the drug had been omitted.

There is a personal history of acute rheumatism in the first and third cases, and a strong family history of it in the other two.

Gout was present in No. 3, and No. 4 was subject to bilious attacks, which, as they improved on acids, just as the bilious attacks of uric acid do, may, I think, be put down to that cause.

Nos. 1 and 2 suffered from dyspepsia, and No. 2 noticed a peculiar feeling of sinking at the epigastrium as preceding a rush of water. I think it possible that this feeling may have something to do with congestion of the chylo-poietic viscera, more especially of the liver, stomach, and duodenum; but I shall have more to say on this point at some future time.

Case No. 3 had, it will be seen, on one day before the salicylate was begun, a greatly minus excretion of uric acid, and the notes show that he had also some acute gout, and yet passed some sugar in his urine; so that it appears as if his case might be an exception to the alternation of gout and glycosuria noticed by Sir A. Garrod and others. It would have been very interesting, had it been possible, to observe whether the sugar was less at the time of the acute gout attack than after it passed off. On the other day before the salicylate (25th November), however, the uric acid excretion was fully up to the normal, and in the other cases the glycosuria appears to have been contemporaneous with a large, sometimes a very large, excretion of uric acid.

Further, though the alternation of gout and diabetes noticed by Sir A. Garrod and others probably points to the true relation between glycosuria and the excretion of uric acid, neither the plus nor the minus excretion of this substance could in any case be absolutely constant; but, with an excretion which always fluctuates from hour to hour, all one could expect to say would be that in the glycosuria period the plus excretion of uric acid on the whole preponderated, and in the gouty period the minus excretion.

In three of the cases alkalies appeared to do no good, and in two, No. 2 and No. 4, they did, or appeared to the patient to do, positive harm. They would almost certainly cause a plus excretion of uric acid, but I have previously pointed out that the drugs which do good in glycosuria (with the exception of salicylate of soda, which has a special action) all cause retention of uric acid, and tend to precipitate an attack of gout; so that results with drugs completely confirm the conclusions of clinical observers as to the alternation of these two diseases.

With regard to the tension of the pulse, I did not find it very high in any case; but No. 2 showed some plus tension on at least one occasion, and No. 4 had some tension on one occasion which was relatively high, considering that her heart was beating at 96 from exertion and weakness; but I think that a more systematic investigation of the pulse might bring out points that I was not able to demonstrate in these cases.

Phthisis comes out strongly in the family history of No. 2 and No. 3, and is present also in the family history of No. 4. Unfortunately the family history of No. 1 is not recorded. I have previously mentioned that several observers have drawn attention to the frequent occurrence of gout and phthisis in the same family history, and apart from the cases I have here narrated, I have so often had to observe the same thing, that I feel confident it is no mere accident; and it appears to me that Sir

Andrew Clark's very interesting paper on "Arthritic Hæmoptysis," recently read at the Medical Society (*Lancet*, vol. ii. (1889), p. 840), may give us a hint as to the direction in which we must look for an explanation of this connection between gout and phthisis, viz., to the effects of arthritic disease on the vessels and circulation of the lungs.

In two of these cases salicylate of soda reduced the sugar on more than one occasion from 3 or 5 per cent. down to nothing, and in the third case there was a considerable diminution of sugar even in three days, pointing, I think, to a similar result if the treatment could have been continued. In this patient's own opinion there was considerable diminution of diuresis, especially at night, so that he considered himself cured; and though the total water of the twenty-four hours appeared to remain the same, I do not consider that the collection was sufficiently accurate to be relied on.

In Case 4 the output of sugar was reduced on two occasions to about a quarter of its original quantity, and though not cured, the patient improved under the influence of the drug very markedly. It might be objected that the variations were accidental, and corresponded to the amount of starch or sugar the patient was taking; but the improvement was on two occasions steady and progressive from week to week, and this could hardly have been the result of accident; and when she went without medicine, the sugar returned to its original percentage, just as it did in Cases 1 and 2.

As to the relative value of salicylate compared with other drugs, it may, I think, be given in large doses, and for some time even to those who are healthy, without producing any uncomfortable effects, and in Case 4 it appeared as if very large doses would produce no toxic symptoms. I have seen a case in which opium reduced the sugar to nil for a few days; but then the patient was in bed and on restricted diet; and even in the very interesting case which Dr. Mitchell Bruce records in the *Practitioner* (January 1887), morphia took sixty days to reduce the sugar to nil, and nearly 5 grs. were taken in the day to produce this effect. Slight drowsiness, however, was the only symptom it produced, though it would obviously have been wrong to trust an out-patient with so much morphia, and if he had been up and about, the effect might have been less marked; so that I think that even in this case salicylate of soda may compare favourably with morphia, and it certainly has the advantage that it may be given freely to out-patients.

In addition to the cases recorded, I have seen five or six in which salicylates were used, and where the dose was sufficiently

large, the results seemed to me to correspond to those I have obtained, so that I am inclined to think that the cases in which salicylates are of no use will form a minority. I do not wish, however, to draw any definite conclusions from so small an experience, but rather to suggest, for the purpose of further investigation, that the relation of diabetes mellitus to gout and the excretion of uric acid is of great importance, and that salicylate of soda may not only be useful in treatment, but may also help to clear up some of the obscurity which still surrounds the origin of the disease.

SOME
RECENT ADVANCES IN NERVE PHYSIOLOGY
CONSIDERED IN RELATION TO DISEASE.

BY

THOMAS W. SHORE, M.D.

Broadly speaking, it may be said that physiological knowledge is advanced by one of three methods of research: (*a*) the direct examination of normal functions of the animal or vegetable organism by experiments on the living body, the examination of the various chemical metamorphoses to which it is subject, and the investigation of its histological structure; (*b*) the examination of perversions of function accompanying definite pathological conditions or injuries of the human body; (*c*) examination of the functional changes produced in the lower animals or in man as the result of the administration of drugs. Physiological knowledge, once acquired by any of these methods, must in its turn lead to an advance in pathology, even though at first it may be difficult to trace the connection between a given physiological fact and any known pathological state. Without a physiological basis, pathology can have no sure foundation, and unless we are perfectly familiar with the causes and modes of action of abnormal processes, we can have no grounds on which to rationally apply our remedies, nor without a knowledge of the physiological action of our drugs can we use them with any hope of success. On analysis, then, advance in the science and art of medicine owes its origin to the same methods of investigation as does advance in physiology, and an extension of our knowledge of the one leads to an increase of our resources in the other.

The physician engaged in the active practice of his profession is apt to hastily disregard some scientific discovery because its immediate application to the better diagnosis and to the cure of

disease may not at first be apparent. Any new scientific fact must not be judged and received or laid aside by the physician on the sole test of its immediate practical utility in the treatment of disease, for an apparently isolated scientific fact, which, considered alone, seems to have no practical value, may, by being correlated with other knowledge, or by opening up a line of new research, prove to be the starting-point of some extremely valuable practical discovery, or may serve to explain some hitherto ill-understood diseased state. Some of the subjects which I am about to touch upon in the present paper are topics the practical value of which it is difficult at first to discover; and it is because I feel that such scientific facts will, by advancing our knowledge of the structure and working of the human body, tend to place our classification and knowledge of disease on a scientific basis, and because they are apt to be laid aside by the physician as "very interesting, but of no practical value," that I justify myself in bringing them into prominence in these Reports.

Perhaps there is no branch of physiology about which we have so little exact knowledge as the functions of the various parts of the nervous system, and particularly of the brain and spinal cord. Although the physiology of other parts of the body had been previously worked at, and had become in its broad outlines fairly well established, there was, up to about twenty years ago, only the very barest and crudest knowledge of the functions of the various parts of the brain, nor had any but the roughest experiments then been made to determine these functions. Perhaps this is not to be wondered at when we consider the extreme complexity of the organ to be investigated, and the crude methods formerly at the disposal of the physiologist. When systematic investigation of this part of nerve physiology began, there arose a number of investigators whose labours for long were characterised not so much by the establishment of new truths as by great want of harmony, and in many cases by actually contrary results. This state of chaos resulted partly from the use of different animals by different investigators, partly from the various experiments being conducted by different methods, and partly from the general inaccuracy of the tests applied, and even of the same method on different occasions. The confusion which thus arose was not at first mitigated, but rather rendered worse by the results arising from isolated observations of the pathological states occurring in diseases of the brain in man. Up till about twelve to fourteen years ago, the method of research into the functions of the parts of the brain was by the removal or destruction of limited

parts of the organ. This method necessitated an extensive operation and the infliction of injury, slight, no doubt, but yet physiologically important, on other parts than that directly experimented upon. Again, though on general physiological principles one would infer that similar parts of the brain in different animals and in man would have similar functions, yet practically there is no part of the body in which increase of complexity, arising in the gradual evolution of highly specialised parts, has gone to such an extent as the brain. It thus became a serious practical question whether any localisation of function in the brains of the lower animals, however exactly and truly mapped out in those animals, could be sufficiently accurate to give us any guidance in the diagnosis and treatment of disease in man.

When, however, it was found that certain parts of the cortex of the brain responded to electrical excitation, there arose a new method of research, and one which could be more accurately regulated at the will of the experimenter. From the discovery of the electrical excitability of the cerebral cortex by Hitzig and Fritsch, there dates a new era in our knowledge of brain physiology, during which discoveries have been made, which, taken in conjunction with more accurately observed pathological states arising from "Nature's experiments" in man, have greatly aided our means of diagnosis of the seat of brain lesions, and to some extent have guided our treatment. This discovery was, when first brought forward, directly opposed to the view then accepted by physiologists. Schiff, Majendie, and others had, as they thought, established that the surface of the cerebral hemispheres was insensible to mechanical, thermal, chemical, and electrical stimuli; but it was in agreement with the view taken by Hughlings Jackson as to the cause of certain unilateral localised convulsive attacks of an epileptiform nature, which he described previously, and which are generally known as "Jacksonian epilepsy." These were believed by Hughlings Jackson to be due to localised irritative lesions of the cortex of the opposite cerebral hemisphere before the electrical excitability of the cortex had been demonstrated by physiologists. The view of this neurologist, at first regarded as problematical, has been completely confirmed by the results of excitative experiments on the cortex of the brains of lower animals. It is not my intention to enter into a discussion of the results of Ferrier as compared with those of other observers, or to discuss the question of whether the motor phenomena observed are due to irritation of motor centres in the cortex, or to conduction of currents from the cortex to other centres at the base of the

brain. The balance of evidence is unmistakably in favour of the conclusions of Ferrier, for the results of irritation of limited areas of the excitable regions of the cortex are fairly uniform, and irritation of other areas (and these sometimes those which are nearest to the corpora striata, such as the Island of Reil) calls forth no motor response.

Assuming as a physiological fact the *general* accuracy of the results as to cerebral localisation so far obtained as the consequence of experiments on animals, the practical question of especial interest to the physician and surgeon comes to be, "Is our knowledge on cerebral localisation sufficiently definite to enable us to apply it to the diagnosis of the *seat* of disease of the cerebral hemispheres, and to justify us in recommending the performance of operations with a view to the removal or amelioration of the diseased state?" There are many, and these are an increasing number, who will answer, "Yes, in certain cases;" and in an interesting paper, recently published, Ferrier¹ summarises the present state of our knowledge on this point.

Unilateral convulsions affecting the muscles of the leg, arm, and face on one side of the body (Jacksonian epilepsy) are an indication of irritative disease of the motor centres around the fissure of Rolando or of the white fibres of the corona radiata descending from them. When such convulsions are of the nature of a "monospasm," affecting the muscles of the face alone, or leg alone, or arm alone, they indicate irritative disease affecting the lower, the upper, or the middle parts respectively of the convolutions included in the area around the fissure of Rolando. Now, convulsions of this nature do not necessarily imply *organic* disease of the cortex, and so these *alone* would not justify operative interference. The irritation might or might not be one which could be ameliorated surgically; but if, after "monospasm" of the nature above indicated, there followed a "monoplegia," or if, after convulsions affecting the whole of one side, there succeeded an ordinary hemiplegia, then we may diagnose with some confidence that there exists an *organic lesion* in the part of the brain above indicated. In such a case we should be justified in recommending an operation at the appropriate situation, particularly if there were present also other symptoms indicative of cerebral tumour or abscess, &c.

In lesions affecting the angular gyrus, or the occipital lobe near it, or the fibres passing from them to the base of the brain, we should expect, from the results of Ferrier's experiments on animals, to meet with the symptom of homonymous hemianopia; but this might also be caused by disease in the corpus genicu-

¹ Brain, July 1889.

latum, or by disease of the optic tract, so that this symptom alone could not guide us to diagnose with certainty a lesion of the angular gyrus. It has been said that in homonymous hemianopia due to a cortical lesion, the normal contraction of both pupils in response to a ray of light thrown on the affected eye is still present, whilst this is lost in lesions of the tract or corpus geniculatum. It is obvious, theoretically, that if the lesion be above the seat of the centres concerned in the co-ordination of the muscles of the eyeball, the reflex effect of light thrown on the affected part of the retina should still be present. The centre for co-ordination of the muscles of the eyeballs is known to be in the corpora quadrigemina. Here, then, is an instance of a physiological fact suggesting a test by which the seat of a lesion may be diagnosed.

When the symptom of hemianæsthesia—one which is generally ill marked and transitory—is associated with hemiplegia of the same side, it may be due to one of three conditions: (a) an affection of the posterior part of the internal capsule interfering with both its motor and sensory fibres; (b) a cortical lesion in which the motor area around the fissure of Rolando and the gyrus fornicatus are simultaneously affected; (c) a lesion in the course of the fibres of the corona radiata leading from the area of the fissure of Rolando and the gyrus fornicatus. If with such a condition of hemiplegia and hemianæsthesia we had a *preceding* state of “hemispasm,” we could localise the lesion in the cerebral cortex.

Perhaps no greater practical confirmation of the general accuracy of the localisation of cerebral cortical function can be adduced than the analysis given by Ferrier in his recent paper of the cases in which operative measures have actually been undertaken for the removal of cerebral tumours or evacuation of abscesses in the brain. In the great majority of these cases the diagnosis as to the seat of the lesion has proved to be substantially correct, and was largely founded on the results of the experimental localisation of functions in the cortical areas. The first recorded case of this kind is that reported by Dr. Bennett, operated on by Mr. Godlee, in which the seat of a cerebral tumour was correctly diagnosed.¹ Horsley has published three cases of cerebral tumour successfully operated upon, and one of cerebral abscess successfully evacuated.² There are two cases published by Barker³ of evacuation of cerebral abscess, and one by Greenfield⁴ of the same kind, in all of which the diagnosis

¹ Lancet, 1884.

² Brit. Med. Jour., 1886, 1887, and 1888.

³ Brit. Med. Jour., 1886 and 1888.

⁴ Brit. Med. Jour., 1887.

of the *seat* of the disease was correctly made. Several other successful cases have been recorded, and some, though by no means a large proportion, in which, for some reason or other, an operation proved to be unsuccessful. Altogether, Ferrier¹ mentions forty-six cases in which the skull has been trephined, the dura mater opened, and the brain operated on *successfully* for tumours, abscesses, hæmorrhages, irritative lesions, &c., in each of which cases the diagnosis of the seat of the lesion was founded largely on symptoms to which the physician was guided by the results of physiological experiments on animals.

During last year, Gotch and Horsley² published the results of some experiments which have an important bearing on the above subject. By a series of experiments on cats and monkeys, conducted by observing the electromotive changes produced in the spinal cord by artificially induced epileptiform convulsions (stimulation of the cortex cerebri), they have obtained results which confirm in an independent way the results of Ferrier on the localisation of motor function in the cerebral cortex. The electrometer they used was of the most delicate kind, viz., the capillary electrometer of Lippmann, and they found that when the electrometer was connected by non-polarisable electrodes with the lower dorsal region of the spinal cord, excitation of the cortex cerebri produced an electromotive change *only* when the area of representation of the lower limb was excited, no effect whatever being observed when any part of the cortex outside this area was experimented on. The effect of exciting the area of representation of the lower limb for two seconds, with a current interrupted one hundred times per second, was a marked excursion of the mercury of the electrometer, which ceased as the exciting current was shut off. This was followed after an interval of two or three seconds by a *series of rhythmical oscillations* of the mercury, lasting from twenty to thirty seconds. These two changes—the sudden excursion of the mercury followed by rhythmical oscillations of it—coincide respectively with (a) the tonic or persistent stage of the accompanying muscular epileptiform convulsion, and (b) the clonic or rhythmical stage. They find a further interesting and most valuable fact, viz., that if the cortex cerebri is removed, and the exciting electrodes applied to the corona radiata, the tonic or first stage in the electromotive change *alone* is present, and is *not followed by the rhythmical secondary variations*. This fact affords very strong additional confirmation of the existence of cortical motor centres. These experiments have the very greatest importance in relation to the pathology of epilepsy,

¹ Loc. cit.

² Proc. Roy. Soc., 1888.

for though this disease is supposed to depend on some disturbance of the vessels of the cerebral cortex, leading to irritation of motor areas there, yet positive proof, apart from experiments on animals, is wanting.

Gärtner and Wagner's¹ experiments on the circulation in the brain add a further small contribution to our knowledge of the pathology of epilepsy. In a series of operations on curarised dogs, they found that the onset of an epileptiform attack was marked by a *great increase* of the cerebral circulation. This result is directly opposed to what is generally believed to be the condition in an epileptic fit in man, which is supposed to be the result partly of cerebral anæmia.

Turning now from this topic, we come to another very important branch of our subject. Considerable advance has been made lately in our knowledge of the relations of the nervous system to the viscera, a subject upon which exact physiological knowledge has till recently been lamentably deficient. As an example of these recent advances, I may mention briefly the results of the experiments of Rose Bradford² on the relations of the nervous system to the blood-vessels of the lungs. The method of investigation was a comparison of the effects of stimulation of various parts of the nervous system on pulmonary and aortic blood-pressures, recorded simultaneously. Stimulation of the peripheral end of the spinal cord divided at the level of the seventh dorsal nerve showed that whilst aortic blood-pressure rose markedly, that in the pulmonary artery showed scarcely any increase. Compression of the dorsal aorta causes, of course, a large increase of blood-pressure in the aorta, but has no effect on that in the pulmonary artery. It is obvious from such experiments that the merely mechanical increase of general blood-pressure has no effect on the pressure in the pulmonary system. On the other hand, a definite increase of pulmonary blood-pressure may be brought about through the nervous system, *reflexly, centrally*, or by *direct* stimulation of certain nerves. Reflexly it may be increased by excitation of the central end of the divided vagus. This is important, for we thus learn that the vagus not only reflexly influences the respiratory centre in normal breathing, but also exerts a reflex influence on the calibre of the small arteries in the lungs. Centrally, the pulmonary blood-pressure may be increased by stimulation of the upper part of the medulla oblongata, and this is not prevented by section of the cord at the level of the seventh dorsal nerve.

¹ Medic. Wochenschrift, 1887.

² Proc. Physiol. Society, February 9, 1889. Journal of Physiology, vol. x., No. 1.

By successive stimulation of the spinal nerve-roots from the second to the seventh dorsal, there occurs in each case a well-marked rise of pulmonary blood-pressure, the accompanying aortic rise being relatively less. The effect of asphyxia on the blood-vessels of the lungs is most marked. At first the blood-pressure in the pulmonary artery rises simultaneously with the aortic pressure, but it continues to rise after the latter has begun to fall. It is clear, then, that the vessels of the lungs are governed by a centre in the medulla, and that the path of the vaso-constrictor fibres runs from the "centre" down the spinal cord, and then to the lungs along the visceral branches of the second to the seventh dorsal nerves.

Although these results are what, in a general way, might have been expected, yet no proof of the existence of such a system had previously been given, and much less had the path which the nerve-fibres take been demonstrated. From anatomical considerations brought to light by the researches of Gaskell¹ as to the structure of the nerves governing the vascular system, it may be said to have been rendered highly probable that the fibres governing the vessels of the lungs took the course established by Rose Bradford, and the results here summarised form a very strong confirmation of the general accuracy of Gaskell's method of research. A physiological demonstration of such facts as these may have some bearing on the interpretation of cases like that which I described in a former volume of these Reports.² I then suggested that an explanation of an otherwise inexplicable gangrene of the lung might be found in a centric lesion in the spinal cord, and though I then suggested an interference with a possible "nutritive" centre, I by no means lost sight of the possibility of a disturbance of the vaso-motor system for the pulmonary vessels. The exact knowledge which we now have on the innervation of the pulmonary blood-vessels cannot fail to eventually prove of great service to the physician in connection with pulmonary disease.

To Rose Bradford we are also indebted for very valuable information as to the innervation of the renal blood-vessels.³ All renal vaso-motor fibres emerge from the spinal cord in the anterior nerve-roots of the sixth to thirteenth dorsal nerves. Very few, if any, fibres influencing the renal vessels are found in nerves above or below these levels. By far the greatest number of fibres run in the eleventh, twelfth, and thirteenth nerves. Two kinds of fibres have been demonstrated—vaso-constrictor and

¹ *Journal of Physiology*, vol. vii., No. 1, 1886.

² Vol. xxiii. p. 109, 1887. A Case of Muscular Atrophy and Gangrene of the Lung after Typhoid Fever.

³ *Journal of Physiology*, vol. x., No. 5, 1889.

vaso-dilator—the former the more definite. No vaso-constrictor fibres for the kidney vessels have been proved to occur in the vagi. This is contrary to what had been previously suggested. Reflex excitation of these fibres, most easily of the vaso-constrictor, can be brought about. Vaso-dilator fibres, however, can be called into action reflexly by stimulation of the posterior roots of the eleventh, twelfth, and thirteenth nerves. These nerves are thus proved to contain visceral afferent fibres. There is no evidence of any decussation of the vaso-motor fibres in the splanchnic nerves or their connections. The right splanchnic nerve apparently supplies only the vessels of the right kidney. The splanchnics, again, are proved to contain not only vaso-constrictor fibres, but also vaso-dilator for the vessels of the abdominal viscera, the renal vessels included with the rest. In these results, again, Rose Bradford brings direct physiological confirmation of the work of Gaskell.

Such exact physiological knowledge cannot fail eventually to assist us to the pathology of disease. For example, it has a bearing on the somewhat obscure disease diabetes insipidus or polyuria. There can be little doubt, from our physiological knowledge of the relation of secretion of urine to the condition of the renal blood-vessels, that the proximate cause of the excessive flow of urine in this disease is dilatation of the blood-vessels, produced by disturbance of the normal vaso-constrictor system of nerves. Polyuria has been attributed in different cases to injuries affecting the sympathetic trunk, to pressure on the splanchnic nerves by new growths or aneurisms, to similar pressure on the pneumogastric, or to the large ganglia and plexuses of the abdomen being involved in or pressed on by tumours. Most of the renal vaso-constrictor fibres emerge in the eleventh, twelfth, or thirteenth nerves, so that if the affection is ever due to injury of the sympathetic, it must be within a limited region, and so diagnosis is aided. The splanchnic nerve contains both constrictor and dilator fibres for the renal vessels, but any disease affecting it by pressure would be more likely to produce vascular dilatation by paralysis of the former fibres than any other result. According to Rose Bradford, there is *no proof* that the vagus contains any fibres to the renal vessels, so that it is improbable that pressure on this nerve can produce polyuria in man. It is well known that some cases of glycosuria are due to an affection of the nervous system, and it is probable that such cases are allied in their nature to simple polyuria. Glycosuria is commonly associated with polyuria; and it would seem probable that in such cases there is some derangement of the vaso-motor system affecting *both* the vessels of the liver and the

kidneys. But in those cases of glycosuria where there is no polyuria, the pathology is probably different. If in these cases the disease is of nervous origin at all, there must be an affection of a nervous channel *different to and separate from* that for the vessels of the kidneys. Again, in cases of simple polyuria without glycosuria, the nervous path for the kidney vessels *alone* must be affected.

Physiologically speaking, we have no knowledge of the exact paths of the nerve-fibres of the liver or of its vessels. An exact determination of the course taken by these fibres is greatly needed; but this is involved in great difficulties, owing to the intricate connections of the plexuses in the abdomen. Only slight advance in our knowledge of the functions of the liver can be made till we are able to trace its nerves, and to observe the effects of experiments with them on its secretive and other functions. It is not improbable that the acquisition of as exact physiological knowledge of these nerves as we now have of those of the lungs and kidneys will help us to clear up many of the doubtful points in the functions and diseases of this organ.

As I have above mentioned, the first indication of more exact knowledge as to the innervation of the vessels and viscera of the thorax and abdomen was that brought forward by Gaskell nearly four years ago. In this memoir, the subject was approached from a histological standpoint, and the general conclusions arrived at greatly modified our ideas, not only as to the nature of a typical spinal nerve, but also of that nerve hitherto known as the "sympathetic." Each typical spinal nerve was shown to be composed of a definite system of motor and sensory visceral fibres as well as somatic motor and sensory ones. The former were anatomically distinguished by being either non-medullated or medullated, but *much smaller* in diameter than the latter. The spinal nerves of the thoracic region were shown to be the channels by which these visceral fibres leave the spinal cord. The visceral system was shown to be essentially segmental in its arrangement, and the longitudinal character of the sympathetic to be secondary and misleading. The main cord of the so-called "sympathetic" in the cervical region was shown to have a different significance to that of the thoracic, and to be of the nature rather of a "splanchnic" nerve. Hence arose the nomenclature "abdominal splanchnic" to denote the ordinary "splanchnic" nerve of anatomy, and "cervical splanchnic" to denote the cervical "sympathetic." These two parts of the visceral system have the fact in common that they are nerves of "distribution" and not of origin. It would be well if the name "sympathetic" as applied to this system were gradually

dropped. The importance of these discoveries of Gaskell cannot be overrated in their relation to the progress of medical science. The physiological results of Rose Bradford, above abstracted, afford most valuable extensions of Gaskell's work.

Since the publication of Gaskell's memoir four years ago, a second most valuable communication on the same topic has been made by this physiologist. In his second memoir,¹ Gaskell rightly attaches great importance to the *central origin* of, and arrangement of nuclei in relation to, the various kinds of nerve-fibres of which a typical nerve is made up. The great outflows of visceral nerve-fibres appear to correspond with those parts of the spinal cord and medulla in which the cells of the lateral horn, solitary cells at the base of the posterior horn, and cells of Clarke's column, or their equivalents, are found. As to the cells of Clarke's column, it is shown that they are associated rather with the "anabolic" or inhibitory nerve-fibres than with the "katabolic" ones. They form probably the central origin of the anabolic fibres distributed to the muscular walls of the alimentary canal and anabolic or dilator fibres of the corresponding blood-vessels. These inhibitory fibres of the muscular coats of the alimentary canal run almost entirely in the "abdominal splanchnics," whilst the corresponding katabolic or motor fibres are found chiefly in the vagi. Though not quite certain, it is nevertheless highly probable that the vagus nucleus in the medulla is the continuation brain-wards of the group of cells at the base of the posterior horn, and that the function of these is katabolic or motor to the muscles of the alimentary canal. The intermedio-lateral tract of nerve-cells is most conspicuous in the upper part of the thoracic region of the cord, and corresponds closely with the exits of the nerve-fibres which supply the heart and great vessels, and which form the greater parts of the cervical and abdominal splanchnics. These fibres are known to be katabolic or motor or augmentor to the heart, and katabolic or constrictor to the blood-vessels. The antero-lateral nucleus in the medulla appears to be the continuation upwards of this intermedio-lateral tract of the cord, and Gaskell mentions experiments by Owsjannikow and Dittmar which tend to show *that the vaso-motor centre is confined to the region of this nucleus*. Experiments also tend to show that fibres spring from this nucleus and pass down the lateral column of the cervical cord to join the nuclei of origin for the vaso-constrictor fibres in the upper part of the thoracic cord. For years we have been in the habit of speaking of a dominant vaso-motor centre in the medulla and subsidiary ones in the cord; but these "centres" have never

¹ Journal of Physiology, vol. x., No. 3, 1889.

been in any way definitely localised in particular nuclei till now; from the work of Gaskell and others we are able to localise the dominant centre in the antero-lateral nucleus of the medulla, and the subsidiary ones as a chain of segmentally arranged ganglia lying in the intermedio-lateral tract of the thoracic part of the cord.

I cannot but believe that such knowledge of the seats of the centres and course of the fibres governing the katabolic or destructive metabolism of the muscles of the heart and great blood-vessels will prove to be, in the not very remote future, of the greatest practical value to medicine. It may be objected by some that physiological information of this kind obtained by experiments on animals is not necessarily accurate enough in the case of man. In reply to this objection, I will mention but one fact bearing directly on the topic of the vaso-motor system. Helweg,¹ by means of a series of sections of cords of human subjects, found in the cervical region a tract of nerve-fibres, triangular in form, lying at the junction of the anterior and lateral columns, and composed of very fine fibres, about 2μ in diameter,² like those of the visceral system of Gaskell. This tract was believed by Helweg to be vaso-motor, and can be traced to the lateral region of the medulla.

The state of the pupil of the eye, and the movements or behaviour of the iris under various tests, is often of the greatest diagnostic value. Any increase of our knowledge as to the relation of this organ to the nervous system governing it must therefore prove to be of immediate value to the physician. We are taught in our physiological and medical text-books that the iris contains two sets of unstriped muscle-fibres, arranged as a sphincter and dilator pupillæ respectively; that the former derives its nerve-supply through the third nerve, and is governed by a centre in the floor of the aqueduct of Sylvius of a purely reflex nature; that the latter is supplied by fibres derived from the "sympathetic," and is under the control of a more or less tonic centre in the medulla. Histologically speaking, there is doubt as to the existence of the dilator pupillæ muscle, and some therefore doubt the views generally taught as to the nature of dilatation of the pupil. The fact that the course taken by the sympathetic fibres supplying the iris is the same as that along which the vaso-constrictor fibres for the vessels of the head pass, has led to the suggestion that dilatation of the pupil resulting from the action of the sympathetic may be the result of vascular changes in the blood-vessels of the iris. When the

¹ *Archiv f. Psychiatrie*, 1887.

² μ = one-thousandth of a millimetre.

vessels of the iris become constricted, there is supposed to result a *mechanical* dilatation of the pupil, and *vice versa*. There is much that could be explained by this—the “hydraulic” theory, and it agrees with the histological doubt as to the existence of the dilator pupillæ muscle. There are, however, many facts which are inconsistent with it.

One of the tendencies of Gaskell’s work on the visceral nervous system is to show that the fibres distributed to visceral muscles fall naturally into two divisions—(a) motor, caused by an increase of *katabolic* metabolism; (b) inhibitory, owing to an increase of *anabolic* metabolism. There is good reason for the belief that a similar relation of nerves holds good for the great secreting glands. In the secretion of saliva, for example, the process of building up of gland protoplasm is governed by the anabolic fibres from the chorda tympani, and the breaking down of the cell protoplasm to produce the ferment is under the control of the katabolic fibres of the sympathetic and chorda tympani. Probably there are, similarly, two sets of fibres distributed to the iris—one motor to the sphincter pupillæ, derived from the third nerve, and the other inhibitory to the same muscle, supplied by the “sympathetic.” There is no need for a dilator pupillæ, and its existence is doubtful. This view as to the nature of the nerve-supply of the iris must not be confused with the “hydraulic” theory, for the fibres to the iris itself are distinct from the vaso-constrictor and vaso-dilator fibres of its blood-vessels, as shown by the fact that the pupil can be dilated by stimulation of the “sympathetic” after death when the circulation has ceased.

As having a bearing on this subject, may be mentioned Brunton’s theory¹ that in the “relaxation” of a muscle there occurs an *active transverse contraction*, and not a mere passive return to the normal state. This view is founded on the facts that there is an active dilatation of the pupil under atropin when no dilator muscle has been proved to exist; that a local dilatation occurs in veins on electrical stimulation; that a loaded muscle, on stimulation, elongates; and that theine may cause in a muscle elongation, contraction, or no effect at all. These facts apparently indicate that in a muscle there occur opposing contractions, which may counterbalance each other, or lead to either shortening or elongation.

There are still many obscure points in this very important subject. The iris of birds is well known to contain striped muscle-fibres in place of the plain fibres found in mammals; and atropin does not cause dilatation of the bird’s pupil. In

¹ Proc. Physiol. Society, 1889.

them, again, it seems that the act of dilatation of the pupil is not governed by fibres running in the cervical sympathetic, as in mammals, for Gruenhagen¹ finds that though this nerve contains vaso-motor fibres in birds, it has no share in dilatation of the pupil. The view that dilatation is due to vaso-motor changes is therefore clearly not tenable.

This peculiarity in the action of the cervical sympathetic in birds reminds one that recently Hale White² has described certain pigmentary degenerative changes with atrophy of cells in the superior cervical ganglion in man and monkeys. These changes are found in the perfectly normal state, and are not present in *young* human subjects or in lower mammals. It would seem that though the superior cervical ganglion is functional in lower mammals and young human beings, yet in monkeys commencing loss of function, and in man complete obliteration of function, is found. Similar degenerative changes have been found by Gaskell in the third, fourth, and sixth cranial nerves in man and higher mammals. One can well imagine cases in which this fact may serve as a useful control on pathological observations.

There are two small structures in connection with the brain which have always been full of interest to the morphologist and physiologist, and to some extent also to the physician. These are the pituitary body and infundibulum, and epiphysis cerebri or pineal body. What the functions performed by these structures may be now, no physiologist can assert; but I strongly suspect that they have but little, or perhaps no, use in the organism of the higher vertebrates. When viewed in the light of modern research into their origin and structure in lower animals, they must be regarded as the last remnants of what were functionally highly important organs in man's earlier ancestors, and which have been gradually disappearing through loss of original function, in the same manner as the gill-slits in the adult have been all but lost. The most convincing proof was given about two years ago that the epiphysis cerebri represents a lost organ of vision,³ which was probably originally of a paired nature. In some animals it presents traces of a more or less perfect retina, pigment layer, lens, &c. The discovery of undoubtedly visual elements in this curious body altogether disposes of the more ancient views as to its nature. An apparently isolated fact such as this becomes vastly more important and suggestive when considered along with other facts as to the constitution of the central

¹ Pflüger's Archiv, 1887, xl.

² Journal of Physiology, vol. viii., 1887, and vol. x., No. 5, 1889.

³ Baldwin Spencer, Quart. Jour. of Micr. Science, 1887.

nervous system recently brought forward by Gaskell. If the facts of Gaskell are sufficient to justify the conclusions at which he has arrived on the subject of vertebrate ancestry, then the pineal eye of the ancestral vertebrate represents the eye of the *Arthropoda*.

The hypophysis cerebri has long puzzled physiologists, and many widely different opinions as to its nature have been advanced. The mode of its development, in close relation to the epithelium of the developing mouth, strongly suggests its connection with the anterior part of the alimentary canal of the ancestral vertebrate. It has been thought that it marks a portion of the channel of opening of the anterior part of the alimentary canal at the time when the mouth was supposed to be on what is now the dorsal side.¹ It has been identified with the "ciliated pit" of Ascidians, which is believed by some² to act as an organ of aëration for the brain. There is much to be said in favour of the view of Gaskell,³ that the infundibulum is the last remnant of the original œsophagus. Instances are not unknown in human anatomy of abnormalities in connection with the pharyngeal region, upon the interpretation of which the study of the development and nature of the hypophysis in lower animals may throw light. A case of this kind was found in a girl aged 15, in whom an unclosed hypophysial canal extended downwards so as to open just above the tonsil, and contained a soft cord of material like the substance composing the pituitary body.⁴

Recently, the fact that the tissue of the central nervous system is composed of two parts—a nervous and a non-nervous element—has been prominently insisted on by Gaskell, and from this, together with other facts, certain conclusions of a startling nature have been arrived at. The conclusion come to is that the central nervous system consists of a hollow non-nervous tube, the walls of which have become surrounded and invaded by a chain of segmentally arranged ganglia. The non-nervous tube has been identified as the equivalent of the alimentary canal of invertebrates—like the *Crustacea*, and the chain of nerve-ganglia as the ventrally placed nerve-cord of such invertebrates. It is supposed that the elements of this ventral nerve-cord have grown around the alimentary canal, whose tissue elements have become invaded by the nervous structures so as to form the whole organ known as the brain and spinal cord of the *Vertebrata*. The

¹ Owen, "Conario-Hypophysial Tract," &c., 1883.

² Sheldon, "On the Ciliated Pit of Ascidians," &c., *Quart. Jour. Micr. Science*, xxviii., 1888.

³ *Journal of Physiology*, vol. x., No. 3, 1889.

⁴ Suchannek, *Anat. Anzeiger*, No. 16, 1887.

ventricles of the brain and the canalis centralis of the cord are remains of the alimentary tube, and the epithelium lining these cavities is the remnant of the endoderm of the crustacean digestive canal. In the infundibulum of the brain is found the original œsophagus, and in the ventricles of the brain the former stomach. In the higher centres of the brain (cerebrum) are found the equivalent of the brain ganglia of the crustacean, and the crura cerebri are identified with the œsophageal commissures of the invertebrate nervous system.

It would be out of place here to enter into a discussion of the arguments by which Gaskell arrives at results which, both physiologically and morphologically speaking, are startling and novel, but it may be said that, however difficult the morphologist may find it to accept Gaskell's conclusions, there is nevertheless a very strong *prima facie* case made out in support of them. Without myself actually accepting them as conclusive, I think it not unprofitable to discuss to what extent such conclusions may have a bearing on our knowledge of diseased conditions of the nervous system. Although the neuroglia substance has long been known to be a non-nervous tissue resembling in some respects other connective tissues, yet the point has not before been brought into such prominence as it now holds. The neuroglia tissue and the epithelium of the central canal are generally said to be developed simultaneously with the true nervous elements from ordinary epiblast of the embryo, and the non-nervous elements are said to be formed from the same class of cells as the nervous tissue itself, and hence to be "potentially nervous." Gaskell points out that this view is scarcely tenable, and that probably in the production of the medullary canal of the embryo two distinct structures are being simultaneously developed from cells which as yet are quite indifferent and not nervous. In studying the origin and nature of new growths of the central nervous system, the importance of the separate existence of nervous and non-nervous elements may be seen. Are any new growths of the brain or spinal cord ever purely nervous in structure? Do any new growths in these parts ever start from purely nervous elements? If they occur at all, new growths of purely nervous structure are excessively rare. Rokitansky and Virchow have drawn attention to the condition called *heterotopia cerebri*, or development of nodules of true ganglionic grey nerve-matter under the lining membrane of the ventricles of the brain. Wilks and Moxon¹ mention that they have once met with a nodule of the size of a hazelnut under the ependyma of the lateral ventricle, composed of

¹ Pathological Anatomy.

grey nerve-tissue. Other than these instances, I know of no new growths composed of pure nerve-tissue. Nor perhaps is this surprising when we remember how highly specialised and differentiated nerve-tissue is, for new growths are generally composed of tissue resembling embryonic, or, at any rate, not highly specialised tissues. Practically, then, all new growths found in the central nervous system arise from its non-nervous elements. From *à priori* considerations, this is what would be expected, for the supporting non-nervous framework of the central nervous system is composed of tissue which is very lowly differentiated. The neuroglia or "myelo-spongium" of His forms simply a meshwork of narrow and broad protoplasmic filaments with nuclei embedded in it, the meshes and nuclei becoming more dense as we approach the central canal, until they ultimately form the compact lining epithelium of that tube. This meshwork is developed by modification of layer upon layer of epithelial cells similar to those lining the central canal.¹ The most characteristic new growth of the central nervous system is, of course, the glioma. This in structure resembles very closely normal myelo-spongium, being composed of a pellucid-looking material, exhibiting but little structure beyond a more or less dense feltwork of delicate fibrils with nuclei. Very commonly, however, there are in the meshes of the feltwork, and obscuring it, numerous small or large round cells, resembling the elements of round-celled sarcomata, and probably but little differing from sarcoma-tissue. From glioma to ordinary round and spindle-celled sarcomata, both of which occur in the brain, the transition is easy.

The fact that the central canal of the spinal cord exists at all, and has no equivalent in the nerve-cord of invertebrates, suggests that it is a structure which has had some past importance, and whose function has now been lost. Now it is well known that canals and cavities, which are merely the remnants of some past organ, and are now functionless, are very prone to become distended with fluid and to produce cysts, and in this respect the central canal of the nervous system is not exceptional. It is well known that the ventricles of the brain and central canal of the cord may take part in such cystic formations as hydrocephalus, spina bifida, &c. Such conditions as these acquire a new meaning when considered in the light of Gaskell's memoir. Von Recklinghausen² has described cases occurring in the

¹ For a figure of this "myelo-spongium," *vide* His's paper, Arch. f. mikr. Anatomie, vol. xxxi., or a copy of it is to be seen in Gaskell's memoir, Journal of Physiology, vol. x., No. 3, plate xix., fig. 1.

² Virchow's Archiv, 1886.

human subject showing how often the condition called spina bifida is associated with defects of development of parts of the alimentary canal, such as Meckel's diverticula, atresia ani, umbilical herniæ, and the like. This is certainly confirmatory, from a pathological standpoint, of the conclusions of Gaskell; for we have here simultaneous malformations, not of totally distinct organs in the body, but of structures which developmentally have much in common. It has long been known to embryologists that at certain stages in development the canal of the central nervous system is continuous through the neur-enteric tube with the posterior end of the gut, and that in most vertebrated animals the connection disappears during the later stages of embryonic life, in some *Amphibia* (mostly frogs), and in some *Reptilia* and *Aves*, I have met with longer or shorter cæcal processes of the cloaca passing backwards along the root of the tail, and evidently representing the post-anal gut which in the embryo joined the neurenteric tube. Importance has also been given by Bland Sutton¹ to certain cystic formations about the spinal canal associated with developmental defects in the alimentary tube, as suggestive of the spinal canal being part of a modified gut. He has found syringo-myelocele and syringo-meningo-myelocele associated with arrests in development of parts of the alimentary canal.

Another consideration, which, though not in any way new, has been very greatly insisted upon by Gaskell, is the segmental arrangement of the ganglionic centres in the central nervous system. Each spinal nerve, made up as it is of splanchnic as well as somatic fibres, has its corresponding segment in the spinal cord, composed of separate nerve-cells connected with its various sets of nerve-fibres. Each such segment of nerve-cells is, by central connecting fibres, associated with the segments above and below, so as to form, as it were, a chain of nuclei. This segmental arrangement is traceable, in a modified manner, into the lower centres of the brain, where the nuclei of origin of the various cranial nerves, up to the third, exhibit a more or less complete segmental arrangement. This subject is a very important one in relation to medicine, for it is quite impossible for the physician to appreciate properly the constitution, structure, and functions of the nervous system without a clear understanding of its segmental plan, and particularly of the modified segmentation of the head region. It is, however, a subject which is more morphological than physiological, and is involved in many difficulties for the solution of which the physician must look to the comparative anatomist, embryologist, and morphologist.

¹ Brain, vol. x., 1887.

It would be entirely out of place in this paper to analyse the various views on this important subject, but I think that a summary of the most recent work¹ on the segmental value of the cranial nerves may not be without interest and practical value.

The *third* cranial nerve contains ordinary somatic motor fibres, as well as splanchnic motor fibres in connection with the ciliary ganglion. There is evidence of a *degenerate* posterior or sensory root ganglion, so that this nerve conforms to the type of a complete metameric nerve.

The *fourth* cranial nerve also contains somatic and splanchnic motor fibres as well as evidence of a degenerate sensory posterior root ganglion.

The *sixth* nerve appears to have the same structure as the third and fourth, though the degenerate posterior root ganglion is more doubtful.

The *motor root of the fifth* contains somatic and splanchnic motor fibres as well as degenerate ganglion cells in the position of a sensory root ganglion. The motor root of the fifth must not be regarded as of the nature of a ventral nerve-root, but is in itself a *complete metameric nerve*.

The *seventh* cranial nerve contains the same elements as the four preceding nerves, and has evidence of a degenerate posterior sensory root ganglion.

The above five nerves conform to the same type as a spinal nerve, but the sensory structures which they at one time contained have been all but lost, a *degenerate* sensory ganglion being all that remains of the sensory elements. The nerves arising from the medulla also conform to the type of a spinal nerve, but *do not exhibit degeneration of any component part*. There has been a *separation* of the elements of one or more complete nerves of the spinal type, so that the distinct nerves of anatomy do not represent each a *complete* nerve metamer.

The *sensory root of the fifth* nerve contains only somatic sensory fibres.

The *ninth* nerve has a *splanchnic* sensory root ganglion—the ganglion jugulare—but no somatic sensory one. There are *splanchnic* motor fibres in it, but no somatic motor ones.

The *tenth* nerve has no somatic motor fibres, and only very few somatic sensory ones, viz., those forming the auricular nerve. It is composed almost entirely of splanchnic motor fibres in connection with the ganglion tunici vagi, with a few splanchnic sensory fibres in connection with the ganglion jugulare.

The *eleventh* nerve contains only splanchnic motor fibres and those distributed to the external respiratory muscles.

¹ Gaskell, Journal of Physiology, vol. x., 1889.

The *twelfth* nerve contains the somatic *motor* fibres corresponding to the ninth, tenth, and eleventh nerves. The sensory part of the fifth, the ninth, tenth, eleventh, and twelfth nerves, therefore, *together* contain the elements of one or more complete nerve metamers.

In connection with the loss of the original sensory elements of the anterior group of cranial nerves comes in Gaskell's theory as to the constitution of the central nervous system. The loss of these sensory elements is associated with loss of function of the anterior part of the old alimentary canal, and it is suggested that the peculiarities of the posterior cranial nerves are bound up with the formation of the new or present alimentary canal.

Owing to the fact that the original metamers or body segments, in relation to which the segmental plan of the nervous system has arisen, have been in man and the higher animals largely rearranged, and to a great extent obscured, the practical importance of the segmental arrangement of nerves may not at first be obvious. There is, however, little doubt that, with subsequent investigation and exact histological and physiological research, the limits of the areas of distribution of the sensory and motor fibres contained in the various spinal and cranial nerves may be exactly defined in man. The cutaneous surface of the human body may be mapped out into districts or segments, not necessarily metamericly arranged, each with a nerve-supply derived from a particular sensory nerve, and arising from a *definite segment of nerve-centres*. The possibility of thus mapping out the cutaneous surface into segments is insisted upon in an interesting paper by Ross,¹ who defines the limits of some of the areas supplied by particular sensory nerves. The importance of this in relation to the diagnosis of the seat of lesions causing local anæsthesiæ is at once apparent. In a similar manner the muscles of the trunk and limbs may to some extent already be mapped into groups according as they receive their nerve-supply from fibres derived from particular nerve-roots having connection with definite segments of nerve-nuclei in the central nervous system. By the acquisition of more exact knowledge of the precise seat of the central origin of particular groups of nerve-fibres and their exact peripheral distribution, we shall obtain information of the greatest service in the diagnosis of the seat and limitation of the extent of lesions in the central nervous system.

I will give one practical case as an illustration of the general principles here insisted on. Mendel,² by a series of experiments

¹ Brain, vol. xi.

² Neurol. Centralblatt, No. 23, 1887.

on rabbits and guinea-pigs, showed that the fibres of the facial nerve which supply the orbicularis palpebrarum have their nuclear origin in common with the third nerve, and distinct from the rest of the facial. Now, it is well known that in cases of hæmorrhage into the cerebrum, and also in cases of bulbar paralysis, the upper part of the face, including the orbicularis palpebrarum, escapes, whilst the rest of the face is paralysed. Mendel's experiments may help to explain such cases, but will be found particularly suggestive when applied to those rarer cases in which the orbicularis palpebrarum is affected with the other muscles as the result of an apoplectiform attack.

Several cases of this kind have come under my observation. I well remember one which occurred when I was house-physician. A man of gouty history, and with slight albuminuria, had an apoplectiform seizure, with temporary loss of consciousness, resulting in left hemiplegia of the usual type, but accompanied by loss of power of the muscles of the upper parts of the face of the left side. The left orbicularis palpebrarum was partly paralysed, there was ptosis of the left eyelid, conjugate deviation of the eyes to the left side, slight nystagmus, and a want of power to move the left eyeball in looking to the right. Gradual but complete recovery took place. There was obviously more or less palsy of the third nerve, as well as of the portion of the facial supplying the orbicularis palpebrarum. It is not at all improbable that the lesion in this case, when viewed in the light of Mendel's facts, was one affecting the fibres in relation to the common nucleus of the third and orbicularis portion of the facial; and it confirms, from a pathological standpoint, the results of Mendel obtained by experiment on animals.

There are many other recent advances in the physiology of the nervous system which might well be touched upon in this paper, such as, for example, the question of the automaticity of peripheral nerve-ganglia; the relation of the nervous system to heat production and regulation of temperature; the action and seat of the sweat-centres; the nature of the neuroses in connection with the thyroid body, the adrenals, &c., &c.

The general argument in this paper has been to show how much the researches of the physiologist help the pathologist and physician in the advance of the science and the application of the art of medicine. But let us by no means lose sight of the great work which the pathologist does, and the immense assistance which his results often afford to the pure physiologist. We must admit that, in some cases, pathological results have been the starting-point of physiological research culminating in great scientific discoveries. But physiological methods are much

more under the control of, and can be varied by, the observer, so that his results can be tested in a more exact fashion than is the case in pathology. Hence physiology exercises a control over pathology. Though the methods of work in the two sciences are often different, they are nevertheless sometimes similar, and at all times their ultimate aims are identical—the advancement of knowledge and discovery of truth.

THE ANTISEPTIC TREATMENT OF PHTHISIS.

BY

VINCENT D. HARRIS, M.D.

Any special treatment of a particular disease, as well as any distinct and important modification of a treatment already in vogue, should, it seems to me, be systematically tested by as many independent observers as possible, and the results of their experience should be duly recorded, in order that some definite conclusion for or against the practice of the treatment may be drawn.

How a method of treatment should be tested.

If this synthetical method be of general utility, it must be of still greater importance with respect to varieties of treatment about which competent authorities hold diametrically opposed views. This is the case with respect to the treatment of phthisis by antiseptic inhalations.

Synthetical method.

Antiseptic inhalations.

Any systematic record of the results of such treatment cannot, therefore, be without some advantage, and it is for this reason that I have determined to bring together and to publish the results of my own experience on this subject.

Paper brings together results of experience of antiseptic inhalations.

Whilst consulting the literature, already of great magnitude, dealing with the various methods of treating phthisis antiseptically, to which I propose to return presently, I have been much struck with two points in connection with the subject. The first is the smallness of the number of cases brought forward as a rule for or against a particular method of treatment. To this rule there are, I am aware, several notable exceptions.

Two points in connection with the literature on this subject.

The second point I have noticed is the very marked differences which appear to have attended the exhibition of the same remedies in the hands of different observers. This, perhaps, it might be said, is merely an illustration of the usual disagreements which proverbially occur among doctors. But a record of expe-

rience should be, at all events, one of observed facts and not of opinions. Even if the second of these objections to the present system of recording experience cannot be met, the first at any rate may be; and one may hope that before drawing conclusions as to the merits or demerits of any treatment, it will become the custom to record its effects in a larger number of cases than is done at present.

As regards the differences of opinion of which I have spoken upon the merits of antiseptics in the treatment of phthisis, as the treatment is no new thing, neither is the marked difference of opinion about its efficacy.

Long before the dependence of tubercle upon a specific micro-organism had been conclusively demonstrated by the masterly researches of Koch, and indeed before the specificity of that condition was anything but a pious opinion, attempts had been made to treat pulmonary consumption by methods which would now be considered to be antiseptic.

In Louis's well-known book,¹ for example, the publication of which marks an epoch in the history of chest-diseases, much space is taken up with a very careful consideration of the merits of the inhalation of *chlorine gas* in pulmonary consumption.

The use of this remedial agent was commenced about the year 1827, and was strongly advocated by M. Cottereau and M. Gannal.² Louis very minutely analysed and discussed the *thirteen* cases brought forward by Cottereau in support of his thesis—that the administration of chlorine gas in phthisis may cure the disease—and proved to his own satisfaction that the recorded cases were either not cases of phthisis at all, or that, if they were cases of that disease, they were not cured. He also quoted the experience of Bayle against the use of this form of treatment, since that distinguished observer had only one case of recovery out of twelve cases; also that of Toulmouche,³ who had carefully studied the effects of chlorine in the treatment of phthisis and chronic pulmonary catarrh, and had only found it of service in the latter affection; and, finally, his own experience of the action of chlorine in the treatment of upwards of fifty phthisical patients at the Hospital of La Pitié, the Hôtel Dieu, and the Hospital Beaujon. In these cases the chlorine was inhaled from a vessel provided with two tubes, but in no case was any successful result obtained. Scarcely any one reading Louis's comments

¹ *Researches on Phthisis*, 2nd edit., 1843.

² *Archives de Médecine*, vol. xxiv.

³ *Bulletin de l'Académie Royale de Médecine*, tom. i. p. 209, tom. ii. p. 1035.

upon this form of treatment at the present day would be inclined, one would imagine, to endorse his too dogmatic conclusions.

In the same work we find brief allusion to *creosote* and *iodine* (inhalations?) in the treatment of phthisis; but as the reported cases of such treatment had been few in number, no conclusions were drawn as to their usefulness.

Creosote and iodine inhalation.

Two observers, viz., Rampold¹ and Elliotson,² had, however, reported strongly in favour of the former drug.³ Lænnec, as well as Louis, was very sceptical about the use of antiseptic inhalations in the treatment of phthisis, and was especially severe on the use of chlorine. With him his trans-

Lænnec's view.

lator, Dr. John Forbes,⁴ was in agreement. He says in a note upon this subject: "It is painful to be obliged to add, that almost the only accounts we have of the effect of the inhalation of chlorine, simply or in combination with other matters, published by English physicians, are so cased in what Dr. M. Lænnec (cousin of Lænnec) calls 'the varnish of quackery,' that they are alike unworthy of the notice of the philosophical pathologist and the honest practitioner." All manner of inhalations had been tried, so Lænnec tells us, and it is interesting to mention a few: the vapours of decoctions of plants of an emollient, aromatic, narcotic, or balsamic kind; the fumes of different kinds of resin, burned on a hot iron or in a brazier, particularly those of myrrh, benzoin, petroleum, tar, &c.; the air of cow-houses; the vapours produced by the sublimation of zinc, lead, and sulphur; the different gases, oxygen, hydrogen, sulphuretted hydrogen, and carbonic acid, &c.

Forbes agrees with Lænnec.

In spite, however, of the unfavourable opinions expressed by Louis and Lænnec, there appears to be no doubt that the treatment of phthisis by various forms of volatile antiseptics gradually increased in favour. Perhaps the more hopeful tone of the pathology of phthisis as taught by F. v. Niemeyer had later on some influence in bringing this about.

Thus, for example, we find an exceedingly interesting article by Morgan⁵ on "Phthisis in the Hebrides," published in 1860, in which he directs attention to the almost complete immunity from phthisis enjoyed by the inhabitants of those islands, and insists upon the construction of their smoky Highland cabins as one of the causes of the strange fact. The people live (or did when he wrote the article) in cabins without

Morgan's paper.

¹ Gazette Médicale de Paris, 1837, p. 7.

² Gazette Médicale de Paris, 1838, p. 543.

³ Traité de l'Auscultation Médiante, 3rd edit., Paris, 1831.

⁴ A Treatise on the Diseases of the Chest, &c., 4th edit., 1834, translated by John Forbes, M.D., F.R.S.

⁵ Brit. and For. Med. Chir. Review, vol. xxvi. p. 483.

chimneys, and must constantly inhale the smoke of the peat-fires in the middle of the rooms, which are kept alight all day.

With reference to the action of chlorine in phthisis pulmonalis, Dr. A. T. Thomson, in the "Cyclopædia of Practical Medicine," about the year 1848, made two rather remarkable statements: (1) that the workmen at St. Rollox's Chemical Works enjoyed a practical immunity from phthisis, and (2) that it was the custom for consumptive patients to reside in the neighbourhood of the works for the benefit said to arise from the inhalation of the chlorine vapour. Both of these statements were vigorously combated by a writer in the *Lancet*¹ of the same year, who made the exactly contrary statement, that the workmen constantly died of phthisis, a fact which was generally believed to be due to the irritation produced by the fumes of the gas in question.

According to Dr. Jules Chéron² (physician to the Hôpital St. Lazare, Paris), who systematically devoted himself for some time to the task of investigating the effects of inhalations in phthisis, the following results were the effects of treatment. Pulmonary cavities in cases of phthisis, when treated with such "oxygenated essences" as Japan camphor, camomile, cedar, and eucalyptin, cicatrise in a great number of cases and in a relatively short time. The treatment he found to be most successful in the chronic forms of phthisis, and it effects an improvement in the expectoration, the dyspnoea, and the cough; the appetite returns, the strength is restored, the heat and fever are diminished, and the health is completely re-established—in some cases a perfect cure appears to be effected.

No doubt, however, Villemin's experiments in 1865 altogether revolutionised the ideas about tubercle, and so about the treatment of phthisis, as he actually demonstrated that tubercle was an inoculable disease, and showed that caseous deposits from human lung were capable of setting up miliary tuberculosis in rabbits when introduced into those animals.

Then followed in 1877 Klebs' announcement to a scientific society in Munich that he had demonstrated that tuberculosis was an infectious disease of parasitic nature; that it was due to certain micro-organisms, which invaded the body and multiplied in it; and that the cure of the disease might be expected when methods which would destroy these organisms had been discovered. Klebs' researches, although not actually demonstrating the micro-organism which is now known to produce tubercle, yet were very important, and he was, in fact, one of the first to point

For and
against
action of
chlorine.

Chéron's
experience.

Klebs' de-
monstration
of the nature
of tubercule.

¹ *Lancet*, vol. ii., 1848, p. 193.

² *Gazette Hebdomaire*, December 30, 1872.

out how we might expect to cure phthisis. Based upon his researches, the treatment of the disease by inhalations of benzoate of sodium was introduced, as Dr. Schüller of Griefswald showed that when animals which had been inoculated with tuberculous material, and should have died of acute miliary tuberculosis in due course, were subjected to the inhalation of benzoate of sodium, they rapidly regained their natural state. To patients this drug was administered in the form of spray, 2-5 per cent. solution in distilled water being used. The amount a patient had to inhale was large, namely, 20 oz. of the 5 per cent. solution daily. At first it appeared as though this method of treatment would prove highly important, and cases were brought forward by Dr. Kroczac¹ as having been highly benefited by such inhalation.

For and
against ben-
zoate of soda
inhalations.

Not long after this, however, the good effects of the benzoate of sodium treatment were denied by Guttman of Berlin and Schritzer of Vienna, and afterwards by others; so that the balance of experience being against it, benzoate of sodium as an inhalation was given up. But although the drug was a failure to all appearance in the treatment of phthisis, it must be acknowledged that its introduction was based upon sound general principles, as its antimycotic action had been demonstrated in the case of other micro-organisms both by Salkowski and also by Klebs.

When Cohnheim² announced the result of his work upon tubercle in 1880, however, an important step was taken towards simplification of the pathology of scrofula and tubercle. Cohnheim endeavoured to show, and in the opinion of the majority showed successfully, that the appearance of a lesion, either macroscopical or microscopical, is unimportant as a test for tubercle, and that the only true test as to whether a malady is tubercle consists in its power to reproduce tubercle on inoculation into animals. Two years after came Koch's³ complete demonstration of the specific bacillus of the disease, which is too well known to need more than a mere reference. Koch's researches were so wonderfully full and complete that he left his successors little else to do but to confirm his results. Within the last year Cornet's⁴ excellent work with reference to the presence of the tubercle bacillus in hospital wards and in places where consumptives have been, especially adhering to walls in the neighbourhood of the beds in which they have

Cohnheim's
dictum.

Koch's
discovery.

Cornet's fur-
ther work.

¹ Wiener medicin. Press, September 14, 1879.

² Die Tuberkulose vom Standpunkte der Infectionslehre.

³ Berl. klin. Wochenschr., xliii., 1882.

⁴ G. Cornet, Die Verbreitung der Tuberkelbacillen ausserhalb des Körpers. (Zeitschrift f. Hygiene, Baud v., 1888, s. 191.)

slept, may not be without its influence upon certain points in the etiology of phthisis. All of these researches tend to place phthisis among the diseases which are best treated antiseptically, and so the theory of treating phthisis by drugs destined to destroy the micro-organisms or to prevent their growth is reasonable, and has become very general. Obviously the simplest method of such treatment is to endeavour to introduce the disinfectant into the pulmonary alveoli through the air-passages.

We find frequent mention of instances of the treatment of phthisis by inhalation in going back to the thirty years before Koch's discovery. Creosote was the most favourite substance used. Thus, in 1853, Dr. Thomas Inman¹ of Liverpool, in a letter to the *Medical Times*, drew attention to the great benefit which had resulted to some phthisical patients of his from the use of inhalations of creosote. Dr. D. Powell,² in a very interesting lecture upon pulmonary cavities, recommended for inhalation *iodine* (vapor iodi B. P.) only to be used occasionally, and for a few days together; *carbolic acid* (glycerini, acidi carbonici, ℥i.-℥ii., aq. ferventis oii.), *tar-water* (liq. carbonis deterg. ℥i., aq. ferventis oi.), to be used in a jug or in a Nelson's inhaler with the sponge removed. Dr. Thornley³ of Newry recommended carbolic acid in combination with glycerine for the same purpose, and quoted Dr. Burney Yeo's recently published book on the treatment of phthisis in support of such inhalations: "I cannot myself doubt the value of antiseptic inhalations;" and also brought forward the authority of Dr. Copeland, who had recorded the case of a young man who was cured of phthisis from working in a creosote factory. Dr. Eade⁴ wrote shortly after, strongly endorsing these opinions. He said he supposed that the beneficial action of carbolic acid is not merely that it "temporarily cleanses," or that "it washes away the decomposing discharges of a foul ulcer," as Dr. Yeo had suggested as an alternative action, but that its action is another illustration of Lister's antiseptic practice, and that the carbolic vapour is a veritable antiseptic, destroying atmospheric germs which may be living and thriving in the pulmonary tissue. Dr. Coghill was the first, as far as I can discover (although in his original communication⁵ he seemed to disclaim this), who suggested the simple but excellent plan of inhalation of antiseptics through respirators, by means of which the drugs are

Creosote the most used pulmonary antiseptic.

Powell.

Thornley.

Eade.

Coghill's new departure.

¹ *Medical Times*, vol. i., 1853, p. 507.

² *Lancet*, August 4, 1877.

³ *Lancet*, vol. ii., 1877, p. 467.

⁴ *Lancet*, vol. ii., 1877, p. 574.

⁵ *Lancet*, vol. ii., 1877, p. 598.

gradually introduced into the pulmonary air-cells. His first formula for the antiseptic mixture was spirit of creosote $\mathfrak{z}\text{ii}$., carbolic acid and glycerine, of each $\mathfrak{z}\text{ss}$., distilled water to $\mathfrak{z}\text{ii}$., 10 to 12 drops of the mixture at each inhalation. Later on he substituted¹ *tr. iodi ætherealis, acidi carbolici*, of each $\mathfrak{z}\text{ii}$., *creosoti vel thymoli* $\mathfrak{z}\text{i}$., *sp. vini rect.* ad $\mathfrak{z}\text{i}$. His respirator consisted of an ordinary respirator with a double bottom of perforated metal, and elastic cords to fasten over the ears. The space between the plates being filled with tow saturated with the antiseptic. The patients were desired to inhale through the mouth and exhale through the nose. Dr. Burney Yeo's
Yeo,² who has done as much as any one to recommend respirator.
the antiseptic treatment of phthisis to the notice of the profession, introduced a simple naso-oral respirator, Saundby's
which is the one now most generally used.³ Dr. respirator.
Saundby also suggested one somewhat similar.

Dr. Yeo (1882) preferred creosote to the other antiseptics, but had tried carbolic acid, turpentine, eucalyptin, thymol, terebene, *ol. pini sylvestris*, solution of tar, tincture of benzoin and tincture of iodine; he said a weak solution of chlorine might also be used.

Many others of those who have had much experience of chest-disease in this country have witnessed in favour of Other
antiseptic inhalation, *e.g.*, Drs. Julius Pollock, Sam- observers.
son, Dobell, Williams, Thorowgood.⁴

Having had the opportunity of trying the treatment of large numbers of phthisical patients by antiseptic inhalations, about two years ago it struck me that it would be of some value to keep a strict record of the cases so treated. The record of the first hundred in-patients treated since that time I now present in this paper.

My first experience of this treatment seven or eight years ago, with Coghill's formula for the antiseptic used, was that most of the patients complained of the irritating effect of the inhalation, and stated their inability to continue the treatment with the respirator. They complained of cough and other difficulties. It was not until, by the able assistance of our dispenser, Mr. Harvey, less irritating forms of the inhalations were made up, that the treatment in my hands had a fair chance.

A great deal has been said about the uselessness of making the patients breathe the vapours of such substances as creosote and iodine in what must be a very diluted condition. It would appear, however, that if patients inhale these substances for long periods, that, by the usual process of diffusion, they penetrate into

¹ Brit. Med. Jour., May 28, 1881.

² Brit. Med. Jour., vol. ii., 1882, p. 8.

³ Brit. Med. Jour., vol. ii., 1881, p. 1011.

⁴ Lettsomian Lectures, 1879.

the alveoli of the lung. At any rate, until we have devised some means of *so altering the chemical composition of the tissues as to prevent the growth of the bacillus within the body—an end which we ought to keep in view*—the treatment should have a prolonged trial.

It is, of course, exceedingly difficult to determine the exact effect of any method of treatment in disease; it is especially so, one would say, in the treatment of consumptive patients in an hospital. My own experience would lead me to assert that at least 50 per cent. of the cases are relieved to some extent by a stay in the comfortable wards of an hospital, whatever the medical treatment to which they are subjected may be. The question which one must ask oneself is, by what method is most relief obtained, and by what method is this relief the most lasting. No doubt, the rest, the absence from work and worry, the good food, the brightness and warmth which the patients (often very poor) enjoy in an hospital, all conduce to produce a temporary change for the better, and it is common enough for patients to gain weight and strength. Sometimes, it is true, there is a run of cases which throughout have a distinctly unfavourable course from the first, and which never appear to be interrupted in the downward tendency. These are generally cases of an acute general pulmonary tuberculosis—a form of what the laity call “galloping consumption.” No treatment appears to ameliorate such cases, as far as I have discovered. But, as before said, with this exception, a fair number of cases improve and increase in weight and strength. In bringing together, therefore, the cases which have been treated in my wards at the City of London Hospital for Diseases of the Chest, Victoria Park, with antiseptic inhalations (to distinguish them from the usual steam-inhalations, we use the term *instillations*), it will be understood that I am not sufficiently sanguine to claim that the whole of the good effect which in many cases has resulted has been solely due to the use of the antiseptic.

For nearly two years, as before mentioned, all the phthisical patients who have been admitted into my wards and could stand the treatment have been placed upon the instillation method. The instillations have been arranged into three classes, according to the amount of irritation of the respiratory membrane which they produce; some are apparently much more irritating than others. (1.) The least irritating, according to our experience, are those of *ol. eucalypti*, *creosoti*, *ol. pini sylvestris*, and *ol. pini pumilis*. (2.) Those producing a medium amount of irritation are *iodoformi* (a solution of iodoform in *ol. eucalypti*, *chloroformi*, et *spirit. recti*). (3.) Those which seem to be most irritating

are thymoli, ol. sanitatis et iodoformi, iodi et carbolicum (Coghill's), and acidi sulphurosi.

On admission, the nature of the case and the symptoms were considered, and the patient was ordered the most stimulating form of instillation which could be well borne. If the one chosen proved too irritating, one of the milder forms was substituted. Some patients tried several forms before the right one was fixed upon. Latterly the instillatio iodoformi has been the chief form used, and has appeared to be the most beneficial.

The method of exhibiting the remedy may be thus described:—About half a drachm to one drachm is ordered to be placed upon the sponge of the simple zinc respirator of Dr. Burney Yeo.¹ The respirator covers both the nose and mouth. The patient is directed to wear the respirator thus charged for an hour three or four times a day. Many patients get such a belief in the treatment, and are so relieved, that they wear the respirator nearly all day, and go to sleep with it on.

Notes of the effects of treatment, or perhaps, to speak more correctly, of the course and progress of the disease under this treatment, have been regularly and accurately kept by the house-physicians in charge of the cases.² From their notes I have drawn up the annexed Tables I. and II.

TABLE I.

TABLE OF FIRST HUNDRED IN-PATIENTS TREATED WITH INSTILLATIONS.

CLASS I.—Cases which exhibited improvement by marked increase in weight, diminution in cough and expectoration, increase of appetite, sleep, and the like	= 53
CLASS II.—Cases which exhibited improvement, but without marked gain in weight	= 7
CLASS III.—Cases which were little altered	= 6
CLASS IV.—Cases the notes of which on the point of alteration in weight are incomplete; the majority of these improved	= 19
CLASS V.—Cases in which there was no improvement; hectic fever was in such generally very marked; three died	= 15
Total	100

¹ Brit. Med. Jour., vol. ii., 1882, p. 8.

² I would here thank very heartily my house-physicians, Messrs. A. S. Bradford and Sloman, and Drs. W. R. Shaw (now of Brantford, Ontario), Wynne, and Tunncliffe, for the time and trouble they have willingly devoted to the work.

TABLE II.
 TABLE OF CASES OF PHTHISIS TREATED BY ANTISEPTIC INSTILLATIONS WHICH IMPROVED UNDER TREATMENT.

No.	Name.	Age.	Duration of Illness.	Form of Disease.	Form of Instillation Used.	Fever or not.	Increase in Weight.	Result.
1	Florence G.	21	+ 10 years	Chronic phthisis. Whole of left lung and right upper lobe	Ol. pini sylvestris	Slight	9 lbs. in five weeks	Old fibroid phthisis with fresh accession of the disease on right side. When patient left the Hospital, there was no cough or expectoration, and shortness of breath had much diminished.
2	Mary H.	50	1 year	Complete infiltration of right lung, with cavities. Cavity in left apex	Ol. pini sylvestris	Nil	Gained weight	The patient's husband had died of phthisis, and she had nursed him through it, but no symptoms of phthisis developed until three years after, when, being half starved, she broke down.
3	Samuel B.	20	2 years	Cavity in left upper lobe	Pure creosote	Nil	+ 7 lbs. in one month	Went out immensely improved; no cough or expectoration.
4	Charles R.	30	2 years	Phthisis of about three-fourths of left lung and right apex	Ol. pini sylvestris	Nil	+ 2 lbs.	The patient did remarkably well during the time he was in Hospital; expectoration and cough diminished, and general appearance markedly improved.
5	Patrick K.	27	5 mths.	Phthisis, Stage II.	Creosote	Marked hectic	+ 5 lbs.	An old soldier; had had syphilis and dysentery. Greatly improved.

6	George J.	32	1 year	Phthisis, Stage II., right apex	Ol. pini sylvestris	Not marked	+ 10 lbs.	Looks upon the instillation "as his saviour."
7	George B.	22	2 mths.	Consolidation of left apex	Creosote	Marked hectic	+ 3 lbs.	Improved.
8	Thomas A.	42	for yrs.	Chronic bronchitis and phthisis	Coghill's	Nil	+ 1 lb.	Fairly good.
9	Alfred C.	24	1 year	Vomica, left apex	Iodoform	Nil	+ 4 lbs.	Good result; complained somewhat of the instillation.
10	Wm. B.	39	1 year	Vomica, left apex	Ol. pini sylvestris, creosote	100° F.	+ 7 lbs.	Found the respirator not only useful but pleasant. Expectorator diminished.
11	Emily W.	40	1 year	Phthisis, Stage III.	Eucalyptus	Slight	+ 5 lbs.	The cough continued troublesome.
12	James B.	45	6 mths.	Phthisis, Stage I.	Creosote	Nil	+ 3 lbs.	Breath easier and expectoration less difficult.
13	Alice B.	31	4 years	Phthisis, Stage III.	Creosote	Slight	+ 5 lbs.	States that the instillation eases the breathing but irritates the cough.
14	Kate B.	19	6 mths.	Phthisis, Stage I., left apex	Iodoform	Slight	+ 3 lbs.	Eases the cough, breathing, and lessens the expectoration.
15	Martha P.	18	1 year	Left lung throughout	Iodoform	Slight	+ 8 lbs.	...
16	Henry V.	16	1 year	Phthisis, left apex	Eucalyptus	Slight	+ 10 lbs.	...
17	Martha P.	18	1 year	Advancing phthisis of left lung, Stage III.	Iodoform	T. varies from 98° to 101°	+ 5 lbs.	No marked improvement in physical signs; symptoms relieved.

No.	Name.	Age.	Duration of illness.	Form of Disease.	Form of Instillation Used.	Fever or not.	Increase in Weight.	Result.
18	Ada R.	25	4 years	Phthisis, Stage III. right lung, and Stage I. left apex	Ol. pini sylvestris	Slight	+ 2 lbs.	...
19	Ellen K.	27	6 mths.	Phthisis, Stage II. left lung	Iodoform	Slight	+ 2 lbs.	...
20	George C.	27	6 mths.	Phthisis, Stage III. right lung, Stage II. left lung	Eucalyptus	Very marked, 101° to 103.4°	(?)	The respirator gave him relief.
21	Rebecca P.	34	2-3 years	Phthisis, Stage III. greater part of left lung	Iodoform	100° to 103°	+ 5 lbs.	Physical signs remained unaltered.
22	Martha D.	17	1 year	Phthisis, left apex, Stage II.	Eucalyptus	Slight	+ 4 lbs.	The crepitations at left apex diminished.
23	Fred. W.	34	1 year	Phthisis, right apex, Stage II.	Iodoform	Slight	+ 10 lbs.	Physical signs remained slight. Slight haemoptysis twice.
24	Alice S.	29	1 year	Phthisis, right apex	Iodoform	101.4° max.	(?)	Tubercle bacilli disappeared from sputum under treatment.
25	Edward S.	17	18 mths.	Phthisis in left (apex) lung	Iodoform	Slight	+ 13 lbs.	...
26	Samuel D.	30	+ 1 yr.	Phthisis, Stage II. right apex	Iodoform	Slight	+ 8 lbs.	Great improvement; gained strength and flesh, and looks much better.

27	Steph. H. E.	37	...	Phthisis, right	Iodoform	Slight	+ 10 lbs.	Very much improved; physical signs quiescent.
28	Hastie H.	23	...	Early phthisis, right apex; old pleurisy base	Iodoform	100.2° max.	+ 3 lbs.	General condition was much improved.
29	William D.	20	...	Phthisis, Stage III. right, Stage I. left	Iodoform	101°	(?)	Received distinct benefit.
30	George H.	29	+ 2 yrs.	Phthisis, Stage II. left apex, Stage I. right apex	Iodoform and then eucalyptus	100°	...	Considerable general improvement.
31	Quintin M.	21	17 mths.	Phthisis, Stage III. right, Stage II. left; laryngitis	Iodoform	102.6°	+ 3 lbs.	Slight improvement in general health.
32	Susan H.	41	winter-cough 14 years; worse 9 months	Chronic bronchitis and phthisis both apices	Iodoform	None	+ 4 lbs.	Patient improved greatly; looked upon respirator as her saviour. Physical signs improved; cleared up almost entirely at right apex.
33	Agnes B.	20	(?)	Phthisis, left apex, Stage III., right commencing	Iodoform	103°	At first lost 10 lbs., which she made up under treatment	Patient found great relief to her cough by using respirator. Tubercle bacilli very numerous in sputum.
34	Jessie L.	21	...	Phthisis, Stage III. right upper lobe	Iodoform	101°	+ 14 lbs.	A very advanced case, which did well under treatment; came in too weak to sit upon bed; hæmoptysis thrice.

No.	Name.	Age.	Duration of Illness.	Form of Disease.	Form of Insufflation Used.	Fever or not.	Increase in Weight.	Result.
35	Alice G.	21	...	Phthisis, Stage III. left, Stage II. right	Iodoform, thymol	102°	+ 2 lbs.	Very much relieved in general health.
36	Frostick W.	31	...	Phthisis, Stage III. right, Stage II. left	Iodoform	102.4°	+ ?	Very greatly improved.
37	James E.	28	...	Phthisis, Stage III. right, and laryngitis	Iodoform	100.6°	+ 5 lbs.	Improved much.
38	Jane C.	34	...	Phthisis, Stage III. left upper lobe; not abundant tubercle bacilli	Sanitas, ol. pini sylvestris, eucalyptus	102°	+ 5 lbs.	Improved, and on discharge physical signs quiescent.
39	Mary A.	21	...	Phthisis of both sides, Stage III.; abundant tubercle bacilli	Iodoform	Nil	+ 6½ lbs.	Cough and general symptoms relieved.
40	Rich. M.K.	33	Very chronic. O. P. at Brompton 20 years ago	Phthisis, left, Stage III.; right, Stage II.	Iodoform	Nil	+ 1 lb.	Considerably improved in general health; quite strong again.
41	Edward C.	27	...	Phthisis, Stage III. left	Thymol ter die	100°	+ 2 lbs.	Decidedly improved. Physical signs quiescent; relieved greatly in respiration.
42	Mary C.	32	...	Phthisis, left, Stage III.; right, Stage I.; medium number of tubercle bacilli	Eucalyptus	101°	+ 5 lbs.	...

43	Elizabeth M.	12	1 year	Phthisis, left, Stage III.; right, Stage II.	Iodoform	103°	Weight 4 st. 9½; gained 3½ lbs.	Considerable improvement. Disease quiescent on discharge; cough and expectoration less.
44	Charles B.	53	...	Phthisis, both apices	Iodoform	99.2°	Gained 5 lbs. in 4 weeks	General condition and physical signs improved.
45	John S.	62	...	Phthisis, right upper lobe, Stage II.; left, Stage I.	Iodoform	Nil	Gained 3 lbs.	General condition improved.
46	Alfred M.	35	8 years	Phthisis, left side throughout	Iodoform	Nil	+ 7 lbs.	Was subject to attacks of urgent dyspnoea, which diminished during stay in Hospital.
47	William C.	30	...	Phthisis, both upper lobes	Iodoform	max. 101°	+ 4 lbs.	Was admitted urgent and cyanosed; improved very much.
48	Julia L.	29	+ 2 years	Phthisis, both upper lobes, Stage II.	Iodoform	max. 102.4°	...	Relieved during stay in Hospital.
49	Rich. O'D.	26	+ 6 months	Phthisis, both apices; tubercle bacilli in moderate numbers	Iodoform	max. 102.5°	Gained weight	Relieved.
50	Arthur B. F.	19	14 mths.	Phthisis, advanced, on both sides	Iodoform	103°	+ 1 lb.	Improved during stay in Hospital.
51	George W.	36	2 years	Phthisis, + right apex Stage II.; bacilli in immense numbers	Iodoform	100.4°	(?)	...
52	William H.	41	+ 18 months	Phthisis, advanced, both apices	Creosote	100°	+ 6 lbs.	...

No.	Name.	Age.	Duration of illness.	Form of Disease.	Form of Instillation Used.	Fever or not.	Increase in Weight.	Result.
53	George H. .	25	Winter-cough 8 or 9 years; no tubercle bacilli	Phthisis, left apex	Iodoform	Nil	+ 30 lbs.	Improved immensely during stay in Hospital.
54	Frederick C.	34	10 mths.	Phthisis, right upper lobe; some bacilli in sputum	Iodoform	99°	+ 10 lbs.	Greatly improved.
55	Alfred E. .	32	+ 18 months	Phthisis, both upper lobes, + right, Stage II.	Iodoform	100°	+ 11 lbs.	Did not think the instillation relieved him much.
56	Joseph G. .	35	+ 2½ yrs.	Phthisis, cavities both apices	Iodoform	Nil	+ 8 lbs.	...
57	Henry G. .	27	3 years	Phthisis of whole of right lung	Iodoform	100.6°	+ 2 or 3 lbs.	...
58	Sam. D. .	30	1 year	Phthisis, right apex; many bacilli in sputum	Iodoform	Nil	+ 13 lbs.	Patient greatly improved; gained weight, strength, and flesh.
59	Louisa S. .	30	3 years	Phthisis, both apices, Stage II.	Iodoform	100.6°	+ 4 lbs.	...
60	William J.	27	+ 12 months	Phthisis, R. apex, Stage III; laryngeal ulceration, also some bacilli	Iodoform	100°	+ 7 lbs.	...

Analysis of the cases.—Of the 100 cases taken, 60 cases undoubtedly improved, leaving 40 to be accounted for; 14 of these are incomplete as to details, the exact weight on coming into or leaving the Hospital having been omitted. By far the majority, however, manifested improvement in some direction. There remain six who were little altered during treatment, and 15 who distinctly lost ground; of these, three died.

We may compare those cases which improved, viz., 60, with those who did not, viz., 6 + 15, or 21. In other words, there was marked improvement in three cases out of four or in 75 per cent. Of the incomplete cases, the same proportion was at least maintained. This, to say the very least, is satisfactory.

Of the 60 cases which improved, 24 were cases of double phthisis, 17 of the left lung and 14 of the right. In 5 cases it is not stated in the abstract whether the lesion was on the left or right side, or on both sides.

Instillations used.—Of the 60 patients who improved, several used two or more instillations each.

Instillatio iodoformi was habitually used in 39 cases.

„	creosoti	„	„	7	„
„	eucalypti	„	„	7	„
„	ol. pini sylvestris	„	„	7	„
„	iodi et carbolicæ	„	„	1	„
„	thymoli	„	„	2	„
„	sanitatis	„	„	1	„

Other instillations have also been used in many cases which are not included in this paper.

Taking everything into consideration, the iodoform instillation¹ has been the most successful.

Complications during treatment.—Hæmoptysis in three or four cases.

Presence or absence of fever.—Of the 60 cases above noted, 16 had no fever; 31 had slight fever up to 101° F.; and in 13 cases there was marked hectic. Of the latter, four gained 5 lbs. each, two gained 3 lbs. each, one gained 3½ lbs., one gained 2 lbs., one gained 1 lb.; the remainder did not gain weight. The cases which did the best were without marked fever.

Tubercle bacilli were present in the sputum in almost every case. The sputum was tested most carefully by the pathologist who was in office at the time of admission of the patients. In a large number of cases the expectoration was said to have

¹ The formula of which is R. Ol. eucalypti 10 cc., chloroformi 2 cc., sp. recti. 10 cc., iodoformi 1 grm. ʒss.–ʒi. for each instillation.

diminished, but only in a few could it be said that the bacilli actually diminished.

Other hospital patients treated with instillations.—Of the in-patients, besides the hundred whose notes have been included in this paper, there are others whom it is proposed to include in a further report. I had hoped to be able to include in my present report also notes of at least 100–150 out-patients treated with instillations, and much regret that I have not been able to do so. It is difficult to follow out the histories of out-patients. My impression, however, is to the effect that a great majority of patients thus treated have greatly improved. These cases will, no doubt, be brought together and published in my next report, as the notes now only require some arrangement.

Other forms of antiseptic treatment.—The various other methods of the treatment of phthisis with a view to destroy the bacilli or to prevent their growth may be thus summarised:—

(1.) *Inhalation of putrefactive bacilli* by means of a spray apparatus. The theory of this process is that as the putrefactive micro-organisms increase, the tubercle bacilli should be crowded out, as it were. The method was first introduced by Cantani,¹ who proposed that pure cultures of *bacterium termo* should be used. In his hands the treatment was fairly successful, and in some cases the tubercle bacilli disappeared altogether from the sputum. Improvement in cases treated in this way was also reported in a few cases by Fuczel,² Salama,³ and Karassik.⁴ These successes were, however, followed by a long line of failures, and many observers reported against the practice and deny the theory upon which it was based. Experiments with rabbits and guinea-pigs also gave negative results.

(2.) *Rectal injections of carbonic acid or sulphuretted hydrogen gas.* This method of treatment was introduced by Professor Bergeon⁵ of Lyons. It was based upon the physiological principle enunciated by Claude Bernard, that gases introduced into the rectum are eliminated by the lungs. Upon this dictum the idea was formed of introducing gases into the rectum likely to be toxic to the bacilli, but at the same time harmless to the patient when exhaled. The treatment was tried by a very large number of physicians, chiefly in France and America, and an enormous

¹ Versuch einer Bakteriotherapie (Centralbt. f. d. med. Wiss., 1885, No. 29, p. 513).

² Allg. med. Centralzeit., 1885, No. 61, p. 973.

³ Riforma medica, 1885, 14/viii.—ref. Gazz. degli Ospitali, No. 68, p. 542.

⁴ Allg. med. Centralzeit., 1881, No. 86, p. 1453.

⁵ Comptes Rendus de l'Académie des Sciences, tom. ciii., No. 2, 1884, and elsewhere.

amount has been written for and against the treatment.¹ In this country the result of experience has been altogether against it. The theory upon which it is based has also been energetically denied.

Two further methods of treatment, which are more rational in theory, have not been, up to the present, attended with such successful results as to induce one to insist upon their employment. These are concisely put by Dr. Shingleton Smith² in his interesting account of his own experience of them—(3.) *The introduction of substances into the blood of the body as a whole which will prevent the growth of the specific micro-organism*; and (4.) *The parenchymatous injection of antiseptics into the part affected*. It is worth while to note the results of Dr. Smith's experience of the use of these methods. He has used *iodoform* either in form of a pill or in solution in cod-liver oil, with the result that 29 out of 46 cases gained weight; also *iodol* (tetra-iodo-pyrrol, C_4I_4NH), which is free from odour and taste, but thinks that it is not of such therapeutic value as iodoform; also *creosote*, with bitter tincture and glycerine, or with cod-liver oil, with some success; also *guaiacol*, a colourless liquid (catechol monomethyl ether, $C_6H_4\left(\begin{smallmatrix} OH \\ OCH_3 \end{smallmatrix}\right)$).

As regards subcutaneous injections of substances likely to so modify the composition of the blood as to prevent the growth of the bacillus, numerous trials have been made with ol. eucalypti, iodine, carbolic acid, iodoform, &c.; but, whether based upon a right principle or not, the results have not been such as to make the treatment very popular. The direct application of an antiseptic to the diseased localities in the lung has also been tried in many instances by direct injection; and mercury perchloride, or bin-iodide in solution (1 to 3000), iodoform, carbolic acid, and many other substances have been employed for the purpose, so far with anything but encouraging results. Indeed, the dangers of this course of treatment are great, and simply to note the evil effects, as enumerated in Dr. Smith's³ paper, as having occurred after such a mode of treatment, viz., "acute suppurative bronchitis, fatal in forty-eight hours; acute pleuritis, two cases, speedily recovering; pneumothorax, temporary and harmless (a similar case occurred to Dr. A. Ransome); intense pleuritic pain, lasting for hours, and requiring full doses of morphia; violent fits of coughing (iodoform-poisoning and hæmorrhage

¹ See literature collected in Centralbt. für Bakteriologie, 4th vol., No. 22, pp. 694-697.

² On Recent Developments of the Germ Theory, 1889.

³ Loc. cit.

from lung were observed by Dr. A. Ransome),” would be sufficient, one would expect, to deter any but the most experimental of physicians from such a method of treatment. Even if no danger attended the treatment by subcutaneous or direct pulmonary injection, the discomfort, not to use a stronger expression, produced, ought to be seriously considered. Is there not the fear lest the remedy become worse than the disease?

The opening out of cavities in the lung and the washing them out with disinfectants is by no means new. One may instance two records of such treatment. Moster¹ records in 1877 three cases of draining cavities and washing out with 20 cc. of solution of potassium permanganate—two with fair result, one with death after three months, but not from the operation. The same observer used solution of perchloride of iron injections in hæmoptysis, and afterwards a weak solution of carbolic acid and iodine. Pepper² in 1874 recorded three cases, one with actual improvement, treated by direct injection of astringents through Dieulafoy’s needle into cavities. He suggested also this treatment for hæmoptysis.

One need take up no more space in mentioning the various and contradictory results which have been obtained by different individuals in endeavouring to carry out some method of the antiseptic treatment of phthisis. It is sufficient for the present to indicate that we entirely and cordially agree with the words of Clifford Allbutt:³ “I repeat, then, that the fundamental treatment of phthisis, whether it be more or less adenoid or tubercular in its development, is antiseptic or aseptic.” At present it appears as though the mild antiseptic method by instillations is the most useful, as it certainly is the most convenient, of such forms of treatment.

¹ Berlin. klin. Wochenschrift, October 1877.

² Philadelphia Medical Times, March 1874.

³ Lancet, vol. ii., 1877, p. 576.

REPEATED VOMITING A BAD PROGNOSTIC IN DIPHTHERIA.

BY

SAMUEL GEE, M.D.

The following cases are published in order to show that repeated vomiting is a very unfavourable prognostic sign in diphtheria. Only one of the nine patients survived. The vomiting occurs at any period of the disease—during the first week, whilst the fauces are covered with false membrane, or during the later paralytic stage. Death is preceded by signs of vital debility, such as coldness of hands and feet, excessive frequency of pulse, marked infrequency of pulse,¹ inability to cough.

Although the repeated vomiting is always, or almost always, a bad prognostic, it does not follow that the cause of the vomiting may not be different in different cases. Dr. Talfourd Jones has published a case² (which I also saw) of vomiting, beginning on the sixth day of diphtheria, and continuing until death on the eighth day. On a post-mortem examination, the stomach was found to be lined by a false membrane. But in no other case have I seen this affection of the stomach. In some of my patients the urine was scanty and albuminous (see especially Cases II., III., IV., VII.), and this fact suggests the supposition that the vomiting was associated with disease of the kidneys and uræmia. In Case II. convulsions also preceded death. But we must not forget that repeated vomiting is a cause of scanty urine, apart from disease of the kidneys. When vomiting is associated with paralytic symptoms (see Cases VIII. and IX.), such as loss of patellar reflex, inability to cough, palatal palsy, excessive frequency or infrequency of the heart's action, the

¹ See Case I. Sir William Jenner ("Diphtheria," p. 42) narrates a case of diphtheritic vomiting, in which the pulse fell to twenty-four beats in the minute.

² British Medical Journal, April 20, 1889.

urine and kidneys being natural, the mind turns to an affection of the par vagum as a likely explanation of the symptom.

Upon another but kindred topic I would remark in this place, that it seems to me that when patients suffering from diphtheritic paralysis die suffocated from inability to expectorate, and the lungs post-mortem are found to be collapsed (see Cases VIII. and IX.), the inability to expectorate is by no means always due to paralysis of the inspiratory or expiratory muscles. On the contrary, those muscles may act well, and yet the patient be unable to cough and expectorate adequately. I think that, in these cases, the difficulty lies in the muscles of the glottis. The voice is often very weak; the cough is very ineffectual; and I suppose that the patient is compelled to cough with a glottis more or less open, and is thus brought to a condition similar to that of a patient upon whom tracheotomy has been performed. Accumulation of the bronchial secretions, imperfect expansion, collapse and congestion of the lungs follow: hence suffocation and death.

CASE I.—Wyatt Henry T., æt. 5 years. June 2, 1882, he sickened, with diphtheria of the fauces. Nothing unusual occurred until early on the morning of June 5, when vomiting began; was very frequent; he vomited everything he took into his stomach. By noon he was cold, and his pulse was very weak. At 8 P.M. I saw him with Dr. L. W. Sedgwick. His look was natural; his mind clear. Hands and feet cold. Pulse 54, very small and weak. First sound of the heart inaudible, second very weak. No laryngeal signs; breathing natural, except that the abdominal walls did not move. The vomiting continued. Bowels open naturally. Urine very scanty to-day. Neck much swollen; skin over swelling dusky and slightly ecchymosed. Tonsils very large and covered with false membrane. Nose-bleeding was the first symptom of illness on June 2; repeated once or twice since. Nothing like paralysis of voluntary muscles. He died five hours after this note, *i.e.*, June 6, 1 A.M.

CASE II.—Ernest P., æt. 5½ years, admitted into Mary Ward on June 26, 1889. He had been ailing for a week.

June 23.—Vomited and seemed worse.

June 25.—Complained of throat for first time; neck swollen.

June 26.—Thick false membrane all over right tonsil; snoring breathing; no dyspnœa; lymphatic glands much enlarged on both sides of neck, but more so on right side than left.

June 27.—False membrane now covers left tonsil and left half of soft palate; coryza; croupy cough; urine shows a cloud

of albumen; refused to swallow, wherefore in the evening he began to be fed by means of a tube passed through the nose.

June 28.—Breathing stridulous, and some inspiratory recession of base of chest.

June 29.—False membrane has cleared off fauces to some extent; began to vomit small quantities of food.

June 30.—Frequently vomits, sometimes while being fed, sometimes half an hour or more afterwards; false membrane nearly gone, and much less swelling of neck; passes very little water, only about two ounces in last twenty-four hours, it is supposed; it could not be saved; no dyspnœa.

July 1.—Enemata of beef essence given, but nothing was retained all night either by stomach or bowel; no water passed since noon of 29th; convulsions began this morning at 9.45, and continued until 10.30, when he died.

The temperature throughout the whole illness seldom rose above 100°, and only once above 101°.

CASES III. and IV.—In two fatal cases of diphtheria (of which I have not kept full notes), vomiting and infrequency of pulse occurred on the eighth day. The affection of the kidney was considerable, but more in the way of corpuscles and casts in the urine than of albuminuria. The pulse was irregular as well as infrequent.

CASE V.—A girl *æt.* 7 years, whom I saw on March 17, 1874, with Dr. Brisbane of Lisson Grove. Diphtheria began one week before, and there were still some remains of false membrane on the fauces. On March 15 vomiting began, and had continued up to the time of my seeing her; it followed the smallest quantities of food. Tongue clean; bowels open naturally; skin cool. No signs of cerebral, thoracic, or abdominal disease.

I did not see her again, but I learned that she recovered.

CASE VI.—A boy *æt.* 12 years. Diphtheritic affection of throat severe; much swelling of the neck; no affection of larynx. The false membrane had almost wholly cleared off the throat, when, on the tenth day of disease, vomiting set in, soon became severe, and accompanied by great pain and tenderness of the belly; urine slightly albuminous. I saw him, with Dr. Horace Jeaffreson, on the fourth day of the vomiting, and the fourteenth of illness. Algidity had set in rather rapidly, and was well marked, even in the arm-pits. Quite conscious; no head symptoms. The vomiting and abdominal pain persisted; sub-

cutaneous injections of morphia had brought some relief. He was being fed by enemata, and had passed a little urine. On the sixteenth day he seemed better, the vomiting was less, pain less, he passed urine; but the pulse was no better. On the seventeenth day "he died from syncope."

CASE VII.—Emma H., *æt.* 9 years. Admitted into Mary Ward on July 18, 1888. Three months ago a boy in the same house had diphtheria; a sister of the patient was admitted into Faith Ward at the same time, and died on the following morning. Emma complained of sore throat on July 13.

July 18.—Neck swollen; coryza; fauces much swollen and covered with false membrane; urine contained about one-third of albumen. During the next few days the patient improved considerably, the membrane cleared off the fauces, the swelling of the neck subsided, the urine became less albuminous (on July 24th the coagulated deposit was one-sixth of the urine), and the patient seemed to be doing well until July 26, when vomiting began. She continued to vomit everything she took up to the time of her death on the 29th. The post-mortem examination showed no noteworthy signs of disease except in the kidneys.

CASE VIII.—Charles Warren G., *æt.* 3 years. On November 3, 1882, complained of aching in legs, and seemed drowsy.

November 7.—Complained of throat; urine very albuminous. An ordinary case of diphtheria of the fauces.

November 16.—Has been improving during the last four or five days; urine much less albuminous; patellar reflex present.

November 18.—Began to vomit; pulse 96, irregular.

November 19.—Vomited thrice.

November 20.—Vomited twice; patellar reflex active on both sides.

November 21 and 22.—No vomiting; only a cloud of albumen in urine.

November 23.—Temperature (natural since 11th) rose to 100.4°; vomited once.

November 24.—Vomited four times; temp. 99.8°.

November 25.—Discharge from left ear for first time; temp. 99.8° (otitis the probable cause of the fever); no patellar reflex.

November 26.—Temp. 100.2°; vomited once; no patellar reflex.

November 27.—Vomited once; temp. 99.6°.

November 28.—Temp. 102.8°–101.8°; almost pulseless; heart beating very rapidly; no respiratory palsy; coughs with some difficulty; cannot sit up; died in the evening. Post-mortem

examination showed the lining membrane of the left tympanum very bloody and red; bones natural, membrana tympani perforated; right ear natural; lungs partially collapsed; brain and spinal cord natural.

CASE IX.—William L., æt. 8½ years. During last week of April 1882 suffered from diphtheria.

May 18.—Began to stagger.

May 21.—Drink began to return through nose.

May 23.—Arms rather weak; weak on legs; can walk, but soon tires; no patellar reflex; voice nasal; soft palate cannot be made to move; drink returns through nose, unless he is fed very carefully with only a little at a time; no choking; no vomiting; cough not effectual; urine contains a cloud of albumen.

May 31.—Weaker; cough less effectual; vomited several times; râles in lungs; slight inspiratory recession of hypochondria.

June 4.—Still weaker; cough very ineffectual; recession of base of chest greater; vomiting very frequent; died in the evening. Temperature below 100° throughout. Post-mortem examination showed collapse and congestion of both lungs; other organs natural.

ON GANGRENE OF THE FAUCES AND CANCERUM ORIS.

BY

SAMUEL GEE, M.D.

William D., æt. 21 years, a waiter, was admitted into Luke Ward on May 9, 1870, under the care of Dr. Southey. No sufficient cause for his illness could be discovered. It had begun on May 2, with chilliness and aching of the head and limbs. The throat became painful on May 4. On admission, his fauces were swollen so much that the tonsils met in the middle line; the colour deep red; no ulceration; swallowing painful; breathing difficult. The fever was high throughout the whole illness; his face was of a pale waxy colour; his look anxious and haggard. No rash was seen at any time. Urine not albuminous. The notes in the Ward Book are incomplete, and it does not appear when mortification of the throat began. However, on the 18th the discharges from the mouth were so very offensive that he was removed from the general ward. On June 2 he died, immediately after a hæmorrhage from the throat.

The post-mortem examination was made by myself. Green discoloration of both sides of the neck, just below the angles of the lower jaw. The whole pharynx above the level of the rima glottidis, nearly the whole soft palate, and both sides of the posterior half of the tongue were reduced to a fibrous slough. The greater cornua of the os hyoides, the end of the left styloid process, the inner plate of the left pterygoid process, and the lower jawbone just behind the last tooth, were bare of periosteum. The aryteno-epiglottic folds were much swollen. Water was injected into both carotid arteries, but no open vessel could be discovered to explain the bleeding. All the other viscera were natural.

Gangrene and diphtheria of the fauces have been distinguished

since the time of Bretonneau's first essays, but gangrene and phagedæna are not yet distinguished as they ought to be. Phagedæna is rapid ulceration, the tissues being destroyed particle by particle, and being cast off in like manner. In gangrene the dead tissues either remain *in situ* until the patient dies, or are cast off in masses called sloughs. This distinction is a real distinction and of practical value. The case just narrated was an instance of gangrene of the fauces, primary or idiopathic, that is to say, constituting the whole of the disease in and by itself. Idiopathic gangrene of the fauces is an exceedingly uncommon disease. Secondary or sympathetic gangrenous angina is said to be more common, and to occur in the course of scarlet fever, typhoid fever, dysentery, and the like. Taking scarlet fever as the most marked instance of a disease apt to be accompanied by extensive destruction of the fauces, I should say that the destruction is due to phagedæna, and not to gangrene. I would not say that gangrene of the fauces never occurs in scarlet fever, for "never" is a word which can seldom be used in medicine, but I do not remember ever to have seen gangrene. Yet I have seen phagedæna almost as extensive as can be conceived. In typhoid fever and the other acute specific diseases even phagedæna is very uncommon; much more so gangrene. In sum, I should say that the only form of gangrenous angina of which I have a practical knowledge is primary, spreading without line of demarcation, and necessarily fatal. Whereas phagedæna, even when extensive, is by no means necessarily fatal.

A like distinction ought to be drawn between phagedænic and gangrenous cancrum oris. Gangrene of the mouth is a very uncommon disease, and necessarily fatal. How it begins I do not know, for I never saw it before a considerable extent of cheek had mortified. The gangrene spreads until the patient dies. Phagedæna of the mouth is more common, may supervene upon any form of stomatitis, and is by no means necessarily fatal, even when very extensive. The patient may survive even although the cheek has been perforated, and although large portions of the alveolar processes of the jawbones have been laid bare, have necrosed, and will form sequestra to be cast off after a time.

A CASE OF BRASSFOUNDER'S PALSY.

BY

SAMUEL GEE, M.D.

In his paper upon Brassfounders' Ague,¹ Dr. E. H. Greenhow writes thus: "It was stated by several witnesses that brassfounders who survive to old age are liable to suffer from paralysis agitans. Of the correctness of this statement I am unable to speak with certainty. Indeed, the evidence obtained on this subject is by no means conclusive, only one well-marked case of this disease in a brassfounder having fallen under my observation; but I was assured by the manager of an extensive factory in Birmingham, where a large proportion of zinc is used in the making of brass, that nearly all the casters in his employ become more or less 'shaky.' The case referred to is that of a man named Joshua Parkes, æt. 69, who was said to be the oldest brass-caster in Birmingham. He had given up casting for nearly two years before I saw him, in consequence of being afflicted with shaking palsy, which he alleges to be a common consequence of his occupation. In his case the palsy is not very severe, although quite bad enough to prevent him from raising a glass steadily to his lips; looks stout and well; intellect perfect; has had the metal-ague scores of times. . . . With the exception of the inconvenience arising from their unsteadiness, he has the free use of his hands, but, unless supported, they are constantly agitated. The son of Mr. Parkes, who works in the same factory with his father, has also a slight shaking of the hands; and, according to the foreman, nearly all the casters in this employ are more or less tremulous."

This evidence in favour of the existence of a form of palsy due to brass-poisoning is open to objections. The paralysis agitans of the patient cited may have been a mere coincidence.

¹ Medico-Chirurgical Transactions, vol. xlv. p. 177. London, 1862.

The assertion that such palsy is common among brassfounders obviously depends upon hearsay only. Since Dr. Greenhow's paper was published I have not met with anything written upon this subject, so that the disease (or coincidence) is uncommon, or attracts very little notice. For this reason I print the following case, which is the only one of the kind which I remember to have seen. I believe that the disease of the nervous system is due to metallic poisoning; and that brass (or zinc) must be ranked beside mercury, lead, and arsenic in this respect. At any rate, if the symptoms in this case were not to be thus explained, I did not see how they were to be explained at all.

His symptoms may be summed up in a few words. Weakness of memory; weakness of all voluntary muscles; tremor of tongue; excessive patellar reflex; ankle clonus; articulation of words indistinct.

Joseph William F., æt. 33 years, admitted into Luke Ward on August 29, 1889. Since he was twelve years old he has worked as a brassfounder. Every few hours, whilst at work, when the molten brass is taken out of the furnace, he is exposed to very dense white fumes which arise from the metal, and which make the air quite thick, so much so sometimes that anybody two yards off cannot be discerned. This smoke lasts for about a quarter of an hour, and then settles as a powder on everything around. He has never worn anything to keep the fumes from his mouth and nose; they make him feel choking; some men vomit. He never suffered from brassfounder's ague; sometimes he felt a tickling in his throat as if an attack were coming on, and then has always taken some milk or milk of sulphur, and in this way he has, he believes, prevented the ague. Men who are intemperate, or who drink liquor when they feel an attack coming on, always suffer most; indeed, he thinks that drink has much to do with brassfounder's ague. Most of the men who have been at the work for many years become very shaky, so that they cannot hold their tools. Most of the men die at about fifty years of age. However, the patient's father, who has never worked at any other trade than brassfounding, is now sixty-seven years old, and in perfect health.

Two years ago, J. W. F. noticed that he was not so strong on his legs as he had hitherto been. Last October they became so weak that he could not walk far. For six months past there has been some stiffness in his legs, and they jump at times. For four months the ground has seemed to be soft under his feet. Two years ago, for about three months, he had some difficulty

in passing his water; afterwards, his difficulty was in holding his water; ever since he has been troubled with a frequent desire to micturate during the day, not at night. No difficulty in defæcation. Last January he noticed that he was unable to hold anything well in his hands; and he has got worse in this respect since. During the last eight months his speech has become less distinct; something quite different from the stammering with which he was affected when a boy. His memory has somewhat failed during the last twelve months, but his "mind is as clear as ever."

Until the present illness he has always been healthy. He drank spirits heavily up to a year ago, but without any manifest bad result. He denies syphilis. His parents are living; three sisters died of "consumption or insanity."

State on admission.—A healthy-looking man. All his natural and vital organs and functions seem normal. His gait is stiff and unsteady; he can stand fairly with feet together and eyes shut. No wasting of muscles. No rigidity. No anæsthesia. Patellar reflexes much increased; marked ankle clonus in both legs. The grasp of the left hand is fairly strong, of the left rather weak. No wasting in upper limbs, no rigidity, no tremor, no increased reflexes, no anæsthesia. His handwriting is not good; is worse than it used to be, but is not tremulous. There is a fine fibrillary tremor of the tongue. In speaking, he slurs some of his words; he has considerable difficulty in articulating words of four or five syllables. No tremor of lips. No facial palsy. The pupils are equal, not contracted, and act well to light and accommodation. No nystagmus. Ophthalmoscopic appearances natural.

Electrical reactions of four limbs natural.

He was sent to Swanley on September 26 in much the same condition.

HEREDITARY INFANTILE SPASTIC PARAPLEGIA.

BY

SAMUEL GEE, M.D.

In Volumes XIII. and XVI. of these Reports I published the notes of eight cases of that form of spastic paraplegia which may certainly be called infantile, if not congenital. We do not yet understand the nature of this disease, and for this reason I publish the following three cases, which seem to show that the affection, or a tendency thereto, may be transmitted by a father to his children—a fact which has not yet been noted.¹ Another interesting peculiarity of the first case is this, that the disease assumed in the upper limbs the form of wasting palsy. In the elder child a tendency to the same sort of muscular atrophy could be discerned; in the younger child there was nothing more than a slight stiffness about the fingers. These two characters, the inheritance, and the tendency to muscular atrophy, would seem to show that some cases at least of congenital spastic paraplegia resemble pseudo-hypertrophic palsy and the allied diseases more than the spastic rigidity which is believed to be dependent upon sclerosis of the lateral columns of the spinal cord.

CASE I.—Thomas G., *æt.* 37 years, a tailor, always able to do his work well in spite of his infirmities; indeed, he is the “first hand” in the shop where he works. He was never able

¹ See Dr. William Osler's recent work on “The Cerebral Palsies of Children,” London, 1889. In a letter from Dr. Osler, dated Baltimore, U.S.A., May 31, 1889, he says:—“Curiously enough, I saw last week, with Dr. Latimer, a spastic paraplegia case in a child whose brother is said to be affected in the same way. I do not remember in my somewhat extended review of the literature to have seen reference to such cases.”

to walk properly. At nineteen years of age he had some tendons of his legs divided, but without any improvement. At twenty-three years of age his left big toe was removed for what was deemed to be a perforating ulcer; six years afterwards his right big toe was removed for the same complaint.

A sister of his mother was completely paralysed, so as to be unable to feed herself during her whole life of thirty years. Two of his cousins on his mother's side were deaf and dumb, and one was born without any fingers.

His condition in May 1889 was the following:—

(a.) Upper limbs.—Muscles of arms fairly well nourished; the deltoids seem especially large. Much wasting of muscles of thenar and hypothenar eminences, also of interossei, in both hands. Yet the movements are good, and he can oppose his thumb to each and all of the fingers. Grasp good. Supinator and triceps reflexes ill marked. No deformity of hands. Sensation good.

Electrical reactions.—All muscles of arms and hands act well to faradism; sensibility to currents natural. Even with the strongest galvanic current available the small muscles of the hands did not contract; the muscles of the arms acted quite readily to a moderate current.

(b.) Lower limbs.—He is unable to walk without crutches; his legs are crossed as he walks. Lying in bed, his knees are kept close together and slightly bent; he cannot quite straighten the legs, nor can he abduct them unless he first flexes the hip-joint. Both feet are in a valgus condition, but not extremely so. He can bend the ankles pretty well. Muscles of thighs well developed. Below knees, legs are rather small, the left rather smaller than the right; the anterior tibial muscles of the left leg seem a little wasted. Knee-jerks very excessive; a tap sometimes produces a sort of thigh clonus; no ankle clonus.

Electrical reactions.—Anterior tibials and peronei required rather a strong faradic current to cause contraction. He could bear a very strong current without discomfort. Rather strong galvanic currents also were required, but there was no change in the qualitative reactions.

He was undersized, but all his organs and functions were natural, excepting those described above. There was no reason to suspect syphilis.

His wife has had three miscarriages, and three living children, namely, Hilda, Mothrom, and a boy, now aged eighteen months, who seems to be quite well and has the proper use of his legs.

CASE II.—Hilda G., æt. 12 years. Did not begin to walk until she was between two and three years old; never walked

properly; has used crutches for five years, but she can walk without them. Before she began to walk, her legs were nearly always crossed, but she never walked with her legs crossed. Never any difficulty with micturition. Intelligence good; is doing well at school.

Knees are kept slightly bent. Legs somewhat adducted, but not so much so as her brother's. Legs are stiff, but patient has a fair power of flexion and extension of all the joints. Feet markedly valgous. Nutrition of limbs good. Patellar reflex increased, but not very much so; no ankle clonus. Sensation natural. The only thing about the upper limbs which seems to be unnatural is that the thumbs are kept adducted, and are not easily abducted; small muscles of hands seem rather wasted. All muscles of all limbs act well to faradism.

CASE III.—Mothrom G., a boy, *æt.* 11 years. Did not begin to walk until after two years old, then walked pretty well, until a year later, when he had hooping-cough; has never walked well since; has been gradually getting worse in this respect; has been obliged to use crutches for three years. Intelligent, and getting on well at school.

(*a.*) Lower limbs bent at the knees, strongly adducted; feet extended on legs and markedly valgous. No wasting of muscles, but calves rather small. Knee-jerks marked; no ankle clonus. Walks with crutches; thighs strongly adducted; can walk on toes (*equinus*) without crutches, but has much difficulty in freeing his knees from each other.

(*b.*) Muscles well developed about shoulders; muscles of arms rather small; no obvious wasting. Perhaps slight rigidity of elbows, which he is not able to extend completely. Supinator and triceps reflexes well marked. Hands held in a cramped position; thumbs kept somewhat adducted and cannot be well abducted; fingers kept extended, but he can flex them well. Sensation good.

Muscles of legs and arms act well to faradism.

No lordosis. Micturates well.

BLOODY URINE THE ONLY SIGN OF INFANTILE SCURVY.

BY

SAMUEL GEE, M.D.

That bloody urine is sometimes the only sign of that form of scurvy which occurs in sickly infants is well shown by the following cases, which seem not to need any further comment.

CASE I.—Dorothea Margaret P., *æ*t. 11 months; seen on June 28, 1883, with Dr. Arthur Evershed, of Hampstead. Her urine had been bloody for at least six weeks; the blood was constantly present, although sometimes there was less and sometimes more. No gravel had been seen at any time. The microscope showed red disks and leucocytes in about equal numbers, but no casts. The quantity of albumen was very small. There were no signs of bladder disease; no frequency of micturition, and no pain during or after micturition. Deep palpation could not make out anything in the situation of the kidneys. She was rickety, but fat. No other hæmorrhages; spleen impalpable; gums natural. She had been brought up on condensed milk and Mellin's malt extract.

I recommended that she should be fed upon new milk, and prescribed two drops of tincture of black hellebore three times a day.

On July 15 Dr. Evershed wrote thus: "I am very pleased to report that the baby whom you saw with me on the 28th June is wonderfully better. For a few days there was no sign of any improvement; then the urine assumed a better appearance than it had done for many weeks; and now, and for the last twelve days, there has been no trace of blood." So that the hæmaturia lasted less than a week after the change of food.

And I believe that there has been no return of the disease up to the present time.

CASE II.—A girl, *æt.* 10 months ; seen with Dr. Boulting, of Hampstead, on March 5, 1887. Bloody urine had been seen for six weeks, and during that time it had always been bloody, that is to say, the hæmaturia had been constant. The microscope showed a large number of red disks and a much smaller number of leucocytes ; no casts. There were no signs of an affection of the bladder, and no abdominal organ could be felt enlarged. No other signs of scurvy. She was rickety, not very pale, and had cut one lower central incisor. She had been fed upon Nestle's food. There were five other healthy children in the family.

I prescribed new milk, mashed potato, lemon-juice, and cod-liver oil.

On March 16 Dr. Boulting wrote thus: "The hæmaturia has quite ceased. It is interesting she took the lemon-juice with avidity. She had not been fed on Nestle's food exclusively ; for four months her mother had been giving her cow's milk also, with Robinson's groats." The disease, I believe, never returned.

TABES DORSALIS IN HUSBAND AND WIFE.

BY

J. A. ORMEROD, M.D.

These two cases were under my observation a few years ago. The disease, in the case of the man, terminated fatally, with symptoms resembling general paralysis, in December 1886. I then lost sight of the woman, but have refrained from publishing the cases, thinking that she might come to me again. As she has not done so, I will now give an account of her case, with that of her husband.

CASE I.—Charlotte B., æt. 37, was transferred to me as an out-patient at Queen Square by my colleague, Dr. Bastian, April 1, 1884. She was a rather pale, thin woman, with dark complexion and with rather a worn look. She complained chiefly of pains "like something drawing," all over her, but mostly in the feet; these she had had for three years on and off. She had also twitchings and jumpings in the night. She had had a sore on the R. foot for twelve months; a tight feeling round the abdomen twelve months. Two months ago she was ill with vomiting; she vomited for ten days together and had to be fed with enemata. Gait natural, except that she looked at her feet when she turned; patellar tendon-reactions—on L. side, visible contraction of quadriceps femoris, but not enough to raise the foot; on R. side, the contraction of the muscle was only just perceptible. Pupils of moderate size, L. a little larger than R.; both inactive under light, but contracting during accommodation.

These symptoms seemed to me to point to tabes dorsalis. Dr. Bastian agreed in that diagnosis.

Further details as to her case, obtained (somewhat piecemeal) during April 1884, may be given as follows:—

Gait, as above, natural or nearly so.

Romberg's symptom not marked; is unsteady when she stands with feet together; slightly more unsteady with eyes shut.

Reflexes.—Plantar very slight both sides; patellar tendon-reactions—April 1st, as above, *i.e.*, slight on L. side, very slight R. April 15, occasionally obtained L., absent R.; later (see below), absent both sides.

Sensory power in lower limbs.—All forms, tactile, thermal, painful, affected, but in varying degrees; for details see footnote.¹ She herself complained of numbness up to the knees, and had had “tight feeling” round the knees. I made no examination as to muscular sense, but she did not complain of not knowing the position of her legs.

No numbness of fingers, though they have occasionally felt stiff.

No note as to *electrical reactions*.

Tropho-neuroses (?).—On the ball of great and little toes (both

1	Tactile.	Thermal (viz., touch of moderately hot or cold metal).	Pain.
R. Plantar surface of toes	Light touches not felt on great or little toe; felt, but imperfectly localised upon other toes The same in anterior half of sole	Correctly appreciated	Does not feel prick.
Middle part of sole and backwards	Normal or nearly	Calls hot cold, and cold hot; shrinks from cold as if it burnt her	Does not feel prick.
Dorsal surface of toes	Feels and localises on great toe; feels but does not localise on next three; on little toe does neither	Not examined	Not examined.
Instep	Normal	Not examined	Not examined.
Leg below knee	? Some impairment	Cannot tell difference between hot and cold	Does not feel prick.
L. Plantar surface of toes and sole	Does not feel touches at all	Cannot tell difference between hot and cold	Does not feel pinch or prick.
Leg below knee (and dorsal surface of foot?)	Anæsthesia less complete, but still considerable	As above	As above.

sides), and on the plantar surface of the joint between the first and second phalanx of the great toes, there is much epidermal thickening. That on the R. great toe has been the seat of deep ulcers; these would discharge for a week and then heal up; she had had pain here. This has been going on from last summer till a month ago.

Eyes.—Pupils of Argyll-Robertson type, as noted above. No diplopia, nor history of it. Visual acuteness = $\frac{5}{6}$, perhaps rather less with L. eye. Colour vision (central): with L. eye confuses Nos. 2 and 3 of Nettleship's tests (two shades of buff, one a little yellower than the other). Visual fields (tested for white only), very much limited (up to 20 degrees) concentrically in both eyes. With ophthalmoscope, nothing wrong discovered in fundus.

Hearing not good; distance for watch, $\frac{1}{4}$ either side; tuning-fork on forehead best heard with R. ear; but the deafness is probably due to defects in the middle ear, for the R. tympanic membrane is thick, irregular, and milky-looking; the L. a little opaque, and retracted in its anterior segment.

She has occasionally giddiness, a feeling as if the floor were moving up and down.

Bladder and rectum act normally, except that her bowels are apt to be confined.

Pains.—These are her principal trouble. On two occasions she has been laid up with pains, which she was told were "rheumatism." On the last of these occasions, two years ago, she had pains all over her, particularly in the back, and thence round the body; also in the hip-bones, but she does not recollect that any joint was red or swollen. They lasted on and off for three months. For a fortnight she was an in-patient at the London Hospital.

In connection with these attacks of pain, it may be mentioned that she suffered with palpitation. I could not detect any physical sign of heart-disease at this time.

Gastric crises.—The first of these was in November 1883. She says she had bad pain in the umbilical region for some days; then she began vomiting. This continued in spite of abstinence from food; dark green stuff came up. According to her account, the attack lasted a month. She knew of no cause for it.

When asked as to *joint-affections*, she says that once, and that only for a day, her left foot swelled, and became red and felt numb.

Syphilis.—Six or eight months after the birth of her only child, that is to say, about ten years ago, she contracted syphilis, I should imagine from her husband. She had sores and a rash

upon the pudenda, and a bad sore throat. She has not been pregnant since.

The further course of the case was as follows:—

In June 1884, another attack of vomiting, with pain in back, lasting three days.

July 15.—Pain like knives in back, upper abdomen, legs. The R. great toe has been again ulcerated, but is nearly healed now. Patellar tendon-reactions appear to be absent on both sides. After this the pains improved till

September, when the dartings about chest recurred, and there was another attack of vomiting for three days. The palpitation became worse. The heart's impulse now extends to the nipple line; is forcible and rapid; the first sound is dubious.

August 18, 1885.—Looks much better in the face than last year, and has felt better in every way. No more vomiting. But the pains have recurred lately. The R. great toe has been again ulcerated, but has healed up, leaving a scar; the R. leg swells at night. In this toe and leg the pains appear to have been particularly severe. There is now a slight but distinct systolic apex-murmur, of a scraping character. The numbness and deadness of the legs remains; it does not appear to have spread to the upper limbs.

December 15.—Patellar tendon-reactions absent, even with Jendrassik's method of examination.

February 2, 1886.—About four weeks ago, while nursing her mother, pains in the limbs came on so severely that she had to take to bed. In a fortnight vomiting came on and lasted eight days. The pain spread to the chest, and to every part of her. She has not yet got rid of it.

For the next four or five months she improved again; in June and July 1886 she again had pain, but no vomiting. Examination of the pupils at this date showed that the L., when light is thrown on it, contracts slightly and then re-expands; the R. remains motionless still. The patellar tendon-reactions are still absent.

This is the last note I have of her; but I believe that at the end of 1886, about the time of her husband's death, her general condition remained unchanged.

CASE II.—Alfred B., æt. 38, shopman, the husband of the last patient, came to me on the occasion of her second visit, April 8, 1884. He was a small-made, pallid man, with thin face; his chief complaint was inability to stand or walk properly.

For two years or more he had had "drawing pains," principally in the legs. Last November he began to be "tottery," and since

Christmas last he had been unable to stand without some support. He first found out that he could not walk properly when he had to go one night to fetch a doctor to his wife; he became frightened at this, and has never been able to walk well since; this was last November. For a month previously and ever since he has had no sexual desire. He has also had some trouble with micturition. Has had numbness and cold feelings in the legs.

Gait.—Can only walk with support, flings the R. foot out. *Romberg's symptom.*—Stands with support, but falls when his eyes are closed. *Reflexes.*—Scarcely any plantar or cremasteric reflexes; patellar tendon-reactions absent. Lower limbs well nourished. *Sensory power* much impaired in all three modes, and especially upon the L. side (details in footnote ¹); less upon R. side.

Eyes.—No diplopia nor history thereof; marks of old ulceration L. cornea; *pupils* small, equal, reacting to accommodation but not to light. Visual acuteness, R. $\frac{5}{6}$, L. $\frac{5}{9}$; central colour-vision normal; fields of vision not taken; R. optic disc normal; L. not distinguishable through the corneal opacity.

Hearing.—Distances for watch, L. $\frac{1}{4}0$, R. $\frac{1}{4}8$. Tuning-fork on forehead heard equally, or else best with R. ear. Seeing

¹	Tactile.	Thermal.	Pain.
R. foot— Plantar surface of toes]	Does not feel moderate touches	Normal	Sensation of pain blunted and delayed.
Soles	Feels, but does not always localise correctly	Normal	...
Dorsal surface	Feels and localises fairly	Not examined	Not examined.
R. leg	Fair	Fair	Blunted and delayed.
L. foot— Plantar surface of toes	Cannot feel touches	Cannot tell hot from cold	Painful sensation delayed, and not always felt.
Sole	Feels faintly	...	...
Dorsal surface	Cannot feel in great toe; feels slightly in little toe; in others, feels but does not localise	Not examined	Not examined.
L. leg	Feels touches slightly and localises well	Cannot tell hot from cold	Painful sensation delayed and not always felt.

that there is a perforation in either tympanic membrane, the defects of hearing are probably peripheral.

No history of giddiness nor of *vomiting*.

Tropho-neuroses.—Nothing distinct; but he says there was once an ulcer on the R. great toe like an “ulcerated bunion.”

Syphilis.—His answers on this head are reticent; but it appears that he had gonorrhœa before his marriage; and later (he is uncertain as to the date) sores on the glans and foreskin, enlarged inguinal glands, and sore throat.

During the remainder of the year I did not see him; but I heard that he had much headache and sleeplessness, and was passionate. He said he was going mad.

August 25, 1885.—The sleeplessness got better, but has recurred again. He has despondent feelings. He gets about on crutches, his gait being typically ataxic.

October 27.—His motions run from him and his urine dribbles.

In May 1886 he became an in-patient at the Hospital, under Dr. Ramskill. The notes then taken by Dr. Wilson for the most part verify my own, save in some few points, as that the R. pupil was found to react to light, and the cremasteric reflexes were found to be present. His condition appeared to be typical locomotor ataxia, affecting the legs and not the arms. Neither was any note made of mental affection; but the ward-attendant told me afterwards that he used to talk and act oddly, but that he thought him “such a fool” that it was no good reporting him to the doctors. When I happened to see him, he would thank me for having procured him admission in an unusually profuse way. His walking powers certainly improved.

Towards the end of August he was discharged; he then drove home in a cab, offered to treat the cabman and pay him amply; next pawned his things and borrowed from his neighbours; told people he was cured, was a gentleman with plenty of money; remained up all night, was violent to his wife and boy. When brought to me the next week, he talked in a very effusive and exaggerated way, said he could walk five miles and up any stairs, when he could really hardly get across the room. The pulse was rather frequent and irregular, the tongue furred but not tremulous; there was no tremor of the lips, and no affection of speech.

I next saw him in Bethnal House Asylum, December 13, 1886, under the care of Dr. Millar and Dr. M’Kinnon. I must express my thanks to these gentlemen for allowing me to see the patient, to be present at the post-mortem, and to retain the specimen. The patient had now been quite confined to bed for

a few days. He was miserably thin and much altered. Speech thick, drawling, and difficult to understand. Tongue red and dry, but not tremulous. He remembered me after a little trouble, and was again profuse in thanks. He can now (he says) walk 500 miles: he has grown new teeth, &c. The Asylum physicians tell me that his mental condition is exactly that of a general paralytic—he has grand delusions, says he has millions of money, &c., &c.—but that he has not the tongue tremor essential to that disease.

He died December 15, 1886. Dr. M'Kinnon made the post-mortem next day.

The body was much emaciated; there was a bed sore on the sacrum. The spinal column was normal. In the dural sac was a considerable amount of fluid. In the arachnoid over the dorsal region was a small calcareous plate (size of split pea). There was nothing else wrong with the meninges. Throughout the whole cord there was grey discolouration of the posterior columns, marked even to the naked eye. In the lower cord this grey appearance extended over the whole posterior column; higher up a streak of white appeared between the postero-median and postero-lateral columns; higher still the postero-median columns only were grey. Skull-cap and cerebral dura mater normal. Much subarachnoid fluid. The membranes stripped off from the brain with remarkable ease, leaving small convolutions with a perfectly smooth surface. This was the same over the whole brain. It reminded me of a drunkard's brain. The arteries at the base were normal; the interior of the brain was normal.

The R. peroneal nerve and its branches were dissected out and appeared perfectly normal.

The heart was normal. One kidney was quite normal, the other presented some unusual appearances. Under the capsule appeared some small dark slightly raised spots; on section, there were seen, both here and in the deeper parts of the cortex, small tracts of a dark-red colour, surrounded by yellowish-white patchy material, giving to this part of the cortex a marbled appearance.

I made some microscopical sections of the cortex cerebri (from the L. ascending parietal convolution), of the R. peroneal nerve, and of the spinal cord.

The nerve appeared to be normal.

As to the brain, the superficial (neuroglia) layer was normal. The deeper layers were much more vascular than those in a section of healthy brain, and there appeared to me to be a decided deficiency of pyramidal nerve-cells, particularly of the larger variety.

The microscopical examination of the cord confirmed what we had seen at the post-mortem, viz., sclerosis, extending over the whole posterior columns in the lumbar and dorsal regions, but limited to the postero-median columns above. The details may be given as follows:—

Lower lumbar region.—Sclerosis of posterior columns; the postero-median columns being least affected, and containing more intact nerve-fibres in their anterior than in their posterior part. The posterior nerve-roots are also sclerosed, but nevertheless contain a few intact fibres.

Mid-lumbar and upper lumbar regions.—The same appearances. The degeneration involves that part of the periphery of the cord which is opposite to, and just in front of, the tip of the posterior cornua (Lissauer's columns).

Lower dorsal region.—A few medullated nerve-fibres are scattered indiscriminately over the posterior columns. The posterior nerve-roots are affected still. In the position of Clarke's column, upon one side a few hazy bodies are seen, probably the remains of the vesicular cells.¹

Mid-dorsal region, lower part.—In the zone abutting upon the posterior cornua, and more particularly just behind the commissure, there are now seen more medullated fibres. The postero-median columns now appear more deeply sclerosed than the other parts. There is some dilatation of the central canal.

Mid-dorsal region, upper part.—Rather more medullated fibres, scattered indiscriminately over the posterior columns. Further dilatation of the central canal.

Upper dorsal region.—No dilatation of the central canal. Postero-lateral columns show more numerous medullated fibres, the sclerosis becoming more and more limited to the postero-median.

Lower cervical region.—There is some distortion of the shape of the cord. The section is abnormally vascular. The posterior nerve-roots are more natural in appearance than below. There is a fair number of healthy nerve-fibres in the postero-median columns.

Mid-cervical region.—Posterior nerve-roots normal, both within and without the cord. Postero-lateral columns practically normal. Postero-median columns are chiefly sclerosed in their hinder part.

Upper cervical region.—Much as the last.

There was no disease of the pia mater.

¹ A re-examination of my specimens shows me that this is a mistake. In some sections Clarke's columns are quite normal, and the cells quite distinct.

Perhaps, as suggested to me by Dr. Mott, the cells may have fallen out from some sections by reason of the process employed, viz., cutting in frozen gum.

The chief point of interest is the existence of the disease in husband and wife. That the primary disease in the man's case was the tabes, and not the general paralysis, may be taken as proved, both by the post-mortem results, which showed an advanced and old posterior sclerosis as against slight cerebral changes, and by the fact that the spinal symptoms were long prior to the cerebral. That the woman also suffered from tabes (albeit in an early stage) can scarcely be doubted. It will hardly be suggested that she imitated her husband, because her most striking symptoms differed from his, and because some of her symptoms could not have been assumed either voluntarily or by neuro-mimicry. Another hypothesis, that her disease was a peripheral nervous degeneration rather than a true posterior sclerosis, appears unlikely—(1.) because she had reflex iridoplegia; (2.) because she had gastric crises; (3.) because her disease, though of some standing, had produced neither paralysis nor any ataxia to speak of.

Admitting, then, that both patients had true tabes, how did this come to pass? The disease, though not rare in men, is sufficiently uncommon in women to make it unlikely that any given man and woman would suffer from it as a matter of coincidence. Nor can we suppose that one patient could communicate it to the other. Therefore, we must suppose that there was a common cause in both cases. And this, at any rate, in the sense of a predisposing cause, we may reasonably seek in the syphilis from which they both had suffered. The only similar cases I have read of are the following:—Strümpell (*Neurologisches Centralblatt*, 1888, p. 122) mentions a married couple who were both suffering from tabes, and both had previously had syphilis. On page 334 of the same periodical is a report of a discussion upon general paralysis in women (I mention this as being a disease closely related to tabes, etiologically and otherwise). Mendel had seen five instances of general paralysis in husband and wife; there had been syphilis in all cases. Siemerling had seen similar cases. Westphal had seen the occurrence three times; but had only established the history of syphilis once. In some observations on acetanilide (*Neurolog. Centralblatt*, 1889, p. 244), Jendrassik reports the case of a man who had syphilis, and infected his wife. The man subsequently developed general paralysis and the woman tabes; and the above-mentioned drug was successfully used to allay his attacks of excitement and her lightning pains.

SUCCESSFUL REMOVAL OF A LARGE GOITRE, WITH REMARKS.

BY

EDWARD JESSOP AND JAMES BERRY.

The patient, John W., was sent to the Cottage Hospital, Retford, in the middle of February 1888. He was 27 years of age, and had had an enlargement of the neck, at any rate, as long as he could remember, but it occasioned him no inconvenience until seven years ago. Since then, however, the tumour had been gradually getting larger, especially during the last twelve months, and for the last seven months he had been quite incapacitated from doing any work.

The tumour, depicted in the photograph (fig. 1), consisted of an enlargement of both lobes of the thyroid body joined together by a somewhat narrow isthmus. The enlargement of the left lobe was about the size of a large Jersey pear, constricted round the centre, the long axis running from the lobe of the ear to the sterno-clavicular articulation. It had a smooth though somewhat lobulated surface; it was soft and elastic in some places, firm and unyielding in others, and gave the impression of being composed partly of cysts and partly of solid nodules. The right lobe was smaller and rounder, and about the size of a man's fist, and presented the same characteristics as the left.

The patient's difficulty of breathing was so great that he was in constant dread of suffocation; he could walk only at a very slow pace on account of the dyspnœa. He had considerable dysphagia, frequently having to stop eating in the middle of a meal, especially when taking solid food. He also complained a good deal of pain in the neck, which appeared to be due chiefly to the size and weight of the tumour. He was seized with dizziness when stooping in the slightest degree. He was unable to lie down, having always to sleep in the semi-recumbent position. The dyspnœa was much aggravated by a close

or foggy atmosphere. He was quite incapacitated for work of any kind. These symptoms caused so much mental depression that he was at one time on the verge of committing suicide.

At the end of February a hypodermic needle was inserted into the lower part of the left tumour, and a syringe of a dark-brown fluid was drawn off, in which floated a number of cholesterin crystals. For six weeks iodide of potassium was tried, without any beneficial effect; consequently, at the patient's urgent request, it was decided to remove the left or larger lobe.

The operation took place in the Retford Cottage Hospital on the morning of April 15th, 1888. On the previous evening the neck had been thoroughly washed, and a carbolic dressing applied, which was kept on until the time of the operation. Throughout the operation antiseptic precautions were rigidly adopted. No spray was used. Cotton-wool sponges were soaked overnight in 1 in 20 carbolic solution; these were transferred to plain water just before the operation, and no other sponges were used. A single oblique incision nearly eight inches in length was made along the long axis of the tumour, and the expanded and thinned infra-hyoid muscles and various layers of fascia were then divided, a few vessels being clamped or tied. The front of the tumour was now exposed; its surface was mapped out with large veins, which were plainly seen ramifying beneath the delicate capsule. Great care was taken to avoid opening the capsule in front or wounding any of these veins. The various vessels entering or leaving the tumour above, below, and at the sides were carefully exposed and isolated, then tied, one by one, in two places with a catgut ligature and divided between. The superior thyroid vessels were tied at an early stage of the operation separately; both were much enlarged, being about the size of an ordinary cedar pencil. The three largest veins ligatured were the superior thyroid at the upper border of the tumour and two others below at the inner and outer borders respectively. The internal jugular vein lay spread out upon the outer side of the tumour, and had to be carefully separated from it. The mass was then turned over to the right side, and the various branches of the inferior thyroid artery were tied close to the tumour, the main trunk being not even seen. Care was taken whilst dissecting at the back to avoid the recurrent laryngeal nerve, which, however, was not seen at all. The connections on the inner side were now attacked, and this proved to be the most troublesome part of the operation, as there were so many small vessels, each of which had to be ligatured before being divided. One or two of these

vessels bled before being tied; none of the others did so. The isthmus proved to be a very narrow one, being only as thick as the little finger, and no hæmorrhage sufficient to require a ligature occurred from its cut surface. There were some vessels, however, in front and on the upper border of the isthmus. The tumour having been removed, a very large cavity was left in the neck; this extended down into the thorax to more than an inch below the upper border of the clavicle. The carotid artery was seen in about four inches of its length. The trachea, larynx, and œsophagus were of course all freely exposed. The first-named of these was flattened, and the tumour was somewhat closely attached to it. The wound was not washed out with any lotion, but two cotton-wool sponges were left in it, until the stitches were inserted, and were withdrawn before tightening the sutures. The wound was sewed up after a method adopted by Dr. Girard of Berne. Half-a-dozen pieces of thin india-rubber drainage-tubing were cut about an inch long; one piece was fastened at the end of a long silk suture, and a deep stitch taken. Another piece of tube was then run along the silk, and laid parallel to the long axis of the wound, and another deep stitch taken, and another piece of tube run along the silk, and made to lie on this side of the wound; this was repeated until there were three pieces of drain-tube on each side of the wound, running parallel to its long axis, and acting as a sort of button suture. This brought the deeper parts of the wound thoroughly into contact. A piece of stout drainage-tube was now put through a separate opening near the lower angle of the wound, the edges of which were brought together by a continuous suture. The wound was dressed with eucalyptus gauze soaked in carbolic acid, care being taken to keep up pressure after the last sponge had been removed, so that no blood should collect, and the dressing was bandaged very tightly round the neck, the bandage forming a figure of 8 round the shoulders. The patient was well propped up in bed, and the head fixed with sandbags.

Our best thanks are due to Mr. Edgar Willett for the very skilful manner in which he administered chloroform, a matter of no small difficulty; the total amount of chloroform given only amounted to 15 drachms. The operation, from the commencement of the chloroform administration, lasted two hours and thirty minutes.

For the next twenty-four hours retching and sickness were very troublesome. The patient was allowed to take nothing but teaspoonfuls of iced milk and water; he was very restless during

this time. The temperature in the evening after the operation was 99°, and the pulse 92. The next morning the temperature was 100°, and the pulse 102; after this, the temperature was always normal, and the pulse never rose above 100. The dressings were left undisturbed until the third day (April 18), when the wound was dressed, *the drainage-tube and all sutures being removed*, as the wound was practically healed.

The relief afforded by the operation was marked. On the day following, the patient had a little pain in the neck and slight difficulty in swallowing. The respiratory trouble almost entirely disappeared at once. The pain and dysphagia passed off in a day or two. On the fourth day he was allowed to get up for a short time, and to have a little solid food. On the eighth day (April 23) all dressings were discontinued. The patient's condition on the tenth day after the operation is depicted in fig. 2; on the twelfth, in fig. 3.

After leaving the Hospital the enlargement of the right lobe continued to diminish; it then slowly increased in size to a certain extent, as is usual in such cases. But the relief has been so complete that he has ever since been able to do the hard work of a farm-labourer.¹

Pathological appearance.—The tumour after removal weighed 18 ounces. It comprised the whole of the left half of the thyroid gland.² It proved to be an innocent multilocular cystic tumour with solid nodules of a fibro-adenomatous nature. Immediately under the capsule lay numerous large veins and arteries, many of the former being as thick as goose-quills. These veins in the specimen have been injected with coloured plaster-of-paris, the arteries with red, and the veins with blue. The surface of the mass was irregularly lobulated, presenting here and there an indistinct sense of fluctuation. On section, the appearances presented were those shown in fig. 4. The tumour has been laid open vertically from the front, and the two halves turned aside to show the interior. At the upper part is a tolerably firm, elastic, largely fibrous, solid nodule with a definite capsule. Below this are several large cysts with tough fibrous walls, each containing colloid matter mixed with blood. In some of the cysts the contents were nearly solid, and in others had the consistency of treacle. The cysts were separated

¹ Since my removal to Hampstead I have not had an opportunity of seeing the patient again, but I have recently (October 1889) heard by letter from him, and the improvement in his condition has been permanent.—E. J.

² The tumour, bisected, is preserved in the Museums of the Royal College of Surgeons (No. 2908, F.) and of St. Bartholomew's Hospital (No. 2310, c.); a cast of the patient's neck before operation is also in the latter Museum (No. 138, g.).



FIG. 3.



FIG. 2.



FIG. 1.

from each other by tolerably well-marked septa of connective tissue, containing blood-vessels, all of which were much smaller

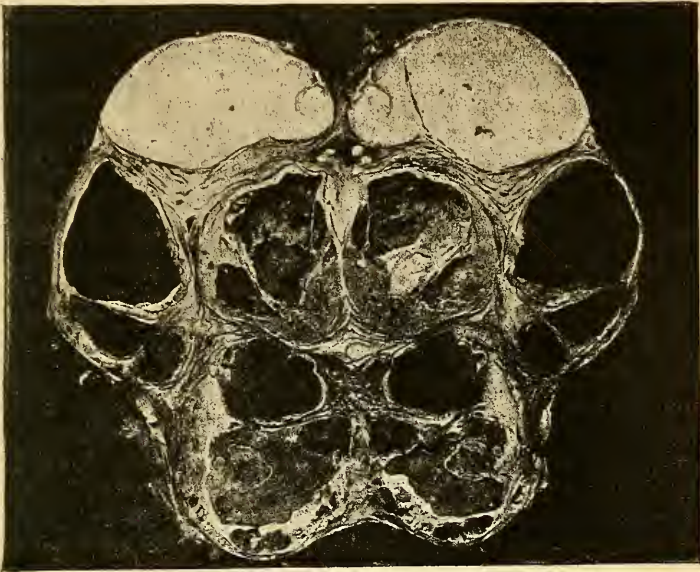


FIG. 4.

than those on the surface; at the lower part of the specimen the cysts are smaller, and the intervening connective tissue more abundant.

REMARKS.

We venture to think that this case is worthy of publication, because it illustrates fairly well some of the troubles which may be caused by the presence of a large goitre; and also because it demonstrates several points in the details of the operation which we believe to be not without importance.

It is at once obvious, upon inspection of the tumour, that no operation short of excision could have been of benefit to this patient. The amount of solid tissue in the tumour and the toughness and hardness of the cyst-walls would alone have caused any injection, say of iodine or of perchloride of iron, to be useless, if not dangerous. Neither, for the same reason, was it the kind of goitre which could have been cured by internal remedies, by external applications, by division of the isthmus, nor by the recently revived operation of ligature of the thyroid arteries.

The whole of the left lobe of the gland was affected, not by a single tumour, but by a number of cysts and solid nodules. Consequently the operation of intra-glandular enucleation advocated by Socin of Basle would also, in our opinion, have been quite impracticable. The reasons which decided us to perform extirpation of a part or the whole of the left lobe were:—

That the patient was young, and that his general health was good.

That the tumour was causing him serious discomfort and inconvenience, to say nothing of danger to life on account of the interference with his breathing.

That the patient himself was extremely anxious that some operation should be undertaken; he was quite willing to run a considerable risk in order to be relieved of his trouble.

That the prominence and mobility of the tumour were of such a degree that it seemed probable that the dissection would be more easily executed than is often the case; as, for example, when the tumour is altogether very deeply seated, or is nearly immovable.

It is perhaps hardly necessary to add, that by removing one lobe only of the gland, we ran no risk of producing cachexia strumipriva (so-called myxœdema).

The operation was performed, in the main, upon the lines laid down by Professor Kocher of Berne. One of us having had the opportunity of witnessing several similar operations performed at Berne and at Geneva, we followed tolerably closely the method that was seen at those places.

The following are the chief steps in the operation to which we desire to draw attention:—

It is not necessary to do more than to allude to the antiseptic treatment of the neck during the twelve hours preceding the operation: the importance of this will be obvious to all.

We chose the straight incision parallel to the sterno-mastoid because it enables the subsequent suture of the wound to be effected somewhat more easily than does the angular incision originally recommended by Kocher; with the latter incision the union at the angle of the wound is apt to be rather imperfect. Had the goitre been much larger, or had we anticipated much trouble in the removal of the tumour, we should probably have adopted the angular incision, as it would have given us rather more room. As it was, however, we found that the straight incision answered admirably.

As for the thin proper capsule of fascia which immediately surrounds the gland, we were careful to avoid opening it in front or at the outer side. Behind, where this fascia passes from

the gland to the posterior surface of the larynx and trachea, it was necessarily cut. The numerous large thin-walled vessels visible immediately beneath this were consequently not interfered with, and troublesome hæmorrhage was thus avoided. The various veins were tied at the points where they leave the edges of the tumour.

The position of the internal jugular vein is worthy of special notice. As is usually the case when the goitre is large, this vein lay spread out upon its outer side. Instead of bearing the normal relation to the carotid artery, that is, lying outside and slightly in front of it, it lay well in front of and *internal* to the artery. Consequently the pulsation of the artery in such cases is not a safe guide to the position of the vein.

We wish to lay stress upon this point, since we believe that it is mainly to ignorance of this altered relation of vein to artery that the not uncommon accident of a wound of the vein during extirpation of goitre is to be attributed. We believe that the explanation which Lücke gives of this abnormal relation is correct. The common carotid artery having no branches, is displaced outwards by the goitre; the internal jugular vein being attached by its branches to the front of the thyroid gland, cannot be displaced to an equal extent, and consequently comes to lie at first in front of, and then also internal to, the artery.

The superior thyroid vessels were tied without difficulty at the upper part of the tumour. The main trunk of the inferior thyroid artery, however, was not tied. In this respect our operation differed from that recommended by Kocher, who ties the main trunk just where it turns inwards towards the trachea. It seemed to us preferable to tie the branches close to the gland. As we had no trouble with hæmorrhage, we could see clearly what we were doing, and we ran no risk of wounding the recurrent laryngeal nerve.

The latter structure was avoided by keeping close to the posterior surface of the gland, especially when near the cricoid cartilage, where the nerve and the gland lie in close contact with each other.

In the treatment of the wound, we believe that it is best to abstain from washing it out with any carbolic or other irritating solution. All the sponges used during the operation had been previously thoroughly disinfected by soaking them for some hours in strong carbolic solution; they were wrung out and transferred to plain water just before being applied to the wound.

In relation to this matter we should like to mention an observation made to one of us three years ago by Professor Krön-

lein of Zurich. That surgeon had then performed extirpation of goitre in all twenty-four times: in the first nine cases the wound had been washed out with carbolic lotion, and he had lost four patients; he then gave up the use of carbolic acid, and in the subsequent fifteen cases no death had occurred.

The suture used for the wound was a modified form of continuous suture, first adopted, we believe, by Dr. Girard of Berne, and taught to us by him. It brings the deeper parts of the wound thoroughly into contact and facilitates union by first intention.

In applying the dressing, care was taken to make firm pressure upon the wound, and to fix the head and shoulders by bandages. Furthermore, the patient's head was fixed in bed by sandbags and pillows, and strict injunctions were given him that he should keep as quiet as possible for the first three or four days after the operation.

Some of the above points may perhaps seem to our readers almost trivial. We believe, nevertheless, that it is largely by attention to small details that primary union, which is all-important in these cases, is brought about.

In conclusion, we should like to refer to a paper¹ recently published by Professor Kocher, which has not, we think, attracted as much attention as it deserves. In this paper he gives statistics of the last 250 cases of extirpation of goitre performed by him in private and hospital practice at Berne.

Among these 250 cases there were only six deaths—a mortality of 2.4 per cent. But these 250 cases include twenty cases of malignant disease, and five of exophthalmic goitre. Excluding these, *there were only two deaths among the remaining 225 cases*—a mortality of 0.8 per cent.

More than this, of the two cases which ended fatally, one was a man who had postponed the operation so long that on his way to the hospital he had an attack of suffocative dyspnoea, and was admitted in a state of insensibility. In the other case, it is probable that the death was due more to the ether employed during the operation than to the operation itself, since a bad preparation was by accident used, and several other cases of poisoning from the use of the same ether had occurred in the hospital about the same time.

And yet these 225 cases included operations upon patients of all ages, some having large goitres, some having goitres lying partly behind the sternum, some having severe dyspnoea. Truly, it seems almost justifiable to say that, in the hands of Professor Kocher, the operation for removal of goitre is almost free from danger.

¹ Correspondenz Blatt. für Schweiz. Aerzte., January 1889.

ON THE PATHOLOGY OF HORNS OCCURRING IN MAN, WARTS, AND EPITHELIOMATA.

BY

ALEX. G. R. FOULERTON.

Horns occurring in the human subject may be divided by the pathologist into three groups, in concordance with their modes of origin. The first group, and the commonest, includes those formed by the overgrowth of a toe-nail. The second, those which are formed by the protrusion, and subsequent dessication, of the contents of an atheromatous cyst through a larger or smaller opening in the cyst-wall. The third group comprises those which begin as warts, and are distinguished as "papillary" horns. It is these last which I propose to deal with more particularly here.

A variety arising from a dermoid instead of an atheromatous cyst, and in a similar manner, is also known. A horn of this sort, springing from a dermoid cyst on the back of a mouse, has been described by Mr. Treves,¹ who states that they are not uncommon in that animal, and mentions the similar specimen in the Museum of the Royal College of Surgeons. This particular mode of origin, however, has not been described as occurring in man, and, moreover, is practically identical with that of an atheromatous horn, so it need not be further alluded to. Horns have also been observed growing from the scar of a burn. A horn of this description has been recorded by Mr. Bland Sutton,² in whose paper a drawing is also given of another specimen, which Cruveilhier believed to be of a like nature. These horns are extremely rare, are probably not of the nature of keloids, and may be classed provisionally with the papillary variety.

If now we consider the three chief groups of horns, it will be

¹ Path. Soc. Trans., vol. xxxix. p. 463.

² *Illust. Med. News*, February 9, 1889.

noticed at once, that while they have this much in common, that they are all of horny consistence, and have some sort of connection with the epidermis, their pathology is entirely different. Horns of the first group, "ungual" horns, are simply overgrown toe-nails—overgrown, as a rule, because ordinary cleanliness of person has been neglected in bedridden individuals. Atheromatous horns are dried masses of the secretion of cells lining sebaceous follicles, mixed with some of the cells themselves which have been shed in the natural course of events. Papillary horns are the result, in the first instance, of an excessive proliferation of living epidermal cells on the surface of a wart, and then of an accumulation of the horny cells resulting from this proliferation. They may be looked upon as new growths, in the strict sense of the word; for a portion of them, the core, has an inherent power of self-maintenance and growth, and shows, moreover, a marked tendency to recurrence after complete removal.

From the preceding, then, it will be readily understood that the three groups have but little in common except their name; whilst, as a matter of fact, it is only those that are included in the last which have any substantial claim to be called "horns," in the sense that they are living growths. For this reason the well-known statistics of the Académie Royale de Médecine,¹ of Lebert,² and of Sir Erasmus Wilson,³ are not of quite so much value as they otherwise might be. For the recorders of the various cases comprised in the statistics have not, as a rule, appreciated the fundamental differences between the different varieties. I shall, therefore, avoiding exact figures as to the relative frequency of horns in the two sexes and in different parts of the body, pass on to the consideration of papillary horns in particular.

In the first place, these horns are uncommon. I believe that there is only one specimen of the kind in our Museum. I removed it a short time since, in St. Bartholomew's Hospital at Chatham, from the neck of a woman aged 57, a patient of Mr. F. Penfold, of Rainham. It commenced as a wart, and had been noticed for exactly four years and a half. About one-half of it had been shed eighteen months after its first appearance, and again after another interval of the same duration. It grew from the side of the neck, over the sterno-mastoid muscle, and about half-way between the ear and the clavicle. It was attached to the skin by a narrow fleshy pedicle, about an

¹ Mémoires, 1830.² Ueber Keratose, 1864.³ Diseases of the Skin.

eighth of an inch long, which bled frequently. The specimen is two inches long, and about an inch round the base.

In determining the more usual sites of these papillary horns, one is confronted with the difficulty already mentioned with regard to statistics. There is, however, one situation from which horns, which we have good reason for assuming are almost always of the papillary kind, not infrequently grow. On the penis atheromatous cysts are practically unknown, whilst warts are extremely common there. At the same time, it is only fair to say that horns described as atheromatous have been recorded as growing from this organ. Mr. Pearce Gould¹ gives fourteen cases of horns growing from or near the glans penis; and, considering the absolute rarity of the growths, the number of them occurring here is remarkable. In three, at any rate, of these fourteen cases the horn appeared after a circumcision for phymosis. In one case, reported by Jewett of Connecticut,² the growth was three and a half inches long, and quite devoid of sensation, so that the patient used to light the tip of it at a candle for the amusement of himself and others. The second case, reported by Pick,³ was that of a horn two and a half inches long; the third case occurred in Mr. Pearce Gould's own practice, and a most interesting history is given of it. The patient, aged 52, had four years previously been circumcised for troubles connected with congenital phymosis. The operation-wound healed, except at a spot about the size of a split pea. Here a small wart appeared, and then another. The first wart developed into an epithelioma, and "on the middle of the upper surface of the glans penis was a sessile truncated horn, hard in consistence, yellowish in colour and translucent, about the size of a marble." In this case, then, we have a natural group of three new growths, all arising from the same cause, all occurring in the same situation, and on one individual.⁴ In connection with these three, horn, wart, and epithelioma, the following points may also be noted. They are irritation growths; they are composed essentially of epidermal-forming cells; they are liable to recur after removal.

On the clinical connection between a wart and squamous-celled carcinoma it is unnecessary to insist; all will allow it. And, as a matter of course, the same remark applies to papil-

¹ Path. Soc. Trans., vol. xxxviii. p. 355.

² Erichsen, Science and Art of Surgery, 1888, vol. ii.

³ Archiv für Dermat. und Syph., 1875.

⁴ See also case reported by Dr. H. Fisher, in which a horn with an ulcerated base grew at one corner, a warty growth at the other, of the lower lip of a man aged 65. Lancet, 1889, vol. ii. p. 740.

lary horns also. Thus Mr. T. Smith¹ remarks that "horns are occasionally found in connection with epithelial cancer, and generally grow from the thickened and tuberculated skin at the margin of the cancerous ulcer." Mr. Smith cites three cases in point. One, reported by Cruveilhier, connected with an epithelioma of the lower lip; another, which came to St. Bartholomew's, in which a bossy horny growth was connected with an epithelial ulcer on the heel; the third, recorded by Mr. Hutchinson in the Pathological Society's Transactions for 1857, was a horn which grew from the angle of the mouth, and at the base of which an epithelioma ultimately developed. Mr. Walsham² describes a horny growth from the lower eyelid, and gives a drawing of a microscopic section of it. It was believed that the growth started from a wart, and the section of it shows numerous cell-nests, which, although not absolutely characteristic of epithelioma, indicate a tendency to rapid cell-proliferation which brings it within a measurable distance of the more malignant epithelial growth.

Anatomically, a wart may be considered as an enlarged papilla or process of the corium, covered by an abnormally thickened layer of epidermis. The particular portion of the epidermis which is present in proportionally the largest amount is the stratum corneum. This thickening of the stratum corneum is to be accounted for by two facts—(1.) that under the influence of irritation the cells of the stratum malpighii proliferate more rapidly than is natural; (2.) that under the same influence there is a tendency for the cells of the stratum corneum to cohere with each other with greater tenacity than under ordinary circumstances, and that hence these cells are not shed as rapidly as they ought to be. This latter pathological effect of irritation is seen in its simplest form in the production of a corn.

This being the structure of a wart, that growth may, as we have seen, develop into a horn or into an epithelioma; and should either of these two changes happen, the process commences in and is carried out by the epidermal-forming cells only.

In the former case, while the proliferation of the deeper cells of the epidermis is probably not much more active than it had hitherto been, there is a greater tendency for the cells of the superficial layers to cohere one with another. They accumulate on the surface of the growth, and so a horn results. The peripheral portion of the horn becomes by desiccation more and more brittle, until at last it falls off. The process may be

¹ Holmes's System of Surgery, 1864.

² Path. Soc. Trans., vol. xxxi. p. 306.

repeated over and over again, so long as the core of the growth is not interfered with.

If, on the other hand, the wart should develop into an epithelioma, the process of change is more complex. We may suppose that there is a sudden accession to the activity of proliferation prevailing amongst the cells of the stratum malpighii. From this increased activity of cell-formation, the cells of the stratum granulosum are developed with greater rapidity than they can be disposed of by undergoing their normal metamorphosis into cells of the strata lucidum and corneum. This metamorphosis, it must be remembered, is largely due to purely physical agencies, dessication, external friction, and pressure. To these must be added the deprivation of nutrient fluid as the cells are pushed upwards by the formation of new cells beneath them, and so farther away from the vascular corium. Thus, while the formation of new cells in the deeper layers of the epidermis, in those layers which are composed of cells lying close to the vessels of the corium, is going on at a rapidly increasing rate, the metamorphosis and subsequent casting-off of the cells thus formed do not undergo a proportional acceleration—owing to physical circumstances they cannot. The result of this is that the progress of individual cells in the normal direction, that is towards the surface, is checked, and accordingly they accumulate towards the deeper part of the epidermis. First, the inter-papillary portion of the epidermis is increased in bulk; then, owing to the pressure to which they are subjected, the cells break through the basement membrane dividing off the epidermis from the corium. Once within the bounds of the corium, lying free in lymph spaces and relieved from mutual pressure, the cells—each one an organism of independent vitality, freely bathed in nutrient fluid, and placed in other circumstances favourable to growth—there proliferate, and thence travel, with the unhappy result which too frequently terminates the history of a carcinoma. It seems to me that theories of carcinoma as a “constitutional” disease—and, before proceeding, it must be pointed out that “constitutional,” as applied to carcinoma, implies something more than a mere universality of dissemination—have arisen from the failure to appreciate the independent vitality of the cells which build up the growth. The cells grow rapidly enough when in their normal situation; then, surely, when placed under circumstances which are still more favourable to growth, and such, moreover, that no waste of cells can occur, we would expect a proportionally rapid accumulation of them. Again, one is too apt to look upon the cells as they are when seen under the microscope, more or less

closely packed in the spaces of a coarse fibrous reticulum, and often undergoing processes of degeneration. On the contrary, we may reasonably enough assume that the cells, before they are enclosed in their fibrous stroma, have a potentiality for movement approximating to that—it is an old comparison—of a leucocyte. To gain some idea of the nature of a living cancer-cell, then, we must watch the conduct of a leucocyte on a warm stage, or whilst it is passing through the walls of the capillaries of a frog's foot.

This question of the motivity of the cells of an epithelioma leads one perforce to the consideration of the motivity of cancer-cells in general. The favourite argument against the view just expressed is this:—If the cells of a cancer are similar in their nature to leucocytes, why do not the latter collect in masses and otherwise behave like the former? It is scarcely necessary to point out the fallacy underlying this. Because with respect to one single property—motivity—a cancer-cell bears some relation to a leucocyte, there is not the slightest reason for assuming that all the other properties of the two cells are identical. On the contrary, though indeed with regard to even leucocytes we have still much to learn, we may say that there is one very essential difference between the two. That whereas leucocytes are cells which are but little removed in the stage of development from the elements of the primordial cell mass, cancer-cells—squamous, columnar, or glandular—are the direct descendants of distinctly specialised cells. The former are capable of a variety of work, the latter are, probably from a hereditary tendency, so to speak, incapable of any useful function when placed under circumstances other than those for which they are alone adapted. An epidermal cell has no particular function to perform beyond a purely passive one, the protection of the deeper tissues. To enable it to carry out its part satisfactorily, a potentiality for comparatively rapid proliferation is necessary in order that the superficial cells may be replaced as soon as they are shed. If such a cell, then, be placed below its basement membrane, and thus beyond the influences which normally lead to its death and shedding, it still proliferates rapidly, but there is no way by which it can leave the body. Take again the glandular epithelial cell; such a cell is obviously altogether out of place when free in the connective tissues, and otherwise beyond the nervous and other influences which govern and lead to secretion; and, moreover, whilst it still retains its vital properties, has no chance of being shed from the body, as normally it would be.

If I have explained clearly my contention, it will be seen that I regard a cancer-cell as morphologically and functionally a

perfect one, that is to say, as one possessing the properties and the form, the latter, indeed, slightly modified by an altered environment, of the specialised cell from which it is descended. The more usual description of such a cell is that it is "embryonic." Now, I think that but few will dispute the statement that carcinoma arises directly from normal cells, that is to say, in the first instance. If that is so, it is difficult to see why such a cell should be called embryonic. That degeneration occurs in individual cells is an everyday observation, but a devolution—a reversion to an earlier type—such as is involved in the embryonic theory, is one which, in the present state of our knowledge, has nothing to support it. To repeat myself, the cell of an epithelioma is a perfect epidermal cell in abnormal surroundings. Furthermore, if it were possible to take a certain number of cells from an epithelioma and to substitute them for a corresponding number of cells in the epidermis, it is reasonable to suppose that the transplanted cells, once again placed in their normal environment, and so restrained from exercising their property of motivity, would behave in an exactly similar manner to the cells surrounding them.

To sum up what has been already said with regard to the subject-matter of this paper, the starting-point of a wart, horn, or epithelioma is an increased proliferation of the deepest cells of the epidermis. So long as a certain ratio is maintained between the formation, metamorphosis, and subsequent casting-off of the cells thus formed, the growth remains innocent. So soon, however, as the rate of proliferation is increased to such a point that there is a definite hindrance to the cells getting to the surface, then the cells penetrate the basement membrane of the epidermis, and the growth becomes malignant.

But squamous-celled carcinoma does not always arise under precisely the same circumstances as those already described. Take, for instance, epithelioma of a mucous surface—the oral cavity. Here, although the conditions are slightly different, the relations of innocent and malignant cell-proliferation are the same. I am, of course, using the adjectives "innocent" and "malignant" in connection with the ultimate result. There is a less rapid rate of formation resulting in a superficial accumulation of cells, often followed by a more rapid rate resulting in epithelioma.

The lining membrane of the mouth is composed of cells genetically and morphologically identical with those which form the stratum malpighii of the epidermis. According to Klein ("Elements of Histology"), there sometimes is, sometimes is not, a layer of cells representing the stratum granulosum. Its pre-

sence or absence probably depends upon the amount of irritation to which the cavity of the mouth is habitually subjected. In leukoma of the tongue we have a condition which clinically is admitted to be pre-cancerous—that is to say, that it is a condition which is likely sooner or later to develop into cancer. Now leukoma is a condition analogous to a wart, only, as a rule, more diffused, and formed in the presence of a greater degree of moisture. Under the influence of chronic irritation the cells covering the tongue proliferate more rapidly than usual and tend to accumulate on the surface, there producing the opaque whitish film from which the condition derives its name. Given this condition of things, the transition into epithelioma will probably follow exactly the same lines as those described when dealing with the origin from warts.

Then again with the lip, I am convinced that here also there is a similar pre-cancerous condition. Every one must be familiar with the film of heaped-up epithelium which is present on either side of a fissure of the lip which has been over-long in healing. It is well known that in old men such fissures do often become the seat of cancerous disease. But there is a more general diseased condition of the lip sometimes seen in oldish men which is quite similar to leukoma of the tongue. I am referring to an accumulation of cells on the surface of the entire lip, and independent of any fissure. This forms a thick whitish film, which terminates on the dental aspect, especially of the lower lip, in an irregular border, which stands out from the rest of the mucous membrane; on the facial aspect of the lip it merges imperceptibly into the epidermis. This whitish film is often to be seen extending for a greater or less distance on either side of an epithelioma of the lip, and I used to look upon it as an extension of the cancerous process. I now believe that the heaping up of the epithelium usually exists, it may be for a considerable length of time, before malignancy supervenes. That this is so sometimes is, I think, proved by two cases which I have recently seen. The first was a man, aged 69, from whose lower lip an epithelioma of the size of a hazel-nut was growing. Both upper and lower lip were covered by the whitish film I am speaking of. The history was that four months previously the patient was handling a goose which struck him on the lower lip with its foot. A small sore followed, and the growth appeared very shortly after. In this case there can be no doubt but that the leukomatous condition of the lips had preceded the epithelioma, and that the slight injury inflicted was the stimulus which induced the increase of rapidity in cell-proliferation which determined the advent of malignancy. The case would seem to

show, too, that one should be cautious in operating in these pre-cancerous conditions. The disturbance following an operation might in itself prove the starting-point of the conversion of a hitherto innocent into a malignant disease. For in a leukoma of the tongue, for instance, I think it is doubtful whether one could ever be absolutely certain that the points to which the scissors or other instrument are to be applied are entirely outside the area of increased cell-formation. The second case was that of a man, aged 59, who had been a heavy smoker. I should have said that the first patient had never smoked. This patient had an epithelioma of rather slow growth at the right extremity of the lower lip; both lips were covered with the film of epithelial cells. The growth was removed, and some three months afterwards the man appeared again with an epithelioma of the upper lip, just above the site of former growth, together with glandular infection. This case shows even more clearly than the other the relation of the leukomatous condition to epithelioma.

Whilst in the preceding the genesis of squamous-celled carcinoma has been chiefly dealt with, it seems probable that if the history given of it be accepted, then the same theory can with some alterations be applied to that of the glandular and columnar-celled varieties. Thus, given some form of stimulus or local irritation acting upon epithelial cells, and of sufficient intensity to cause increased activity of proliferation, then the penetration of the cells in question through the basement membrane bounding epidermis, mucous epithelium, or gland acinus, is due to the fact that whereas the formation of new cells is a vital process, and one which, under the influence of irritation of one kind or another, is capable of exaggeration up to an indefinite point, their shedding, on the other hand, is due to purely physical or degenerative processes—more usually to both combined—and that these processes are incapable of keeping pace beyond a certain point with an accelerated rate of production. To put the matter in the briefest way possible, carcinoma results from a disturbance of the equilibrium normally existing between cell-production and cell-destruction.

The word "irritation" has been used several times. It might be asked—What is irritation? Without attempting to give any exact definition, it may be said to be some form of stimulus, usually mechanical or chemical, which is applied for some length of time, and is not of sufficient intensity to destroy the tissues upon which it acts. The sense in which the word has been used may perhaps be best conveyed by briefly recapitulating some of the effects which it produces when applied to epithelial

cells. Thus the formation of the stratum corneum may be given as a physiological effect of irritation. Pathologically, the conversion of mucous membranes, when they become exposed to friction and dessication, into epidermis; the formation of a corn, leukoma of tongue, wart, or papillary horn; the transition of a wart or horn into an epithelioma; the similar change which may occur in a leukoma of the tongue or lower lip—all these may be taken as the effects of "irritation" acting in varying degrees of intensity.

TREATMENT BY HYPNOTIC SUGGESTION.¹

BY

HUMPHRY D. ROLLESTON, M.B.

That we all more or less react on each other, is a truism which it is unnecessary to expand. There is also a tendency in every one to obey an order or believe any statement made. At the moment, every one instinctively begins to obey or believe; second thoughts and experience correct or confirm the initial intention. Tell half a dozen people one after another in the street to stop; how many will fail to hesitate? Every one is conscious of the strange effect on his mind which the remark of a friend, "How ill you are looking," produces. He may have felt quite well, and may try to dismiss the doubt thus expressed; but if the suggestion of failing health is made forcibly or several times, it may produce some effect, acting through the imagination—but still some effect. Definite illness has before now been thus brought on in a man perfectly well previously.

Suggestion, indeed, enters into everyday life, as the slightest consideration shows. Now suggestion is, and rightly, largely used in everyday medicine, and hardly needs be dignified by a special name. It is implied when a medical man is spoken of as having a "presence" or as inspiring confidence. Every one is familiar with cases where patients, having been prescribed for and assured of cure resulting from their medicine, have by mistake taken the wrong medicine, and have with unquestioning faith ascribed their cure to their physick. Hypodermic injections of water and aqua menthæ piperitæ are very successful in relieving pain. Often no doubt the pain is real enough—but the powerful suggestion of a hypodermic injection or of a sleeping draught, of whatever composed, is strong enough to conquer the pain or the sleeplessness.

Pills almost invariably suggest purgation, and if they are

¹ This paper was read before the Abernethian Society on October 31, 1889.

given to ordinary patients for other purposes, it is best to explain the object for which they are given. The value of a bread-pill as a purgative needs no illustrating.

There are numerous historical examples of the wonders or miracles worked by suggestion. Thus the laying on of royal hands for the cure of struma or king's-evil, and the cures of paralyses and contractures by visiting the shrine of a saint, are easily explained by the sufferer making a strong suggestion to himself (auto-suggestion), or being impressed by the belief of others that he will thus be cured. Conversely, in much the same way the ætiology of the dancing mania in the Middle Ages, and cases of pseudo-hydrophobia after dogs' bites, can be explained.

In cases where suggestion takes effect while the patient is in his normal or waking state, he is conscious of the suggestion made to him, and may resist it. In the hypnotic condition the effect of suggestion is very much more powerful.

The phenomena known to us to-day as hypnotism have, under various names, been known for more than a century. It has passed under various labels, such as magnetism, animal magnetism, mesmerism, and electro-biology and Braidism.

Let us glance for a few minutes at the history of hypnotism. In doing so, we shall see that the germs of truth contained in the first theories and accounts of hypnotism were so wrapped up in the marvellous and surrounded by mystery, that the orthodox physicians of the time would have nothing to say to it. As a natural consequence, hypnotism was chiefly practised by quacks and charlatans, who had neither the wish nor the power to investigate its phenomena in a scientific spirit. For this reason it received but little attention, and was considered as part only of a conjuror's *répertoire*.

Probably many have been deterred from practising and investigating hypnotism by the fear that they would be dubbed quacks, and their career as medical practitioners wrecked. And up to comparatively recent times this was no groundless cause of alarm; for it is not much more than fifty years ago that Dr. Elliotson of University College Hospital was obliged to resign his appointment there as physician from his connection with hypnotism, which at that time was very much mixed up with spiritualism.¹

Anthony Mesmer, an M.D. of Vienna, came to Paris in 1779, and began to expound his theory of the magnetic fluid, which he declared could cure all diseases. Mesmer's treatment became very popular, and, to accommodate the crowds that flocked to be

¹ Dr. Elliotson resigned his appointment in December 1838.

magnetised, he invented the famous "*baquet*" or trough, round which thirty persons could be magnetised at once. The *baquet* was an oaken chest filled with bottles lying on powdered glass and iron filings; from the lid movable iron hands came out, to which the patients held. The room in which the *baquet* was placed was darkened to a dim religious light, and strains of soft music floated through the air.

As a consequence of this mysterious ritual, many of the patients, especially the women, had hysterical seizures, which were, however, called the crisis. Mesmer walked about in a lilac silk cloak with a wand. Wearing silk was supposed to protect against the magnetic fluid. With the wand he touched the diseased parts of the patients in order to cure them. He also magnetised patients by gazing at them and making passes over them, the saturation of the patient's body with the magnetic fluid being considered very important for curative purposes.

Mesmer's experiments were made the subject of a commission, including, among other distinguished men, B. Franklin and Lavoisier. In their report they stated that there was no proof of any magnetic fluid such as Mesmer claimed, and that the effects, which were chiefly seen in women, were due to imagination and imitation.

De Puységur, a pupil of Mesmer, in 1784 began to practise magnetism as a curative agent, but in a much quieter way than his teacher; there were none of the hysterical crises and contortions of Mesmer's subjects. He produced by passes a quiet sleep, of such a character that no remembrance of events occurring during the sleep persisted on waking—the condition now known as somnambulism.

In 1813 an Abbé from the West Indies practised magnetism in Paris. His method was what is known as that of intimidation. Having placed the subject in a chair, and having closed his eyes, he commanded him in a loud and authoritative tone of voice to go to sleep, which usually happened. The Abbé Faria rightly maintained that the active factor in magnetisation of a subject was the mental attitude of the subject, and not any hypothetical magnetic fluid—a great advance on the vague and erroneous view of Mesmer.

Now, skipping over some thirty years, during which no event of any note occurred in connection with our subject, we come to the time of James Braid. He was a surgeon in Manchester, and approached the subject of mesmerism in a spirit of healthy scepticism. In 1841 he saw a public mesmeric entertainment, which he at first regarded as being entirely trickery, but on

investigation became convinced that one phenomenon presented by the subjects of the mesmeriser was genuine, viz., that they could not open their eyes. Braid proceeded to investigate for himself; he made a friend of his, Mr. Walker, gaze fixedly at a bright object, in this case the neck of a bottle, held over his head in a position which put considerable strain on the muscles of the eyeball; in three minutes he passed into a deep sleep. From the results of this and other experiments Braid formulated a theory that the mesmeric sleep was due to fatigue of the eye-muscles and exhaustion of the nervous system induced thereby and by the fixation of attention. He thus proved that there was no magnetic fluid emanating from the mesmeriser and passing to and affecting the subject. Braid noted the extremely plastic condition of mesmerised subjects; for example, putting the sleeper's arms in the position of a boxer made him pugnacious, while putting his hands in the position of prayer brought a very different expression into his face. The extreme acuteness of the senses in a mesmerised subject did not escape him; the acuteness of vision and hearing in such subjects is very marked, and enables them to hear far better than in the normal condition; thus a subject hearing a whisper inaudible to others acts on the suggestion thus offered, greatly to the surprise of the onlookers. Braid worked at the phenomena of magnetism, and applied it to the relief of morbid conditions. In 1842 the British Medical Association Meeting was held at Manchester, and Braid offered to read a paper and show his results. This, however, the Association refused, holding that it was beneath its dignity to discuss such a subject. Braid, however, gave, independently of the Association, an exhibition of his results. In the following year, 1843, appeared the following work—"Neurypnology, or the Rationale of Nervous Sleep considered in Relation to Animal Magnetism, and illustrated by Numerous Cases of its Successful Application in the Relief and Cure of Diseases, by James Braid, M.R.C.S."

This book is written in rather a polemic spirit, the author being evidently annoyed by the refusal of the British Medical Association to entertain his work seriously. The book contains a detailed account of the practical application of mesmerism, or Braidism, as we may now call it, to the relief of morbid conditions.

The patients came expecting relief and were hypnotised, but no *verbal* suggestion was made to them in that condition that they would be cured or lose their pain. The introduction of verbal suggestion was yet to come. But from the firm belief in the minds of Braid's patients that they were going to be

cured by the process of hypnotisation, the method may be considered to be treatment by suggestion—just as that of Mesmer and De Puysegur in the previous century, though they were unconscious of its rationale.

Indeed, the success of bone-setters and other quacks must be largely due to the firm faith in the minds of their patients that they are going to be restored to health by the proposed treatment.

In Braid's book are recorded cases of sight improved by hypnotism, amelioration in the condition of deaf-mutes, relief of pain in tic-douloureux, and improvement in cases of motor paralysis, some functional, others apparently undoubtedly organic (such as embolic hemiplegia), and in cases of anæsthesia. In numerous cases of headache relief was thus obtained; in epilepsy the results were very unequal. In cases of cardiac palpitation and angina, satisfactory results were obtained. In rheumatoid arthritis Braid claims success, and one remarkable case is quoted where in acute rheumatism the symptoms were made to abort. In dyspepsia the appetite is reported to have been increased, and digestion improved by this form of treatment.

Braid was so far able to produce anæsthesia that a tooth was painlessly extracted by the employment of hypnotism. Now the question as to the production of anæsthesia has often been raised, and may be briefly referred to here. Anæsthesia thus produced was, it seems, first used in surgical operations by Esdaile in 1845¹ in his practice among the natives of India, and apparently with wonderful success. He gives a record² of 261 operations painlessly performed, anæsthesia being produced by mesmerism. Of this large number, the vast majority were the removal of scrotal tumours weighing from 10 lbs. to 103 lbs. each. In 1845 Cloquet removed a breast, and in the same year a double thigh amputation was done in London by Fanton and Towsel, the patients being in a state of hypnotic sleep, and not feeling any pain.³ Other operations, successful as regards anæsthesia, have been performed, but the introduction of æther in 1846 and of chloroform shortly afterwards practically banished mesmerism or hypnotism as a mode of producing anæsthesia. But for the introduction of æther and chloroform it does not seem unreasonable to suppose that hypnotism would have been extensively tried as an anæsthetic. Its application, however, seems to be somewhat uncertain; perfect loss of pain is not always obtained, and it is often hard or impossible to influence a patient whose

¹ Mesmerism in India, by James Esdaile, M.D., 1846.

² Introduction of Mesmerism into Public Hospitals of India, p. 27, 1856.

³ Quoted, Bernheim, Suggestive Therapeutics, p. 116.

mind is agitated and whose attention is distracted by the fear of an approaching surgical operation.

To return to Braid. His work on mesmerism may be considered epoch-making. He divested it of the mystery which previously surrounded it. He showed that there is no evidence of any magnetic fluid passing from the operator to the subject. This he proved by mesmerising subjects by getting them to concentrate their gaze and attention on some inanimate object, such as a lancet-case or candlestick. He has the merit of being the first to provide an explanation for the cause of the phenomena exhibited by hypnotised subjects, viz., that the fixation of the eyes and the concentration of attention on one object produce fatigue which is followed by sleep.

Braid's results, however, were but little noticed, and were soon forgotten.

In 1848, apparently without having heard of Braid's work, an American called Grimes described very similar phenomena under the name of electro-biology.

In 1866 a general practitioner of Nancy, Dr. Liébault, published a book¹ "On Sleep and Analogous States, considered especially with Respect to the Action of Mind on the Body." Liébault, like Braid, was emphatic in denying any element of the marvellous in hypnotism, and indeed explains the phenomena of hypnotism solely by suggestion. Fatigue of the eyes and their closure brings up the idea of sleep, which is fostered by the mind being concentrated on the idea of sleep. The sleep thus produced is hypnotic sleep; its different degrees I shall refer to presently. This hypnotic sleep resembles natural sleep, but differs from it. In natural sleep the sleeper is in relation with himself, while in hypnotic sleep the subject is in relation with the operator and is subject to him in all things. Thus the operator can suggest to the subject in such hypnotic sleep that when he wakes up he will see some fictitious person or object in the room. On waking, the subject sees it; this is a post-hypnotic suggestion; or a suggestion may be made to a hypnotised subject that he will be paralysed when he wakes up. Conversely the subject of hysterical paralysis or of neuralgia when hypnotised is told that on waking up the paralysis or pain will have disappeared. Liébault has applied suggestion to relief of disease for nearly thirty years and is the founder of the Nancy school.

The Nancy school founded by Liébault is represented by Bernheim (to whom I shall refer directly), Beaunis, the professor of physiology, and Professor Liégeois, the author of the

¹ *Le Sommeil provoqué et les États analogues.* Paris, 1866, 2nd edit., 1889.

standard book on hypnotism considered from a medico-legal point of view.¹ The Nancy school is in antagonism to that of the Salpêtrière under Charcot. The briefest reference to the latter only will be made. Charcot's followers say that in a typical case of well-marked hypnotism there are three states:² (1) That of lethargy, in which the subject seems in a deep sleep, and is perfectly flaccid, with anæsthesia of skin; the muscles and nerves are hyperexcitable; pressure on a muscle is followed by contraction, and pressure on a nerve-trunk by contraction of the muscles supplied by it. (2) That of catalepsy, in which the subject is automatic, is in a condition of physical rigidity, the body and limbs retaining for a long time any position into which they are put; and (3) The state of artificial somnambulism, where there is anæsthesia of the skin with hyperæsthesia of the special senses, and in which suggestion is very effective. At the Salpêtrière hypnosis is regarded as a pathological condition—a neurosis. The Nancy school regard it as a physiological state allied to normal sleep, which can be produced in any one. They consider the three classic stages of the Salpêtrière as artificial, and as due to unconscious suggestion on the part of the operator. For example, the transference of hysterical and induced hemiplegia from one side of the body to the other, effected at the Salpêtrière by the application of a magnet, is explained by the Nancy school as being due purely to the expressed or implied suggestion that the magnet will effect this change, for an equally successful result can be obtained by a piece of wood done up to resemble a magnet. At Nancy the three classic states of lethargy, catalepsy, and somnambulism have only once been seen, and that in a former subject of the Salpêtrière. Bernheim goes so far as to believe that the results of "suspension" in locomotor ataxia are due to suggestion, for he says he has got equally good results by suspending the patient in a horizontal instead of in a vertical position.

In June of this year I spent some little time in Nancy watching the treatment by suggestion. There are two medical men who use hypnotism in their practice like any drug in the pharmacopœia—they are Dr. Liébault and Dr. Bernheim. The other two chief members of the Nancy school—Beaunis, the physiologist, and Liégois, the lawyer—only make experiments from a scientific point of view.

I will now briefly describe the practice or clinique of Drs. Liébault and Bernheim.

¹ De la Suggestion et du Somnambulisme dans leurs Rapport avec la Jurisprudence et la Médecine légale. Paris, 1889.

² Binet and Féré: Animal Magnetism. International Science Series, 1887, p. 155.

Dr. Liébault is a general practitioner; his patients are almost entirely of the artisan class. When I was there, he was treating an Englishwoman for hysterical anorexia, but this was, I fancy, exceptional. His practice lying among the poor, he has not received any monetary reward for the great advance introduced by him into suggestive treatment, viz., *verbal* suggestion. His surgery is open from 7 A.M., and the poor drop in to be cured of any disease they may have, just as they would go to any other doctor. When the patients come, they sit down and watch their predecessors being hypnotised, and so see that there is nothing strange or fearful about it; and in addition, seeing others go off into the hypnotic sleep acts as a suggestion to them when their turn comes. When their turn comes, they sit back in a comfortable chair; Liébault looks at them, makes a few passes over them, repeating in a monotonous tone such phrases as "Your eyelids are getting warm," "They are getting heavy," "They are beginning to close," "You cannot keep them open," "You are going off to sleep," "Sleep, sleep deeply." Sometimes the mere suggestion to sleep without fixation of the eyes is enough, especially in persons who have been hypnotised before. Indeed, the susceptibility of French subjects is marvellous. I never saw a case of failure abroad; in England the case is different, and persons are less susceptible, though my friend Mr. Wingfield, who went with me to Nancy, has found about 80 per. cent. of Cambridge undergraduates susceptible to hypnotism.¹ In Nancy the perfect confidence of the subjects in Liébault of course partly accounts for this, but the French are generally more emotional, and therefore more susceptible, than our countrymen.

When the patient passes into a hypnotic condition,² Dr. Liébault lifts up an arm, and if it remains in the position he gives it, he then rotates the two arms and hands round each other, which they automatically continue to do. The patient passes into a deeper state, in which he is only in relation with the hypnotiser, and in which his skin is anæsthetic, and on

¹ Quoted by F. Myers, review of Janet's "L'Automatisme." *Nineteenth Century*, August 1889, p. 341.

² Liébault describes six stages of the hypnotic state. They are: (1) Somnolence; the subject is drowsy and feels difficulty in keeping his eyes open or in opening them. (2) Light sleep; suggestive catalepsy appears; a limb remains where it is put. (3) Deeper light sleep; catalepsy remains; if any movement is communicated to a limb, it is automatically continued, and the subject cannot stop it. In this, as in the preceding stages, the subject is alive to the external world. (4) A deeper state, in which the subject is only in relation with the hypnotiser, and pays no attention to anybody or anything else. (5 and 6) Ordinary and deep sleep of somnambulism, in which there is on waking no memory of what has happened during sleep. The subject is anæsthetic and very susceptible to suggestion. *Le Sommeil provoqué*, pp. 291-292, 1889.

awaking from which he has no memory of what has gone on during his sleep. During this stage of somnambulism suggestions are very effective. Dr. Liébault then begins making emphatic suggestions of cure, of loss of pain, of improved appetite, digestion, or other disordered function. When there is pain or disease in a part, it is stroked and rubbed at the same time that verbal suggestion is made. This mechanical stimulation draws the patient's attention to the part, probably increasing the blood supply to the part, and acts as an additional suggestion of cure. After continuing this for about eight minutes, the patient is woke up by breathing on his face; rubs his eyes, gets up, and walks off as if nothing had happened.

Cases of pain, functional or neuralgic in character, are greatly relieved; but so are pains of definite organic origin. In cases of chlorosis, suggestion of improved appetite, increased assimilation, relief from shortness of breath, and regularity of the bowels is made, and apparently with every success. Constipation is very susceptible to this form of treatment. A patient I saw was told when in the hypnotic condition that his bowels would act every morning at 6.45 A.M. Leucorrhœa and other disorders of the menstrual flow are also very successfully treated by suggestion of cure. The condition known as neurasthenia is benefited by suggestion in the hypnotic condition, and in the systems called, after Playfair and Weir-Mitchell, the massage treatment must, one would think, act even to the patient in the waking state as a suggestion of recovery. Incontinence of urine at night in children is quickly cured. The patient being put into the hypnotic sleep, a suggestion is made that he cannot micturate when lying down, and that he will wake up twice or three times in the night at appropriate intervals to empty his bladder. Chorea and contractures of the limbs, not due to any organic lesion, react well to suggestion.

As regards organic diseases, Dr. Liébault treats them in the same way; they get relief and feel better, though the organic affection is not affected. A woman with mitral disease came several times while I was attending the clinique, and her heart's action seemed to be somewhat calmed and her general condition to improve. In connection with this case, it is interesting to note that Beannis, the professor of physiology at Nancy, has found that in subjects with normal hearts it is possible to slow or to quicken the rates of the heart-beats. Thus, in a case given by him in his book on artificially produced somnambulism,¹ the pulse rate of a hypnotised subject was slowed 8 beats in a minute, and quickened 13, from a normal rate

¹ *Le Somnambulisme provoqué*, pp. 48, 49. Paris, 1887.

of 98. This example of the influence of suggestion on a part not under the control of the will is significant of its therapeutic value.

Numerous other organic diseases were treated by Liébault. Thus in two cases of cystitis he rubbed the hypogastrum, and made verbal suggestions of improvement and absence of pain; several cases of Pott's disease of the spine and tubercular disease of various joints were treated in the same way. From the point of view that suggestion relieves some of the pain of such lesions, its use is admirable; but the employment of suggestion should only be an accessory to the routine treatment. Now, Liébault has practised suggestion for so long that he treats all his cases by it alone. While I was there, I did not see any medicine given;¹ and the cases of vertebral caries—one, if not two of them—with psoas abscess, and those of strumous joint-disease were allowed to walk about. This mistake on Liébault's part is recognised by Bernheim, his friend and follower. Bernheim is the professor of clinical medicine at Nancy, and has wards in the hospital. Bernheim, like Braid, originally approached "hypnotism" with a spirit of scepticism; what his views now are on its value as a curative agent, his book on suggestive therapeutics, recently translated into English, shows.² Bernheim employs suggestion both in private practice and in his wards at the hospital, but with discrimination—not to all cases alike. To quote his own words, "Since 1882 I have experimented with the suggestive method, which I had seen used by Dr. Liébault, though timidly at first, and without any confidence. To-day it is daily used in my clinique; I practise it before my students; perhaps no day passes in which I do not show them some functional trouble, pain, paresis, insomnia, either moderated or instantly suppressed by suggestion."³ He treats neuralgic and rheumatic pains with great success, getting considerable relief from the pains of rheumatoid arthritis. The manifestations of hysteria are, as might be expected, cured by suggestion. But a case of failure is recorded in his book.⁴ It was one of hysteria with varying anæsthesia; transient disappearance of the symptoms, or transfer of the anæsthesia from one part of the body, was brought about, and the alteration in the visual field, which is so characteristic of hysteria, was improved, but only temporarily, by suggestion, and no cure was obtained. There is a very carefully reported case in his book of hystero-epilepsy with hemi-anæsthesia, in

¹ In an account of the Nancy school, Lloyd Tuckey says that Liébault does occasionally, though rarely, use drugs. *Psycho-Therapeutics*, 1889, p. 33.

² *Suggestive Therapeutics*. Putnam, 1889.

³ *Loc. cit.*, p. 207.

⁴ *Loc. cit.*, p. 266.

which restriction of the left field of vision was found by the perimeter to be well marked. In this case a perfect cure followed suggestion.¹

Chorea and writer's cramp are reported as being cured. On reading the cases of chorea, a doubt passes through one's mind as to whether they correspond to what we should call chorea, whether most of them would not be called hysterical with us. In none of them is there any mention of any cardiac affection, and in most of them it is implied that the heart was healthy. In only one was there any history of rheumatism recorded; this case, however, was cured by a single séance.²

The case of writer's cramp was of three years' duration when it came under treatment. After the first trial of suggestion rapid improvement was noted, then followed a transient relapse, followed by gradual cure, becoming permanent and complete in two months' time.³

Commenting on Wolff's successful treatment of writer's cramp by gymnastics and massage, Bernheim puts forward the idea that these results may be due to suggestion, the patients coming with firm belief in the specialist, and having their minds concentrated on the cure that is going to be worked.

Of cases of organic disease examples are given of the relief afforded. Thus, in the following case, of which this is a brief clinical abstract:—*Left hemiplegia with hemi-anæsthesia, transient right hemiplegia, post-hemiplegic bilateral tremor simulating insular sclerosis, exaggerated reflexes of both sides and contracture of left limbs in a man of 46 years of age*,—relief of hemi-anæsthesia, tremor, and contracture resulted from suggestive treatment. Three years later the man died from emphysema; at the post-mortem, foci of softening were found in both hemispheres.⁴ Other cases of improvement in disseminated sclerosis and hemiplegia are given. While at Nancy, I saw a man who had had all the symptoms of disseminated sclerosis except nystagmus, and in whom there was then only a slightly spastic gait. A case of lead-poisoning with partial paraplegia was interesting, not only from the improvement which I believe had taken place, but because seeing him both when awake and when hypnotised, I saw how much better he walked when in the latter condition.

Bernheim does not regard suggestion as infallible. It may fail, and its failure may be due to the disease or to the subject. Putting aside incurable disease, which, as shown, may be relieved to a certain extent, there are cases where the organic

¹ Suggestive Therapeutics, p. 260.

² Loc. cit., p. 339.

³ Loc. cit., p. 343.

⁴ Loc. cit., p. 224.

cause is stronger than and overcomes the influence of suggestion. The subject may not accept the suggestion, may strongly suggest to himself that no good will result. Here auto-suggestion is stronger than the hypnotiser's suggestion; for example, melancholiacs, hypochondriacs, and persons with some forms of mental disorder cannot, as a rule, be benefited.

Speaking of insanity calls up the brilliant results of suggestion in the treatment of the insane of M. Voisin, and the paper this physician to the Salpêtrière read this August (1889) before the British Medical Association at Leeds. In England, suggestion has been tried on the insane at Bethlem, and in the treatment of nervous diseases at the National Hospital for Paralytics and Epileptics in Queen's Square, and at the Paddington Infirmery,¹ but, I believe, without any definite success.

Besides its therapeutic use, suggestion is very valuable as a moral restraint, especially in correcting vicious habits. For dipsomaniacs a horror of drink and absolute cure can be produced by suggestion. This I know my friend Mr. Wingfield has done, and has thus given the subjects a new life in place of their awful existence. A clergyman, Mr. Tooth, employs suggestion in the treatment of the inhabitants of his home for inebriates. In these cases, by producing a dislike for drink, all temptation is removed. In conclusion, we may, I think, without taking any exaggerated view of the value of hypnotic suggestion, expect that its employment, in functional cases, at least, will become a familiar instead of an almost unknown part of practice.

¹ Dr. Savill's case of hystero-epilepsy. Trans. Clinical Society, vol. xxii. p. 142, 1889.

CASES FROM DR. ANDREW'S WARDS,

ILLUSTRATING SOME OF THE

NERVOUS PHENOMENA OF TYPHOID FEVER.

BY

F. W. ANDREWES, M.B.

During a period of fifteen months, embracing part of 1887, nearly the whole of 1888, and part of 1889, about fifty cases of typhoid fever were admitted into Mark and Hope Wards. An unusual number of these cases presented nervous phenomena, perhaps owing to some peculiarity in the epidemic constitution of the disease. It is my intention in the present paper to place on record some of the most interesting of these cases, and to analyse some of the nervous symptoms presented by the remainder. Such analysis, drawn from a limited number of cases, has of necessity value only in so far as it may illustrate the particular type of the disease prevalent during the period in question. Excluding all doubtful cases, there remains a residue of forty-four undoubted cases of typhoid fever, eight of them fatal, and it is with these only that I propose to deal. It was my privilege to hold the post of house-physician to Dr. Andrew during the fifteen months, and the facts are all of personal observation, with one exception, to which I shall allude later. My best thanks are due to Dr. Andrew for permission to publish the cases, and for suggestions in preparing this paper. I have ventured to add an account of two cases which were under my own care at the Royal Free Hospital, as they illustrate some of the symptoms to be mentioned.

Mental Symptoms.—Delirium was present in twenty out of the forty-four cases. Its occurrence bore a distinct relation to the age of the patients. Grouping them according to their ages in decennial periods, the figures are as follows:—Of four cases under ten years of age, only one had any delirium, and that was

not observed while the child was in hospital, the history of it being derived from the mother's statement. During the first decennium, therefore, the frequency of occurrence of delirium was 25 per cent. During the second decennium, delirium occurred in five out of fourteen cases, *i.e.*, in 35.8 per cent., which rose in the third decennium to 47.1 per cent., *viz.*, eight cases out of seventeen. In the fourth decennium, four cases were delirious out of six, *i.e.*, 66.6 per cent. The number of cases is of course too small to base any generalisation on, but the steady rise in the frequency with which delirium occurred as age advanced cannot have been the result of chance.

The relation between delirium and severity of attack was not always a direct one. No delirium was present in two young adults, aged 21 and 24, who had severe attacks, and died, one of perforation, and the other of repeated hæmorrhage, but it was also present in several cases of slight severity.

Nevertheless, there is a definite relation between the occurrence of delirium and the average frequency of the pulse, which, after all, is no unfair criterion of the way in which the patient is bearing the disease. In seeking to analyse this relation, young children have been excluded, I think fairly, because not only are their pulse-rates disproportionately high, but the manifestations of their delirium obscure and doubtful. I have taken the average pulse-frequency during the febrile period, and obtained the following result. In eighteen cases, with no delirium at any period, the average pulse-frequency was 89. In thirteen cases with mild delirium, the average pulse-frequency was between 99 and 100. In seven cases with severe delirium, it was as high as 121. Exceptions occurred: thus slight delirium was present in one man, whose pulse averaged 66 during the whole attack; and in two cases, with a pulse-average of over 100, no delirium was noted. On the whole, however, it seemed clear that the extent of the delirium and the pulse-frequency varied together, probably as a joint result of a common cause.

No such definite relation could be established between temperature and delirium. A prolonged period of high fever was often indeed accompanied by delirium, but in a number of cases it appeared merely to pave the way to an outbreak of delirium as the temperature began to break up, or even as it became normal. It would therefore be impossible to show any relationship between the two without separating the forms of delirium observed into several distinct groups, and the number of cases available was hardly sufficient for this purpose.

Several types of delirium were fairly well marked. A certain amount of mental dulness was noticeable in nearly all cases,

even those who were not actually delirious; but in two instances the mind was as bright and alert as in perfect health. The commonest type of delirium, and the only one present in twelve out of the twenty delirious cases, was a quiet, muttering form, chiefly or only nocturnal, occurring during the febrile period, and ceasing during defervescence. In only one case did noisy maniacal delirium occur during the febrile period and subside with the fever. The notes of the case, so far as relating to the delirium, are as follows:—

CASE I.—*Febrile Delirium resembling Acute Mania, recurring with a Relapse.*

John D., æt. 40; teetotaller for the last five years. Admitted September 17, 1888, on the fifteenth day of a severe attack of typhoid. History of nocturnal delirium before admission. Continued fever for some days after admission, followed by a prolonged period of irregular temperature, slowly falling to normal by the thirty-fourth day. Pulse-average up to this period, 92.5. No delirium was at first observed. Profuse diarrhœa set in on the eighteenth day, and by the twenty-second day he had become very deaf and quite maniacal, noisy, and somewhat violent. He had visual hallucinations and various delusions. This condition persisted for about a week, then his deafness and mania began to improve, and completely vanished as his temperature reached the normal on the thirty-fourth day. After eight days of normal temperature and sanity, he had a sudden and severe relapse on the forty-second day, the temperature rising through nearly 7° in thirty-six hours. On the fourth night of the relapse he wandered slightly; next night he was more delirious, and at the end of a week he was as deaf, and even more maniacal, than during his primary attack. Delusions and hallucinations returned, and he was very excitable. The relapse lasted nineteen days, and his pulse-average during it was 110. As before, he became sane again during defervescence, about four days before normal temperature was re-established. Recovery complete, both in body and mind.

Delirium during defervescence and convalescence occurred in four cases, to which I can add two from my own cases at the Royal Free Hospital. This type of delirium is totally distinct from febrile delirium, and in the cases observed was more or less maniacal in character. Two forms of this type may be recognised,—the first associated with collapse, and transient in its duration, as described by Dr. Hermann Weber in the *Medico-*

Chirurgical Trans., vol. xlviii. ; the second, more persistent, and associated with inanition and impoverishment of the blood rather than with actual collapse. Of the first form the following is an example:—

CASE II.—*Delirium of Collapse at the End of a Second Relapse of Typhoid Fever.*

Elizabeth M., æt. 30, manageress at a public-house ; probably drunk. Former history of scarlet fever and acute rheumatism. Admitted to Hope Ward, November 15, 1888, with the history of an acute illness of three weeks' duration, commencing with joint pains, and characterised chiefly by pulmonary symptoms. She had been delirious and noisy at night. On admission, she was much exhausted, but perfectly rational ; there was much bronchitis, also diarrhœa, but no definite signs of typhoid. Her temperature was irregular, and her pulse-average 99. Four days after admission, on the twenty-sixth day of her illness, the temperature rose, and she began a relapse of undoubted typhoid, which lasted twenty days, and was characterised by a more remittent-type of temperature from the first than is usual. She was tremulous, but presented no delirium till the tenth day of the relapse, when there was a little muttering at night, which lasted till the temperature became normal. Her chief complaint was of aching and tenderness of the feet. Pulse-average during first relapse was 107. After seven days normal temperature she had a second sudden and rather severe attack, the temperature rising 6° in forty-eight hours. This relapse was much more characteristic of typhoid than the first, and lasted fifteen days. The fever was higher and more continued, and the pulse-average 122. After a week slight nocturnal delirium was noted. On the ninth day of the relapse the temperature began to remit in the morning. On the eleventh day (the sixty-third day of her illness), the morning temperature fell to 97.8°, and after violently and unreasonably scolding her child, who had come to see her, she had a fit of syncope, accompanied by twitching of the eyes and face. She was blue and cold, and her pulse extremely feeble. As she rallied from her faintness she became maniacal, and spent the morning in shouting and screaming that she was dying and going to hell. Her pulse had now improved in volume, and was 132. She was ordered small doses of ether and morphia, to be repeated every three hours. Her temperature gradually rose again during the day, and as it rose she became quieter ; and by the evening she was in her usual condition, with a

temperature of 103° . The fever, now intermittent declined to normal on the sixteenth day of the relapse, and there was no return of the mania. Recovery was complete and rapid.

Examples of inanition delirium will be found in Cases IV. and V. The following is an excellent illustration of what may be called "inanition mania:"—

CASE III.—*Temporary Mania during Convalescence from Typhoid Fever.*

Frederick H., æt. 14. Admitted to the Royal Free Hospital, September 4, 1889. He had been taken ill on August 5th, and had gradually developed the symptoms of typhoid. Since August 21st he had been delirious, and apparently unconscious to all around him, scarcely recognising his friends. From the character of the temperature chart he was probably at the height of a relapse on admission. His face was perfectly white, though his lips were of a good colour, and he lay on his back in a semi-conscious state, taking no notice of anything, but occasionally crying out and throwing his arms about. He was able to take food well. When noisy at night he was quieted with opium. For nine days after admission there was continued fever, at one time as high as 105.2° , and the pulse-average was 126. A large slough separated over the sacrum, on the site of a bruise due to his falling out of bed before admission. Ten days after admission the temperature began to break up; the pulse-average fell to 109; his face, which had hitherto been white, became of a natural rosy colour, and he grew more conscious, though still delirious. Pupils widely dilated. The tongue began to clean, and he now slept well without opium. Defervescence was slow, and occupied about thirteen days; there was some improvement in his mental condition, and he became quite conscious, though often troublesome. But when his temperature became normal he developed distinct mania, seeming to lose all self-control. He raved and shouted much, and bit several nurses. He spoke of himself in the third person, repeated questions asked him instead of answering them, and kept saying the same thing over and over again in a monotonous manner. After a week or so he grew quieter, but behaved like a little child; for instance, he would ask for a watch to play with. He had plenty of strength, and there was no sign of anything approaching collapse, though he was considerably wasted. He continued to improve physically, and his diet was gradually increased. He had been taking meat about five

days, when his mental condition suddenly changed, and he became perfectly rational and well-behaved. The total duration of the mania was rather more than three weeks. With the return of sanity, it was found that he had no recollection of anything that had occurred during his illness or convalescence up to the re-establishment of his mental powers. Recovery was complete, both bodily and mental. There can be little doubt that the cause of the delirium in such a case as this is cerebral malnutrition consequent on the prolonged febrile state; and the condition appears quite dissimilar to the mania attendant on collapse, which occurred in the preceding case.

Another case, perhaps not worth relating in detail, is that of a little boy of 8, under my care at the Royal Free Hospital, who had a very prolonged and severe attack of typhoid fever, accompanied by a good deal of delirium towards its close. The end of defervescence was complicated by an attack of purpura, and by the development of numerous boils and subcutaneous abscesses. He was left in a state of excessive emaciation, and was mentally slow, though apparently sensible; he had, however, hallucinations. About three weeks after the end of his fever he began to make singular grimaces, and when any one approached the bed or asked him a question, he would put his hands together and repeat the Lord's Prayer correctly and reverently. Next day he ceased to do this spontaneously, but would do it on his hands being placed together in the attitude of prayer. The condition only lasted a short time. I cannot speak of his ultimate recovery, as the case is still in progress.

Recovery from the hallucinations or delusions accompanying typhoid fever may not occur for long periods, or at all. A friend, himself a physiologist, remembers much of the delirium which he had during a severe attack of typhoid, and he informs me that two particular hallucinations, one of an ugly face and the other of dogs, were wont to appear to him at intervals for two years after his illness. A man, aged 40, was admitted to Mark Ward in 1887 with pneumonia; he developed gangrene of the lung, and died of pyæmia. Twenty-six years before he had had typhoid fever, and had been more or less insane ever since, and at one time in an asylum; he had delusions that his food was tampered with, and would never eat at his own house. Nevertheless, he was well able to do his work as a potter at Doulton's Works; in fact, he was an exceptionally good workman. He drank a good deal of four-ale. At the post-mortem some suppuration was found about the pia mater, as a part of

his recent pyæmia; but the only change of old standing about the brain was thickening of the meninges, especially of the dura mater.

Muscular Symptoms.—The simple tremor associated with muscular weakness occurred in at least twenty of the forty-four cases, and probably in more. I find no note of tremor in twenty-four cases, but its slighter forms may well have been overlooked, as my attention was not then specially directed to the subject. The cases in which it was noted were the more severe ones, and include all the eight fatal cases, while amongst those in which it is not noted there is not a single severe case. Marked muscular symptoms were present in five cases. They consisted of (1) involuntary muscular twitchings, subsultus tendinum, and jactitation, increased on attempted movement, and in one case so extreme as to resemble the movements of disseminated sclerosis in its advanced form; (2) rigidity. This was combined with the tremor in four out of the five cases. The cases are worthy of relation in detail.

CASE IV.—*Typhoid Fever, complicated during Defervescence by Twitching and Rigidity, with Inanition Mania—Noma—Laryngeal Necrosis—Death.*

Walter B., æt. 15, admitted to Mark Ward, October 16, 1888, with a history of between two and three weeks' illness. The family were very poor, and he had probably had insufficient food for some time. On admission, the temperature was 104°, and the signs of typhoid well marked. For thirteen days there was continued fever, oscillating on either side of 103°, and never above 104.4°, while the pulse-average was 110. The temperature then began to break up, and after eight days became subnormal; during this period, however, the pulse-average rose to 119. The total duration of the fever was thus forty days or thereabouts, and he was probably undergoing a relapse at the time of admission. The first note of delirium is on the fourth night after admission, but during the period of continued fever only ordinary febrile delirium was observed, and towards the end of the period there were tremor of the hands and floccitatio. With the breaking up of the fever the muscular symptoms became more pronounced; he became subject to prolonged attacks of chattering of the teeth, and there was much shaking and twitching of the limbs, with subsultus tendinum. Three days after the temperature broke up, muscular rigidity was observed combined with the twitchings; it was not confined to

the limbs; there was also cervical opisthotonos. The knee-jerks were normal. The rigidity persisted in some degree till four days after the temperature became subnormal; the tremor persisted some days longer. During the period of defervescence his delirium assumed a different type, and he became subject to delusions which lasted far on into the non-febrile stage; he never became perfectly rational. Soon after the end of his fever he developed noma on the inner side of the right cheek. The slough was scraped away by Mr. Walsham, and the surface swabbed with nitric acid, which completely arrested the gangrenous process. Later, symptoms of laryngeal obstruction occurred, owing, as appeared at the post-mortem, to necrosis of the right arytaenoid cartilage and the posterior half of the cricoid. The symptoms were not urgent, but a sudden attack of asphyxia during the night proved fatal before tracheotomy could be performed, eighteen days after the end of the fever.

CASE V.—*Typhoid Fever—Rigidity and Jactitation—
Inanition Delirium.*

Edwin O., æt. 24. Admitted to Mark Ward, September 24, 1888, with a history of five days' illness. Previously healthy, but had been drinking hard for the past six months. After admission the signs of typhoid soon became well marked; there was continued fever, never above 104.8° , and for a week the pulse averaged 104. From the first there was considerable tremor of the tongue and hands, and some ordinary febrile delirium at night. Early in the morning of the thirteenth day of his fever he had a copious hæmorrhage, passing at least a pint of blood from the bowel. No further hæmorrhage occurred, but the effect on the patient was striking. The pulse rose at once to 120, and never fell below that figure till the end of the fever, averaging 131 during the whole of that period; at one time it reached 150, and was small, running, and dicrotous. The fever remained of the continued type, and was a little lower than before the hæmorrhage; defervescence did not commence till the twenty-fourth day, and was not completed till the thirty-second day. The most striking effect of the loss of blood lay in the exaggeration of his nervous symptoms. The delirium was increased, but he was not unconscious; the simple tremor which he had before was replaced by twitchings of the legs and arms, which soon increased to extensive jactitations. They were much increased on attempted movement, but persisted when the muscles were not being used; twitching was even present during light, but not during sound

sleep. Slight general rigidity was first noted three days after the hæmorrhage; it became marked in a few days, but varied at different times, and was never extreme. All four limbs were affected, and there was cervical, but no dorsal opisthotonos; some rigidity of the jaw; even the facial muscles were affected, so that when the patient was induced to smile, his features became fixed in a sardonic grin, which lasted a minute or so before he could get rid of it. He was quite unable to speak, but seemed sensible when roused, though very deaf.

The condition of the patient on the twenty-second and twenty-third days of his fever was such that recovery seemed doubtful; the temperature was not very high, but the pulse was 150, very running and dicrotous; the respirations 44, with some lividity of the face at times, and profuse sweatings. He was taking ʒivss. brandy per diem, and this was increased for forty-eight hours to ʒxij. , but producing no improvement, was reduced again to the former amount. When at length, on the twenty-fourth day, his fever began to subside, improvement in the nervous symptoms was rapid; the rigidity had already gone, and by the twenty-seventh day the subsultus and tremor had practically vanished. He became more intelligent, and could speak so as to be understood. The total duration of the jactitation was about fourteen days, of the rigidity seven days. No special treatment was employed for the muscular symptoms; opium was given freely.

During defervescence a fresh complication occurred. Precisely coincident with the subsidence of his muscular delirium was the development of a more or less maniacal form of mental delirium. His mental symptoms had been more or less masked by his inability to speak during the height of his tremor and rigidity; later he had appeared fairly intelligent. But on the twenty-seventh day of his fever delirium and muttering reappeared, and on the twenty-eighth day he became very noisy, shouting and singing all night. There were visual hallucinations. With the re-establishment of a normal temperature the pulse-average fell to 102, but the delirium persisted for more than a week longer. He was perfectly sane on the tenth day of apyrexia, and it was then found that his mind was a perfect blank as to all that had happened to him while in Hospital. He remembered walking to the Hospital, but thenceforward nothing up to the gradual return of his reason, which, as in Case III., was within a couple of days of his return to a meat-diet. Convalescence was slow, but bodily and mental recovery perfect.

The next case was not under my own observation during the

period of her most pronounced nervous symptoms. I have taken the account of them from the ward notes kept by Dr. H. W. Gardner.

CASE VI.—*Muscular Rigidity during Typhoid Fever.*

Emily W., æt. 28; married, six children; admitted to Hope Ward, September 23, 1887, on the eighth day of a severe attack of typhoid. She had been delirious at night since the third day of her fever, and remained so after admission, wandering and muttering during the day also. There was tremor of the hands. The fever was continued in type up to the twentieth day, when it became remittent; the highest temperature observed was 104.8°. The pulse was 108 on admission, but soon rose in frequency, and averaged 115 up to the onset of the nervous symptoms; it was small and weak. There was continual dribbling of urine. On the sixteenth day of the fever a sudden change occurred. In the morning the pulse was 175, and very weak; respirations 50, with some lividity, but she was conscious. Later she was white, very tremulous and weak, and some rigidity of the arms was noticed; the tongue was dry and swollen, and could not be protruded. She was delirious during the night, and next day was less conscious and in a more exhausted condition, taking food badly and sweating freely. The pulse was 180, and could not be counted at the wrist. On this day, the seventeenth of her fever, she grew gradually more rigid. At 11 A.M. she could not open her mouth, and at 1 P.M. there were risus sardonius, cervical opisthotonos, and some lumbar and dorsal stiffness. The legs were crossed and rigid, the toes flexed, with the exception of the hallux. Great tremor was present, with subsultus tendinum. She was put on eight ounces of brandy, and ordered moderate doses of chloral and bromide every two hours. Eighteenth day.—Improving. Has slept six hours. Less rigidity. Mouth no longer firmly closed, but tongue cannot be protruded. Nineteenth day.—Slept well. Is now conscious and of a better colour. Temperature not falling, but pulse is 138, improving in character. Less spasm, but some stiffness of arms and neck persists. Tongue can be protruded. Twentieth day.—Temperature became remittent. Now no subsultus and little tremor, but still some rigidity. Twenty-second day.—More rigidity; back arched; retraction of neck; hands rigid. Can open mouth widely. Much sweating. Twenty-third day.—Worse again. Pulse rose to 184 last night. Flushes much at times, and breathing becomes irregular, with a great expression of terror on face. No delirium. Twenty-fourth day.—

Pulse improving. More rigidity and opisthotonos. Complains of pain in back. From this date the muscular symptoms gradually abated. As the rigidity grew less, tremor became more marked. The last note of any stiffness was on the thirtieth day of the disease; the tremor persisted longer. The fever was at an end by about the thirty-eighth day. The total duration of rigidity was thus fifteen days, the first four being occupied by continued fever, the remainder by very gradual lysis. The pulse-average during the rigid period was 150 (mean of fourteen observations); the pulse was still 120 as the temperature became normal. There was no delirium during defervescence, but the patient complained much of pain all over as the rigidity disappeared. During the rigid period a pustular rash appeared, chiefly on the back and buttocks. The pustules appeared to begin in some cases as typhoid spots, with no surrounding area of inflammation. They broke down and left deep cavities, which discharged freely. Convalescence was complete, but very slow. The patient was able to go to Swanley on November 23rd—a month after the end of her fever.

CASE VII.—*Excessive Prostration in Typhoid Fever, with some Rigidity and Twitching—Death from Perforation.*

Alfred C., æt. 21, married. No previous illness. Admitted to Mark Ward, October 23, 1888, on the seventeenth day of a very severe attack of typhoid. He had been attempting to do his work up to the day before admission. The signs of typhoid were well marked: he was dull and stupid, extremely prostrate, and inclined to be delirious at night. The fever was high, reaching 105.2° on one occasion, and the pulse averaged 101, very soft and dicrotous. At times he was unable to pass water, and a catheter had to be used. On the twentieth day of the fever the prostration had much increased, he was sweating profusely, and complained of being in pain all over. Purple patches appeared at all pressure points. Twenty-first day, complexion leaden; much tremor of hands and occasional shakings of head and jaw. On the twenty-second day the prostration was so extreme that he lay like a log, unable to move even his arms spontaneously. Tremor of the hands was observed even when they were at rest, and there was some rigidity of the limbs. On the twenty-third day signs of perforation occurred, but the temperature, instead of falling, rose to 106° , and remained high up to death, which occurred on the morning of the twenty-fourth day, after a general convulsion, in which the eyes deviated to the right, and there were clonic spasms of all the limbs, lasting

some four minutes. The diagnosis of perforation was confirmed at the post-mortem ; examination of the brain was not permitted.

Muscular paralyses have been described during or following typhoid fever. No instance of this was observed in the series of cases under consideration, with one trivial exception. The case was that of a man aged 34, admitted to Mark with a history of about a month's illness, which had been attended by persistent headache. He was apparently undergoing a relapse at the time of admission, and the case was not a severe one, but there were slight tremor and nocturnal delirium. Two or three days after admission he was observed to keep one eye closed, owing to diplopia ; this was found to be due to paresis of the left external rectus. He had only seen double since he had been in the Hospital. The condition persisted during his whole defervescence, and up to the end of a short second relapse—a total period of forty-one days—but was ill marked after the first week, diplopia being only present when the eyes were turned to the left. It was accompanied at first by severe headache in the left temple.

Laryngismus stridulus recurring during probable typhoid fever.—A child of two years old was admitted to Mark Ward in May 1888 with convulsions, laryngismus stridulus, and carpopedal contractions of three days' duration. Signs of rickets were present, but there was no diarrhœa, and the temperature was normal. Bromide of potassium was given in small doses, and in a few days the child recovered, crowing being last observed on the fourteenth day from the onset of symptoms. For more than a month the child played about the ward and was happy, but he suffered from slight diarrhœa till nearly the end of June. There were several cases of typhoid in the ward. On the night of June 27, the child appeared ill, and laryngismus stridulus returned. The temperature rose, and for a week there was continued fever, varying from 102° to 104°. Then the fever subsided slowly after the manner of typhoid, and reached normal on the thirtieth day. No rose rash appeared, but the spleen was felt once, and there were slight bronchitis and diarrhœa. Laryngismus persisted until the temperature was nearly normal ; it was not severe, and occurred principally at night. The evidence that this attack was one of typhoid was inconclusive, but the temperature chart was characteristic of that disease, and no other cause for the pyrexia was manifest. If the hypothesis of typhoid be accepted, it is interesting to observe that nocturnal laryngismus stridulus took the place, in a rickety child, of what in an adult would probably have been delirium.

Certain other nervous symptoms were noted in the series of cases, and are worthy of brief mention.

Retention of urine requiring catheterisation occurred in only three cases, though difficulty in micturition was more frequent. In one of these cases, that of a woman of 24, the catheter was frequently required for at least a week, though at times she was able to pass water naturally. Later there was some difficulty in micturition, and during the greater part of her illness she suffered from persistent vomiting, which often bore a distinct relation to the act of micturition. No local cause for the trouble could be found except slight leucorrhœa. Occasional rigors during the course of the disease occurred in five cases, and in no instance proved of any significance. In one case a rigor occurred on the thirteenth day of a relapse, and was followed by complete and permanent defervescence within thirty-six hours, the disease terminating, in fact, by a sort of crisis. Occasional vomiting during the fever was not infrequent, and as a symptom of the onset of the disease is noted in a large proportion of the cases.

Tâche cérébrale is a common phenomenon in typhoid fever, and was found to be present in nearly all the cases in which it was looked for. In two severe cases, both fatal, purple patches were developed at all points of pressure, not only over the sacrum and trochanters, but even along the lines of the ribs. In two of the cases characterised by pronounced nervous symptoms, discoloured brawny patches appeared in the sacral region, but in both the formation of a bedsore was averted by careful nursing.

Profuse sweatings during the breaking up of the fever occurred in some of the more severe cases, those especially which presented marked nervous symptoms. A physician who recently suffered from typhoid fever informs me that during defervescence he had on one occasion unilateral sweating, strictly limited by the middle line of the head and trunk; the condition lasted about fifteen or twenty minutes.

ON
HEREDITARY PROGRESSIVE MUSCULAR ATROPHY,
COMMENCING IN THE LOWER EXTREMITIES.

BY
HOWARD H. TOOTH, M.D.

The clinical group, of which progressive atrophy of muscles is the common symptom, has been considerably subdivided since the days of Cruveilhier and Duchenne. Aran's and Duchenne's original descriptions applied to the form characterised by progressive wasting of the muscles of the upper extremities, commencing in the small hand-muscles. The pathology of this form consists without doubt in a degeneration, primary or secondary, of the anterior cells in the grey matter of the cord, probably that group of them situated in the upper dorsal and lower cervical region. In other words, this form may be spoken of as a true myelopathy.

But under the head of progressive muscular atrophy Duchenne described another form of atrophy, having totally different characteristics. In this form the disease makes its first appearance in the shoulder girdle-muscles, not in the small hand-muscles; at the same time nearly, or even before this, certain face-muscles are affected, giving rise to a characteristic "facies."

This disease differs essentially from the classical myelopathy above mentioned in its mode of onset, and in the age at which it appears. It was called by Duchenne the "infantile form," because it always begins in early childhood. Its pathology has been specially studied by Landouzy and Déjerine,¹ who seem to have established the fact that the muscles only are affected, the central and peripheral nervous system being intact. It belongs, therefore, to the group of myopathies. I mention this "infan-

¹ Landouzy and Déjerine: *Myopathie atrophique progressive sans Neuro-pathie*. *Rev. de Méd.*, February 1885.

tile" myopathy first, because in it we have *simple atrophy* of muscles to deal with.

But there are two other important divisions of this group to consider. These are the "juvenile form" of Erb and the well-known pseudo-hypertrophic muscular paralysis. At first sight the "infantile" form would appear to have but little affinity with pseudo-hypertrophic muscular paralysis, but the "juvenile" form serves as a connecting link between the two. In these two members of the myopathic group we have more than simple atrophy of muscles; we have also pseudo-hypertrophy, an enlargement of the muscles by the formation of new connective tissue, comparable to the condition obtaining in cirrhosis of the liver. In Erb's "juvenile" form pseudo-hypertrophy is not a constant feature. The disease consists mainly in atrophy of muscles, commencing in the upper arm and shoulder muscles, differing from the "infantile" form in not attacking the face, and also in the time of life at which it first appears, that is, at about twenty. Pseudo-hypertrophy may occur in any muscle, but it shows a preference for the deltoids, biceps, glutei, and calf, and generally appears only in one or perhaps two of these muscles, in striking contrast to the attenuation of the atrophied muscles. In ordinary pseudo-hypertrophic muscular paralysis, on the other hand, atrophy of muscles is, so to speak, rather an accidental feature, though of course not a rare one.¹

It is necessary for the present purpose that some notice should be taken of the principal clinical methods of diagnosis between the myelopathy of Duchenne and myopathies. The age at onset in the former is about thirty or later, rarely earlier; in the latter, any age below twenty, rarely later. The point of attack in Duchenne's myelopathy is nearly always the small hand-muscles; in myopathies almost anywhere except the small hand-muscles, which are usually respected to the last. Heredity can never be made out in the former, while it is remarkably common in the latter, especially that heredity in which members of the same generation are affected, often without ascendent or descendent heredity.

These are the most important points in diagnosis. Less important is the presence or absence of fibrillar tremor; this is common in the myelopathic form, but very uncommon in myopathies. Last come the electrical reactions; in the early stages

¹ I have purposely made this sketch of the myopathies a very rapid one, because I wished only to say as much as is necessary to throw light on the case to be related below, and also because I am more or less repeating what I have already written at some length in my thesis for M.D., Cambridge, 1886 (Lewis), and in a critical digest on the subject in "Brain," 1887.

of the myelopathic form the muscles contract readily to faradism, but in the later stages a reaction of degeneration is not at all uncommon; on the other hand, this reaction is exceedingly rare in myopathies, though it has been described.

I now pass on to another class of muscular atrophy, namely, that in which the disease has its point of attack in the lower extremities, but which has well-marked characteristics distinguishing it from the myopathic groups above described. Leyden¹ in 1875 made the remark that when progressive muscular atrophy begins in the lower extremities, it differs in one very important particular from Duchenne's form of myelopathy, namely, in the fact that it is very often hereditary. Charcot and Marie² again emphasised this point, bringing forward several cases in illustration. Almost at the same time, and independently, I endeavoured to establish in my thesis for M.D., Cambridge, the existence of a distinct type of progressive muscular atrophy, to which I gave the provisional name of the "peroneal type," having the following common characteristics:—

1. The disease begins in the peroneal or calf muscles, by preference.
2. The hand and forearm muscles are attacked soon after the lower extremities.
3. The disease is one of early life.
4. Heredity is very common.
5. The disease shows a slight preference for the male sex.
6. Fibrillar or fascicular tremors are frequently, though not always, present.
7. Degenerative electrical changes often appear early.
8. The few recorded autopsies and the symptomatology make the inference not improbable that the peripheral nerves are affected, and not the central nervous system or muscles.

Since that time several authors have written on this subject. Dr. Herringham³ contributes a case in "Brain" with the most remarkable family history. He remarks that "the cases do not give any corroboration to the opinion that the disease is a neuritis." Dr. Sachs,⁴ in America, also relates a case, and he also seems to be of the opinion that the disease is one of the central nervous

¹ Leyden: *Klin. der Rückenmarkskrankheiten*, 1875, Bd. ii. S. 526.

² Charcot and Marie: *Sur une Forme particulière d'Atrophie muscul. prog.*, &c. *Rev. de Méd.*, February 1886.

³ Herringham: *Muscular Atrophy of the Peroneal Type affecting many Members of a Family*. *Brain*, vol. xi. p. 231.

⁴ Sachs: *Progressive Muscular Dystrophies*, &c. *Journ. of Nervous and Mental Diseases*, 1888, p. 726.

system, or, in other words, a myelopathy commencing in the leg-muscles instead of the upper extremities.

Dr. Hoffmann's¹ paper is also a very interesting one. His view of the pathology of the disease is obvious from the title of the paper. He evidently considers the disease to be a neuropathy. He contributes a case in addition to those of Schultze's, which he gives *in extenso*. Schultze's cases, with others to which he refers, were analysed carefully in the thesis before mentioned, and I do not think anybody could read them without coming to the opinion that peripheral neuritis was the pathological basis. This opinion is further confirmed by autopsies in similar cases of Virchow² and Friedreich,³ in which interstitial neuritis was found in the nerves supplying the affected muscles.

The clinical points in favour of a neuritis seem to be the early appearance of reaction of degeneration, the absence of reflexes, and the tendency to contracture. On the other hand, pain is much less common than in ordinary neuritis, and the same may be said of loss of sensation. But even in cases of undoubted neuritis, these two symptoms may be absent or very much in abeyance. There can be little doubt, I think, that neuritis may sometimes be selective in its nature—that it may pick out certain bundles only of the nerve-trunks. Some such hypothesis as this is necessary to explain the vastly varied forms which neuritis may take. In fact, it is not unlikely that experiment may show that the large nerve-cords are divided into tracts conveying nerve-fibres of similar function, somewhat on the same model as the white columns of the cord. In the peroneal type of atrophy, then, on this hypothesis, the fibres selected are those which have motor and trophic functions.

But there are some cases of progressive muscular atrophy commencing in the lower extremities which present a train of symptoms unlike that of our present conception of neuritis. Such cases are those of Dr. Herringham above mentioned, and perhaps also that of Dr. Sachs.

I will now relate a case which may not prove uninteresting in this connection.

¹ Hoffman: Ueber progressive neurotische Muskelatrophie. Arch. f. Psych., Bd. xx., 1889, S. 660.

² Virchow: Ein Fall von progressive Muskelatrophie. Virch. Arch., Bd. viii., 1855.

³ Friedreich: Ueber progressive Muskelatrophie, 1873.

Summary:—Atrophy of muscles of lower limbs, commencing probably in calf and peroneal regions at same time, first in the left leg, soon after in the right—Later, similar atrophy of posterior thigh-muscles—No affection of upper extremity or small hand-muscles beyond a slight weakness—No fibrillar tremor—No reaction of degeneration—A brother similarly affected.

P. M'K.,¹ æt. 36, domestic servant, found five years ago that the left leg began to be weak, so that he could not walk so far as formerly. There was no pain at any time. Two years after, the same weakness showed itself in the right leg.

Two years ago he became aware of a decided wasting of the leg-muscles. He noticed the wasting in the calf-muscles first, and that of the peroneal region very soon after. It is quite possible that the wasting may have commenced in the peronei without attracting his attention. The inner and posterior thigh-muscles are much wasted now, but he does not remember when they began to be affected. For the last year the arms have felt weaker than formerly, but no wasting has as yet been noticed.

Previous history.—He has always been a healthy man. He had a fall some months before the first appearance of symptoms, and hurt his knee, so that he was obliged to lie up for a day or two. There does not appear to be any connection between this and his present condition. There is no history of any venereal taint.

Family history.—An elder brother is said to have a similar complaint, and is now quite helpless. In him the hands are affected. Another brother is quite healthy, and has healthy children. A sister is married, and also has healthy children. Father and mother quite healthy.

Present condition.—A spare, fresh-coloured, healthy-looking young man. No affection of face-muscles whatever.

Upper extremities.—All movements of arms seem to be powerful. Triceps on both sides a little flabby. There is also a little falling in over the upper part of the flexor carpi ulnaris. No affection of the small hand-muscles.

Lower extremities.—*Thighs.*—There is a great falling in of the inner and posterior regions of both thighs. This is very apparent in the figures, front and back views.² The gap left by the wasted adductors is very striking. The wasting of the flexors causes the glutei to appear to stand out more than normal, though they

¹ This patient came to my colleague, Dr. Beevor, at the National Hospital for the Paralysed and Epileptic, Queen Square, and he, knowing that I was interested in these cases, kindly referred the case to me.

² Taken from photographs.

are quite natural. The quadriceps extensor on either side is quite natural in consistence.

Movements of thighs.—Adduction and flexion very feeble. Abduction and extension very powerful. Rotation externally seems to be strong on the right side, but less so on the left.

Knee-jerks very lively. No clonus.



FIG. 1.



FIG. 2.

Legs.—The space between the tibia and fibula in front occupied by the tibialis anticus and extensor longus digitorum is deeply hollowed, owing to the atrophy of these muscles (fig. 1). The fibula stands out covered by little more than skin, the peroneus longus and brevis being also much wasted.

The posterior muscles are very much wasted, though perhaps less so than the anterior. The resulting absence of calf is well shown in fig. 2.

The small foot-muscles seem to have escaped, though this is a point very difficult to be certain about. The atrophy of the left leg is more advanced than that of the right.

Movements of legs and feet.—Flexion of toes fair, probably because the flexor brevis digitorum is intact, for it is probable

that the flexor longus digitorum is affected with the rest of the calf-muscles. Plantar flexion of the ankle is very feeble. Patient can feebly raise his heel off the ground, but cannot maintain the position long. Dorsal flexion and side movements of the foot are practically impossible.

Owing to this absence of power of dorsal flexion of the ankle, he has to raise the foot high enough with each step to clear the ground with his toes. This he can do easily enough with his intact quadriceps extensor, but it gives his gait a peculiar "high-stepping" character.

Fibrillar tremor is not to be seen in any part of the body. Sensation normal everywhere.

Electrical examination.—Faradism.—The posterior thigh-muscles and adductors act very feebly to strong currents. The reactions in the left leg are feebler than those in the right. Tibialis anticus, extensor longus digitorum, and peroneus longus on the right side react very slightly to strong currents; on the left side not at all. Peroneus brevis and tertius react to no currents, and gastrocnemii very feebly, if at all, to very strong currents.

Galvanism.—The affected muscles offer a very high resistance to the constant current, so that eighteen bichromate cells registered on the galvanometer 15 milliamperes. With this current no reaction could be obtained in the hamstrings and adductors of the thighs, though the quadriceps extensor reacted readily to a current of two milliamperes. No reaction could be made out in the tibialis anticus, extensor longus digitorum, peroneus longus, or gastrocnemius on either side. The right peroneus brevis reacts slightly to 15 milliamperes; the left not at all. On galvanising the right peroneal nerve, there is a slight contraction of the peroneus brevis to strong currents. In no muscles could reaction of degeneration be made out.

This case seems to resemble somewhat that recorded by Dr. Herringham. The presence of the knee-jerks, the absence of any contractures, and the absence of R.D., seem to negative the idea of neuritis. I do not think, therefore, that this case should be classed among those constituting the peroneal type, which is probably a neuropathy, but that it belongs to the myelopathies.

A study of the march of the affection rather favours the myelopathic view. Dr. Ferrier¹ has shown that certain levels of the cord contain groups of cells corresponding to groups of muscles—that is, that there are centres in the cord to control

¹ Ferrier: Localisation of Atrophic Paralyses. Brain, vol. iv., 1881, p. 217. The original experiments on monkeys by Drs. Ferrier and Yeo will be found in the Proc. Roy. Soc., No. 212.

combined movements similar to those existing in the cortex of the brain. This idea has been illustrated clinically by Dr. Ferrier, and also by Dr. Beevor,¹ for the upper extremity; but the lower extremity has not been so much studied from this point of view.

Dr. Ferrier² suggests that the centres and their corresponding groups of muscles may be found at these levels in the lower cord:—

Second sacral.—Intrinsic muscles of foot.

First sacral.—Muscles of calf, hamstrings, long flexor of big toe, intrinsic muscles of foot.

Fifth lumbar.—Flexors and extensors of toes, tibial muscles, sacral muscles, peroneal muscles, outward rotators of thigh, hamstrings.

Fourth lumbar.—Extensors of thighs, extensor cruris, peroneus longus, and adductors.

Third lumbar.—Ilio-psoas, sartorius, adductors, extensor cruris.

Read by the light of this chart, our case might be interpreted thus:—The intrinsic foot-muscles *appear* to have escaped. The calf and peronei were among the first affected; this points to a cornual cell degeneration, beginning at the level of the first sacral pair. Then the disease spread to the fifth lumbar level, and involved all the group represented in that centre, namely, the flexors, extensors of the toes, the tibial muscles, calf-muscles, peronei, hamstrings, and outward rotators of thigh. These last are of special interest, and may almost be said to give the key to the situation. When such a complete group of muscles is found to be affected, noting also the order of their affection, central lesion may be diagnosed with comparative certainty. Of the fourth lumbar group, the adductors and peroneus longus only are affected, the quadriceps extensor being at present completely intact. It will be noticed in Dr. Ferrier's chart, that though *groups* of dissimilar muscles are represented in *centres*, groups of similar muscles are always represented in at least two centres, as, for instance, the peronei are represented in the fifth and fourth lumbar centres; this resembles the *overlapping* of the cortical centres.

Assuming then that this case is a myelopathy, in what respects does it differ from the thenar type of myelopathy? No obvious explanation is forthcoming why progressive atrophy of the myelopathic form should not have its seat as often in the

¹ Beevor: Localisation of Motor Centres in the Brachial Enlargement. Med. Chir. Trans., 1885.

² Op. cit., p. 226.

lower cord as in the upper. The fact remains, however, that while the thenar type is quite common, that of the lower extremity is decidedly rare. In this particular it is the opposite of infantile paralysis, which is certainly more common in the lower extremities.

Another point of difference between the thenar and leg types is heredity. Heredity can almost never be made out in the thenar type, while it would appear to be very common in progressive muscular atrophy commencing in the lower extremities. Here I must leave this interesting subject, in the hope that post-mortem examinations may, in the near future, throw a brighter light on it than can possibly be expected from clinical speculation.

INSOMNIA : ITS CAUSES AND TREATMENT.¹

BY

E. MANSEL SYMPSON, M.B.

Normal sleep we may fairly regard as the outcome of two conditions—rest of the brain-cells, and anæmia of the brain. The first of these depends evidently and greatly on the absence of any external stimulus, as in the case of the lad (mentioned by Professor M. Foster) who could be put to sleep at will by closing his solitary eye and stopping his one ear. Perhaps, too, this quiet may be partly toxic; the products of nerve-work may prove inhibitory to nerve-energy, as the lack of intra-molecular oxygen or the bye-products of contraction are to a muscle. And from exhaustion of the brain-cells may naturally come spasm of the cerebral arterioles, producing the second condition, *i.e.*, of cerebral anæmia.

Granting that this state—whether primary or secondary is of no moment here—obtains in sleep, the ingenious experiment of Chapin,² quoted by Dr. Long Fox, becomes intelligible and confirmatory. He administered nitrite of amyl with the greatest care to a number of sleepers, with the effect of waking them most successfully—presumably by dilating the smaller cerebral arteries, and so flooding the brain with blood.

In considering the causes of insomnia, we may consequently and conveniently divide them into corresponding classes:—

- (a.) Where the cerebral cells are in an excited state; and
- (b.) Where the blood-supply to the brain does not permit of sleep.

Under the first heading, then, will come cases of damage to the brain from cerebral hæmorrhage, thrombosis, and embolism. Here, whether owing to the shock to the brain generally, or to the irritation around the lesion, it is not uncommon to get

¹ A paper read before the Lincoln Medical Society, October 30, 1889.

² The Influence of the Sympathetic in Disease, by E. Long Fox, M.D., p. 217.

sleep broken by restlessness, excitement, or active delirium. For instance, in a man who had right hemiplegia with temporary motor aphasia—due probably to arterial thrombosis—this was very marked. And in a woman, also hemiplegic on her right side, and permanently aphasic, this condition of sleeplessness and “wandering” continued off and on for some months. One of these cases may have been syphilitic, and syphilis is known to produce delirium. Whether it does so apart from the softening of the brain which follows thrombosis, or from the damage wrought by gummatous tumours, I cannot say.

In tumours of the brain sleeplessness caused by delirium is far from rare. In a case of cerebellar tumour, for example, the boy would continually turn over in bed, and wake up with a sharp scream. In a case of cerebral abscess restlessness and wandering were noticeable. In meningitis this state of delirious wakefulness is constantly seen, but the pain in the head is partly responsible for keeping the child awake, even when there seems to be no delirium.

Of the insomnia of acute mania, with or without delirium, I have no clinical experience.

Closely allied to these cerebral diseases—sometimes so like them that diagnosis is well nigh impossible for a day or two—is the insomnia and delirium of pyrexia. Besides the effect of the specific poison of scarlatina, typhoid, and the other acute fevers, there is a general irritant to the brain in the presence of over-hot blood, which produces delirium. Now this delirium and accompanying insomnia may occur whenever the temperature is a degree or two (100° and upwards) above the normal, and the younger the child or the more exhausted the patient, the more enduring will be the delirium. In the sharp febrile attacks of acute pneumonia, to which children are very liable, the occurrence of delirium is almost a certainty, and, in the interest of the patient's strength, requires careful treatment. Sleeplessness in phthisis, not dependent on coughing or on the profuse sweating, is common enough: probably the fever is the cause thereof.

Again, overwork and worry—when the mind, like a caged animal, is perpetually going over certain events or lines of thought—these are very familiar causes of insomnia. Partly, no doubt, they depend on too great a blood-supply being kept up, but surely the mere cerebral activity demands that full blood-supply. Nothing makes a patient “break down” more readily than continued anxiety and sleeplessness. Even in the time of Aretæus this was recognised. “Insomnolency,” he remarks, “induces dyspepsia, atrophy, and wearies out the body; the spirits flag, and the understanding is unsettled; and for these

reasons such patients readily pass into mania and melancholy.”¹ And perhaps here a more modern quotation may be allowed from Dr. Hood (who was once of the Bethlehem Hospital), given in Hilton’s classic work on Rest and Pain. He says, “I am frequently applied to for the admission of lunatics into this hospital whose insanity is caused by over-mental work, anxiety, or exertion, and for whose cases nothing is required to restore the mental equilibrium but rest.”

Passing now to the action of drugs in causing insomnia, first and foremost comes alcohol. Anstie tells us,² and I have frequently ascertained the same fact from patients, that in confirmed toppers, a considerable time before any symptoms of delirium tremens appear, a motor restlessness, turning from side to side, has robbed them of their rest. This loss of control over the muscles does not manifest itself so much while the patient is awake, but it is probable that it runs on almost imperceptibly into the tremors of the later stages of alcoholism. Sleep generally has failed a man entirely for some few days before the onset of delirium tremens, and this alcoholic insomnia, and the hard task of feeding the patient, are the worst and most difficult symptoms to tackle in this dangerous complaint. Herein, truly, of all diseases, do we echo the maxim of Hippocrates, “that when sleep puts an end to delirium, it is a good symptom.”³ Sleep that can put an end to the feverish and useless workings of mind and body, the exertions to escape from fancied terrors—sleep indeed then is “the welcome, the thrice-prayed for, the most fair.”

With regard to opium, morphine, and cannabis indica as hypnotics, no very uncommon, and quite a sufficiently disagreeable, experience is to find one’s patients only excited the more, instead of being soothed by these drugs. All of them have an exciting stage, and in some individuals they never seem to get beyond this.

Another drug—of little use now medicinally—which acts in widely varying ways on different people, is tobacco. To some, I know it is a decided ‘cerebral stimulant, like snuff-taking or the process mentioned by Dean Swift:—

“You beat your pate and fancy wit will come ;
Knock as you will, there’s nobody at home.”

To others it is a narcotic from the first. Under the second heading its action on the heart will be noticed.

One of the chief objections I have found to the treatment of

¹ Aretæus: Sydenham Society’s translation, p. 466.

² Reynolds: System of Medicine, vol. ii. p. 71.

³ Hippocrates: Sydenham Society’s translation, vol. ii. p. 705.

heart-disease with dropsy by caffeine is the sleeplessness it produces, an effect perhaps partly due to the irregularity in the heart's action which large doses of it cause.

The second class of causes may now be considered—those due directly to the condition of the cerebral circulation.

Nothing is more common in bad cases of heart-disease, particularly, I think, in mitral regurgitation, in disease following chronic bronchitis, and in aortic valvular disease, with attacks like angina pectoris, than to get insomnia. This depends to a certain extent on the position of orthopnoea such patients must assume—necessary but extremely uncomfortable; but it is due far more, I believe, to the varying action of the heart on the blood-supply to the brain.

In functional heart-troubles, too, such as the attacks of palpitation to which anæmic and chlorotic patients are so liable, this irregular action of the heart accounts chiefly for the insomnia whereof they so generally complain.

This, again, is the explanation of the sleeplessness produced by tea. The essential alkaloid of tea, like that of coffee, no doubt in large doses causes irregularity in the heart-beats, but the tannin present, especially in tea that has stood some time, seems to act as a direct poison to the stomach, interfering with digestion, and so embarrassing the action of the heart. This I have found (particularly in elderly people) perhaps the commonest cause of dyspepsia that exists; and this is obviated in some degree by the habit of taking milk in tea, so precipitating a tannate of casein in an insoluble form; and still more so by the use of cream. Also one characteristic of the insomnia due to tea is this: you may get to sleep all right at once, but in an hour or two you wake up with palpitation of the heart, and a feeling of certainty that for some hours sleep will be impossible; and so it is.

Dyspepsia and flatulence from the presence of partially digested food in the stomach produce sleeplessness in the same kind of way: so, too, does tobacco.

As a part of the great nervous excitement which attends the "change of life" in women, insomnia is frequent, and is a very troublesome symptom. The chain of events is much the same as has been mentioned before, hysterical flatulency giving rise to palpitation, and the irregular action of the heart reacting in its turn on the brain, thus preventing sleep.

How singularly modern this sounds: "Sleep after a meal during the day does not agree with all, because the time spent in sleep is not sufficient for the complete digestion of the food."¹

¹ Paulus Ægineta: Sydenham Society, vol. i. p. 180.¹

Paulus Ægineta's reason does not appeal quite to us, for we believe that sleep stops digestion to some extent—not entirely—for the stomach will be quite empty in the morning after a heavy supper; it is probable that the muscular movements thereof do not continue during sleep.

Another class of patients may be mentioned next—those whose arterial tension is high or low. Dr. Broadbent has dealt with these cases very graphically in his Croonian Lectures in 1887.¹ In the first set, with high arterial tension (such as is common in chronic interstitial nephritis), the blood-pressure in the brain will be high also, as the arterioles are unable to resist the pressure, and so sleep is prevented. Again, in many elderly persons the cerebral (as well as other) arteries are becoming rigid; at night, when they should contract and lessen the blood-supply, they do not, and thus keep the person awake.

In a second class of cases the explanation of insomnia is still more interesting. Their pulses show low tension, the heart acting feebly, and these are the class of persons who find themselves so sleepy after meals, and while they are sitting more or less upright. For the food in the stomach requires a free supply of blood to the stomach, and the cerebral vessels are poorly supplied. But when, however, these people lie down, fondly hoping to sleep, the weak walls of their cerebral arteries yield to the blood-pressure, now aided by the action of gravity, and their brains get too free a supply of blood to allow of sleep. In all these instances, insomnia pure and simple, or at most allied with delirium, has been considered; when the element of pain comes in, the sleeplessness so produced is foreign to my subject.

And now for a few brief remarks on treatment. Taking the simplest remedies first, a warm foot-bath just before getting into bed, with or without a dash of mustard, is one of the best hypnotics in existence. It draws a large amount of blood to the extremities and skin, and is useful in the most ordinary cases of sleeplessness, no less than in those later stages of Bright's disease with high arterial tension, hypertrophied heart, and a tendency to cerebral hæmorrhage. Better still, from the reaction which follows, is a cold foot-bath; but this is not for people of feeble circulation. The same remarks will apply to a general warm bath.

Next on the list of remedies comes one which can easily be combined with the preceding, a warm drink—a nightcap, so to speak—the last thing at night. Among the more dangerous remedies to recommend, though it acts capitally, is a glass of spirits and water, hot and sweetened. Beer again, light and

¹ British Medical Journal, 1887, vol. ii. p. 763.

well hopped, answers well—the hops perhaps acting as a soporific.

For patients for whom alcohol should not be prescribed, a cup of warm gruel, or better still, of that admirable preparation Benger's food, is quite as effectual. The superior advantage of the latter consists in this, that it can be partially or wholly digested before taking it, so that it does not lie heavy on the stomach, as milk and arrowroot, &c., are apt to do at night.

For the over-worked and worried, change of scene and employment is the best physic; cares of all kinds should be driven away as much as possible. A month or two abroad or on a sea-voyage, with *no* letters or telegrams, will do them more good than all the sedatives and hypnotics in the pharmacopœia; and some bromide of potassium as well is of considerable service in these cases.

Drugs for the relief of insomnia mean rather a large order, but those alone will be mentioned here whose use has been tried on the writer or his patients.

The simplest here again is glycerine. For those troubled nightly with flatulence and consequent palpitation, especially for that form of insomnia described as due to tea, nothing gives such instantaneous and sure relief as a teaspoonful or two of glycerine. Probably, besides relieving the flatulence, it decreases the blood-pressure in the cerebral arteries by drawing more blood to the stomach and intestines.

For the patients with high-tension pulse and sleeplessness, Dr. Broadbent recommends a dose of mercurial pill or black draught. I think, too, this condition of insomnia can be warded off by continued treatment by small doses of nitro-glycerine.

For those with low-tension pulse, tonics, strychnia, iron, or digitalis (or even caffeine), are the drugs indicated.

Opium I have generally given in the form of 15 or 20 minims of the tincture, but I much prefer the hypodermic injection of morphine. Especially in heart-disease are its good effects manifest, and where there is headache in cerebral tumours and meningitis, it deadens the pain and stops the vomiting somewhat. But both opium and morphia are mostly used as anodynes, and the dangers attending their use *by patients* are only too common and obvious.

From cannabis indica, in doses of two-grain pills of the extract, I have seen satisfactory results; frequently I have taken it myself at varying times of day and night, but it has had no results of any kind.

In hysterical insomnia, bromide of potassium with some sumbul has seemed of service, though it has often been disap-

pointing from its "masterly inactivity" in delirium tremens. In treating this latter disease, it is often combined with chloral hydrate which is dangerous from the frequent weakness of such patients' hearts.

In Bright's disease with high-tension pulse, chloral has been of great use, and I fancy in cases of cerebral hæmorrhage (of small extent) calming the patient; and as it contracts the cerebral vessels, perhaps lessening the risk of further bleeding.

Sulphonal in doses of five-grain tabloids has given me natural refreshing sleep with no ill effects; its comparative tastelessness makes it a valuable hypnotic.

But paraldehyde is the drug most lately used, and most in favour with the writer. Its action on the brain is the same as that of chloral, and it strengthens the heart's action, slows the pulse, and is, besides, a powerful diuretic. In phthisis and other diseases where the stomach is irritable, it has not seemed to be at all well borne; but in delirium tremens, cerebral affections, pneumonia, bronchitis, and several others, it has acted splendidly. I have generally given it in 30-minim doses, with peppermint-water and syrup. Within reasonable limits its use is safe, and its action is very sure. The disadvantage of it lies in its disagreeable taste, which hangs about in the mouth for some hours after. To avoid this, Messrs. Green & Co. have made me some 30-minim gelatine capsules, so that the drug should be swallowed without being tasted. These are too big, I fear, for most patients, but two capsules of 15 minims each would answer well, and be, I feel sure, the best way of exhibiting paraldehyde.

CASES FROM SIR DYCE DUCKWORTH'S WARDS.

BY

E. T. WYNNE, M.B.

CLINICAL AND POST-MORTEM NOTES OF A CASE OF ACTINOMYCOSIS.

Actinomycosis is such a rare disease in this country, that it is very desirable that every case should be recorded. I have therefore put together short abstracts of the notes of this patient whilst she was in Sir Dyce Duckworth's, and also in Dr. Andrew's wards. To these I have added a short account of the post-mortem appearances and of the microscopical examination.

On July 22, 1889, the patient was brought to the Hospital. I found her in a condition of extreme exhaustion, with the general appearance of a person in the last stage of consumption. She complained of a lump in her left side, dyspnoea, and great weakness.

She was admitted at once into Sir Dyce Duckworth's ward.

Clinical notes.—Ann C., æt. 34; married. Admitted to Elizabeth Ward, July 22. Much emaciated, especially the legs, which were œdematous. Eyes sunken; cheeks flushed; breath short.

Chest.—Signs of bronchitis, with hyper-resonant note, except from sixth rib downwards in the left axillary region, where there was dulness and absence of respiratory sounds. There was some flattening of the chest-wall here, and a small sinus. This was the seat of an operation performed in Hope Ward. Heart's sounds feeble, but no murmur. On the left side, just outside the axilla, lying over the eighth, ninth, and tenth ribs, and projecting about an inch and a half on to abdomen, was an oval swelling, an abscess, with long axis directed towards umbilicus; prominent, very soft, fluctuating between the fingers; not tender; it seemed not to communicate with interior of thorax.

Liver dulness extended from seventh rib to an inch below ribs. Spleen could not be examined owing to the abscess.

Nothing important in family history.

On July 27 Mr. Langton opened the abscess. A few ounces of purulent fluid came away, presenting nothing peculiar in its appearance. A second smaller abscess was found between the intercostal muscles. There was no communication with pleural cavity. The fluid was not examined microscopically.

The patient did not improve. There was practically no discharge from wound. On August 7th she died. Hectic temperature throughout.

On referring to the notes in Hope Ward, I found that she was admitted on March 20th, 1889, complaining of pain in the left side. There was a history of chronic bronchitis. Had pain in left side some time before her last confinement, February 15, but it became worse after.

Chest.—General bronchitis. No dulness. Friction in left axilla.

On April 4th there was dulness and absence of vocal vibrations in left axilla, and breath sounds almost inaudible.

April 15th.—Free incision into dull area. A few drops of puriform fluid came away. A tough membrane of great thickness felt in wound.

April 24th.—Had two rigors.

A little discharge continued to come away, and she left the Hospital on May 31st.

On her admission to Hope Ward there was no marked elevation of temperature, but after the first fortnight there was a hectic temperature, with a diurnal range of about 5 degrees.

Post-mortem.—In the left pleural cavity, around the seat of the sinus, was a fibrous mass. No collection of pus was found. The subcutaneous abscess-sac contained no pus, and did not communicate with the pleural cavity. No tubercular deposits in the lungs.

The liver was not much enlarged. In both lobes there were what at first sight appeared to be several large abscesses or hydatids. These deposits presented to the naked eye the following characters:—

On cutting into the largest (which was about the size of a foetal head), puriform fluid poured out, as if from an abscess cavity. But on looking closer, it was seen not to be coming from a large cavity, but to be pouring from numerous lacunæ in a coarse sponge-work of fibrous tissue.

On cutting open a less advanced deposit, the section showed

a network of fibrous tissue with coarse trabeculæ, the spaces of which varied in size from that of a small pea to that of a small nut. The larger ones were filled with a thick puriform fluid, which oozed out on gentle pressure. The contents of the smaller lacunæ were of a more gelatinous nature. The smallest deposits presented a very characteristic appearance. At first sight they might have passed for the rather rare form of hydatid—the multilocular or disseminated.

In these, again, there was a groundwork of fibrous tissue, the interspaces being filled with more or less gelatinous material. The interspaces were small (about the size of a lentil), oval in section. They were arranged in radiating rows, giving a star-like appearance to the section of the deposit.

The spleen was enlarged, and contained firm whitish masses situated near the periphery of the organ, looking as if several infarcts had become united together. They did not show the trabecular structure seen in the liver, and were not purulent. There was nothing noteworthy about the other organs.

Microscopical examination.—The portions of spleen set aside for examination showed no trace of any growth resembling what was found in the liver. The masses had all the characters of old infarcts.

Some of the purulent fluid from the liver was examined fresh. It was finely granular, with here and there a small roundish mass, which showed faint radiating lines and granules.

Pieces of liver were hardened in Müller's fluid, and some transferred to alcohol.

The portions taken straight out of Müller and frozen gave the best results.

The sections were stained first with methyl-blue, and then with eosin, and cleared with benzol.

The sections were made at the edge of the deposit, including some of the general liver substance.

The liver substance showed fatty and cirrhotic changes.

Examining the youngest deposits, the following parts were made out:—Each consisted of a mass of leucocytes, surrounded by a layer of fine fibrous tissue, diffusing itself among the liver-cells in the neighbourhood. These liver-cells had lost their columnar arrangement from pressure, and were in little groups of four or five, squeezed more or less into concentric rings. The inner margin of the capsule was fairly sharply defined. There was much white cell-infiltration. The masses of leucocytes showed in places signs of breaking down. In the centre of each mass was a patch which had the following characters when seen under a low power:—It was limited by a narrow zone,

staining deeply red, which had a radiated appearance. Internal to this was a deep blue zone, fading as it passed inwards to the centre, which was but slightly stained red. The central portion and the blue zone had also a faintly radiated structure. (See Fig. I.)

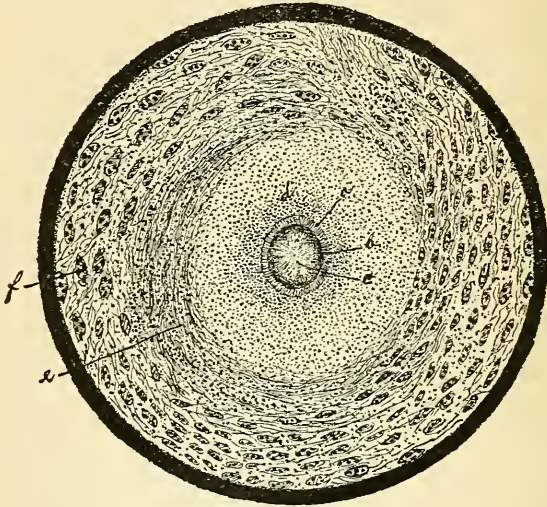


FIG. I. (Zeiss' A. obj.)

- a. Outer zone, staining deep red with eosin.
 - b. Middle zone, staining deep blue with methyl-blue.
 - c. Central portion of deposit.
 - d. Leucocytes (granulation tissue); there are no giant-cells.
 - e. Fibrous tissue, forming a nearly complete capsule.
 - f. Groups of liver-cells, flattened by pressure, and separated from each other by young fibrous tissue.
- The whole field is more or less infiltrated with leucocytes.

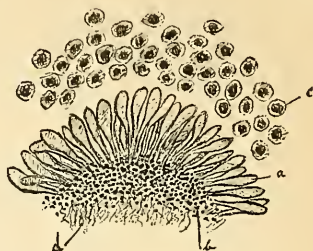
Under a $\frac{1}{2}$ oil immersion the central patch resolved itself into the following structures:—

The red zone consisted of a large number of closely packed club-shaped bodies, very minute, but clearly defined. The blue zone was a dense mass of threads and dots. The central portion was a confused mass of faintly stained threads and granules. (See Fig. II.)

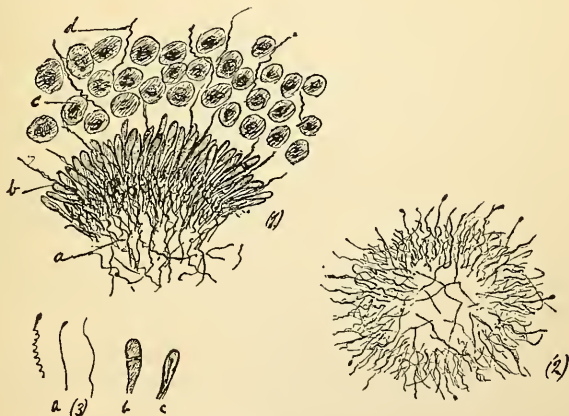
These sections showed the club-shaped bodies very clearly, but the other portions of the growth were unsatisfactory. I therefore prepared other sections by Gram's method, without any counter-stain.

These sections were cut with the freezing microtome, using a

combination of the celloidin and gum processes. The results were very satisfactory. The confused mass of dots and threads mentioned above now appeared as a beautifully delicate mycelium of fine blue threads, some straight, others twisted or wavy. Many of these threads terminated in small knobs. (Fig. III. 2 and 3.) No club-shaped bodies were anywhere visible, but on counter-staining with eosin or orange-rubin, they appeared in large numbers, but not quite so distinct as in the first sections. (This I attribute to the fact that the first sections were from portions hardened in Müller, the later from portions hardened in alcohol.) Also fine mycelial threads could be traced among the leucocytes away from the main body of the fungus. (Fig. III. 1 *d*.) Many of the clubs were jointed, and some showed a faint bluish streak in the centre. (Fig. III. 3.)

FIG. II. ($\frac{1}{2}$ oil immersion.)

a. Club-shaped bodies.
b and *d*. Threads and dots (threads in section).
c. Leucocytes.
Stained with methyl-blue and eosin.

FIG. III. ($\frac{1}{2}$ oil immersion.)

- (1) Stained with gentian-violet and orange-rubin (Gram's method). *a*. Mycelium.
b. Clubs. *c*. Leucocytes. *d*. Threads among leucocytes.
(2) Mycelium stained by Gram's method without counter-stain.
(3) *a*. Various-shaped threads; two have knobs at free end. *b*. Jointed club.
c. Club showing central blue streak.

Professor Crookshank has been able to trace threads of the mycelium up into the club-shaped bodies. This I was unable to do, but I think the faint bluish streak seen in a few of the clubs is

of this nature. Professor Crookshank's specimens were obtained from the pus of a living subject.

It will be noticed that I have made no mention of giant-cells in the description of my sections. These structures are commonly met with in the immediate neighbourhood of the fungus, but are not constant. In none of my sections were any to be seen.

Actinomyces hominis in England was regarded until lately as differing from that met with in Germany, the club-shaped bodies not having been observed in the English cases.

This arose from observers using Gram's or some similar method in preparing their sections, and thus only staining the mycelium, the delicate clubs remaining invisible, as I have described above. The presence of clubs has now been abundantly proved by Professor Crookshank, and, I believe, by Mr. Eve; and, as I have shown, they were present in large numbers in my own sections, when suitably stained.

So far there has been little or no evidence of the manner in which man contracts the disease. In the present case, nothing in the occupation or surroundings of the patient offered any suggestion as to the origin of the infection.¹

It is an interesting fact, however, that calves and rabbits have been inoculated from human subjects.

As regards diagnosis, there is little to be said. Mr. Eve diagnosed a case on the following grounds:—"The slow progress of the disease and the absence of acute symptoms, severe pain, and fever; from the appearance of a fluctuating point from which granulation tissue only was evacuated after incision, and the subsequent formation of numerous sinuses, with undermining of the skin. These, coupled with the exclusion of syphilis, abscess, and hydatid, formed a combination which convinced me I had to deal with a case of actinomycosis."

There appear to be three kinds of cases for which actinomycosis may be mistaken—sarcomatous growths, chronic abscess (*e.g.*, empyemata), and tuberculosis.

The diagnosis is perhaps only to be settled by microscopic examination. Suspicion is aroused, however, when one finds a chronic tumour or empyema which does not, on being opened,

¹ On the Continent one case is reported of a man who had opened an actinomycotic tumour in a cow and afterwards developed the disease. Also of a boy who swallowed an awn of *Hordeum murinum*, which gave rise to an actinomycotic abscess in which the awn was found. (See Report of Agricultural Department to the Privy Council, 1888.)

yield pus in any quantity; but, of course, the presence of abundant pus does not exclude actinomycosis. Thus, it is very desirable that all cases belonging to the above three classes should be examined microscopically by the Gram method. The presence of the mycelium will then at once remove all doubt.

NOTES ON TWO CASES OF PURPURA.

During the months of June and July 1889 several cases of purpura simplex (or hæmorrhagica) came under the notice of the casualty physicians of the Hospital. Two of them were admitted into Sir Dyce Duckworth's wards. The accounts which follow are abbreviated from the clinical notes.

CASE I.—Alfred G., æt. 12, was brought to the Hospital on June 24 on account of persistent epistaxis.

The boy was slightly anæmic. The whole body and limbs were sprinkled with purpuric spots of various sizes and colours, least numerous over the scalp. No distinct vibices, but on forehead and limbs several pigmented patches and subcutaneous swellings. Gums bleeding freely, but not swollen. Breath very offensive. There had been free epistaxis during the last twenty-four hours, but none on admission. No pains nor tenderness of joints. No brawniness in the popliteal spaces. Pulse, temperature, and respiration normal. No hæmorrhages seen in eyes. Chest natural. Edge of liver just felt. Spleen not felt. Urine contained a little blood. No blood in motions.

Always a delicate child. On June 14 had a bilious attack. Pain in abdomen since. Spots noticed on 21st. Epistaxis same day. Has been feeding on bacon and ham. No green vegetables, but plenty of potatoes.

No history of gout, rheumatism, or hæmophilia in family.

Blood shows no abnormal characters.

From June 25th to 29th there were several slight attacks of epistaxis.

On July 2 the purpura had all disappeared except one or two subcutaneous hæmatomata. On the 13th he was allowed up, and had no return of the purpura. Discharged on July 19th.

With the exception of a slight aphthous ulceration of the cheek, which appeared about a week after admission, his recovery was uninterrupted.

CASE II.—Eliza D., æt. 29. Admitted July 20, 1889.

On July 9th took to bed with pains all over her. Next day purpuric spots came out all over her body. Since then has lost blood per vaginam, per rectum, and has had hæmatemesis.

On admission, she was found to be covered with purpuric maculæ of various sizes, with here and there a vibex. A large vibex over left popliteal space and inner side of knee; very tender, painful. Rash was least marked over face, head, and hands. Gums bled freely, but were not swollen. Breath very offensive. There was no swelling in popliteal spaces. Said she had some difficulty in seeing in twilight and gaslight, but not marked. No retinal hæmorrhages. No opacity of media. Chest and abdomen were natural. Urine sp. gr. 1012; no albumen.

Had been living chiefly on tea and bread-and-butter; rarely had any meat or vegetables of any kind for the last five or six weeks. No evidence of hæmophilia or leuchæmia. No rheumatism or gout in family.

July 22.—Vomited altered blood (probably swallowed from mouth and pharynx).

July 24.—Much headache last night; relieved by antipyrin. Rash fading rapidly. Rather anæmic.

July 29.—Rash nearly gone. Headache at times; relieved by antipyrin.

August 4.—Headache yesterday relieved quickly by antipyrin.

August 5.—Was up all day yesterday. No fresh spots.

August 9.—Throat a little sore; pharynx a little red; uvula elongated. No tonsillitis. No membrane. Tongue clean.

August 11.—Small, firmly adherent patch of membrane on left tonsil. Glands at angles of jaw swollen. These symptoms were unaccompanied by any rise of temperature, as shown in the morning and evening chart.

August 14.—Another patch on posterior pillar of fauces.

Patient recovered quickly from this affection of the throat, and was discharged on September 4.

The treatment of both cases was the same, with this exception:—In Case II. iron was given on admission, the result being that the hæmorrhages seemed to be increased and the headache made worse. Turpentine, which was used from the commencement in Case I., was then substituted. The result was most satisfactory, the hæmorrhages in both cases ceasing rapidly, and the rash fading almost at once. Of course, proper diet had a large share in the result. The prescription used was—*Ol. terebinthinæ* ℥xv. and *℞ss. mucilaginis tragacanthæ* ℞ss., extract

glycyrrhizæ liq. ℥ss., aq. cinnamoni ℥i., b.d. and t.d.s. Later, iron was prescribed.

The extremely offensive breath which occurs in these cases (due to the decomposing blood in the mouth and pharynx) is a source of much discomfort to both patient and his attendants. Borax gargle with a little tincture of myrrh was of much service. The relief given to the headache by antipyrin (gr.xv.) was much appreciated by the patient.

The turpentine prescription given above I have used frequently in the wards and out-patient room here and at the Victoria Park Chest Hospital. I have found it readily taken, well borne by the stomach, and so far have only met with one case in which any unpleasant symptoms arose (slight strangury and hæmaturia); they ceased directly the drug was discontinued.

The causes of non-symptomatic purpura are generally very obscure. Both these cases may fairly be attributed to errors of diet, and in this respect show a resemblance to scorbutic purpura. Case II, especially, from the presence of nyctalopia with pain and tenderness about the knee, seems to approach scorbutus as met with now-a-days in hospitals.

A CASE OF INTESTINAL OBSTRUCTION.

BY

HUMPHRY D. ROLLESTON, M.B.,

AND

C. PERCIVAL CROUCH, M.B.

Charles L., aged 29 years, was admitted under the care of Dr. Church into Matthew Ward on February 20, 1889. On the following day abdominal section was performed by Mr. Smith; from this time onward until he left the Hospital well on March 17th, the patient remained under Mr. Smith's care in Rahere Ward.

Through the kindness of Dr. Church and Mr. Smith we are allowed to publish the details of this case.

History of present illness.—The patient was in his usual health till 1 A.M. on February 17th, when he was seized with colicky pains in the region of the navel. Began to retch immediately afterwards, and has continued to do so on and off ever since. At 5 A.M. his bowels acted spontaneously; the motion contained no blood, was not abnormal in form, and was in every way natural. Since this no motion or flatus has passed. Had fish for supper on February 16th. On February 18th was in pain all day. Took olei ricini ζ ss. without any effect. On the evening of February 19th vomiting became frequent. The vomit was "black and green" in colour, not yellow, and by no means offensive in odour. Took some tea, which he kept down. Began to hiccough. Had some laudanum. Two enemata were given, but returned without any result. As the abdominal pain was more severe and the vomiting was worse, he came to the Hospital at 4.15 A.M. on February 20th, and was admitted to Matthew Ward.

Past history.—Has never had a similar attack, though he had

“colic” severely when a child. Does not work in lead. Has never had “inflammation of the bowels” nor suffered from “consumptive bowels.” Never ruptured. Had typhoid fever in October–November 1888, which kept him in bed for five weeks. Has never had jaundice. Has not suffered from diarrhœa. His bowels are usually regular, but have been less so since he had typhoid fever.

Family history.—One of ten, two of whom died in childhood. One sister is delicate, the rest are healthy. No history of phthisis in the family.

Present condition (February 20).—Anxious expression of face; eyes sunken, pupils contracted. No icteric tint of conjunctivæ. Tongue flabby and thinly furred. No lead-line on the gums. Pulse good volume and tension, regular, 92. Not at all collapsed. Hiccough on movement. Lies with his legs extended. Has had no sleep since onset.

Abdomen.—No distension. No tumour palpable; no increased resistance. Nothing abnormal palpable per rectum. Abdomen moves on respiration; no pain on taking a deep breath. On making pressure a little below and to the left of the umbilicus there is tenderness. No general tenderness. No pain on micturition. Borborygmi audible. No hernia discoverable. No tenderness in the groins. No complaint of pain down the thigh. Liver dulness normal. Spleen not felt. Urine, sp. gr. 1036, acid; deposit of lithates; high coloured; no albumen. Fair amount of urine passed; amount, however, not measured.

Heart.—Apex in fourth intercostal space, just outside the nipple-line. No increase of cardiac dulness upwards or behind the sternum. Sounds normal.

3.30 P.M.—Has retched a little since admission, but has brought up nothing but mucus. Pulse 104. Hardly any pain in abdomen. At 6 P.M. tinct. opii ℥xv., and cataplasma lini. c. tinct. opii ℥xx. abdomini. At midnight tinct. opii ℥x.

February 21, 10.15 A.M.—Had very little sleep during the night; continued to retch, and began vomiting again in the night. Vomited matter greenish-yellow in colour, with slightly offensive odour. Patient thinks that the poultice rather increased than relieved his abdominal pain. No increase in the area of tenderness in the abdomen. Pulse fair volume and tension, regular, 96.

At 2 P.M. had taken two pints of fluid since admission—that is, in the last thirty-seven hours.

Dr. Church consulted with Mr. Smith, and it was decided that a long rubber tube should be passed up the rectum, and the injection of warm water and oil be tried. If this failed to

relieve the obstruction, that abdominal section should be performed.

At 4 P.M. Mr. Crouch passed a tube as high up the rectum as it would go without coiling up, and an injection was given. The injection was retained for some little time, and then expelled quite unstained by fæces. Three injections in all were given.

At 8.30 P.M. patient began to vomit offensive yellow stercoraceous matter. No flatus passed since admission. Abdominal pain continues. Pulse 120; fair volume.

In the following account we received great assistance from the admirable notes of Mr. R. Dunn, dresser to the case.

At 9.30 P.M. the patient was carried down into the operating theatre. Chloroform was administered, and an incision reaching from the umbilicus to a point about two inches above the pubes was made, and the peritoneum exposed. As the peritoneal cavity was opened, healthy gut presented at the wound, and there was no evidence of peritonitis, although there was some serous exudation into the peritoneum. The intestines were then examined, being passed through the fingers from below upwards. After a considerable length had been thus examined, the gut was seen to be somewhat congested. This congestion increased rapidly, till at the point of constriction, which was high up the small intestine, the gut was of a dark-blue colour, without, however, any distension or other sign of peritonitis.

The cause of the obstruction was then found to be two bands, each about as thick as a piece of twine, which held the gut tightly down, but were not adherent to it in any way. These were divided, and the gut was then free. These bands appeared to be passing across the gut, but not completely surrounding it, and nothing like a constricted knuckle of intestine was present. On examining this portion, it was found, as before said, to be deeply congested, and at the point of constriction there was a deep groove, situated on one side only. The points of attachment of the bands could not be made out.

The abdomen was then sewn up, the operation having lasted about an hour.

On recovering consciousness soon after, the patient was in a very good condition. A hypodermic of morphia was given of $\frac{1}{8}$ grain, and later a second one of $\frac{1}{8}$ grain, as the first had had no effect.

Strict orders were then given that no food or drink of any sort was to be given him.

February 22.—Patient slept well; looks and feels much better. Pulse 104, good volume. Temperature 98.4°. Tongue moist. Urine Zxxvi . in ten hours; slight trace of albumen. Has passed

flatus, but no motion. Abdomen not distended; no pain. Dressings not changed. He has had nothing to eat or drink for sixteen hours, and complains greatly of thirst. In the afternoon he was allowed a few small pieces of ice and a few teaspoonfuls of hot water.

February 23.—Slept fairly well after morphia $\frac{1}{8}$ grain. Pulse quiet. Temperature normal. Tongue moist and clean. Urine faint trace of albumen. Has passed much flatus. No motion. Abdomen no distension; no pain. Wound not dressed. During last twelve hours has had a little ice and hot water to sip. Constantly asking for drink. This afternoon he had a little milk and water, a teaspoonful at a time. Water is also injected by rectum to relieve the thirst.

February 25.—Patient doing well. Pulse and temperature normal. Tongue clean and moist. No albumen in urine to-day. Has not had his bowels open yet. Abdomen, no pain nor distension. Wound dressed to-day for first time; stitches removed; slight suppuration. His diet has been increased to \bar{z} ii. milk, \bar{z} i. water, one egg.

February 27.—No bad symptoms. Condition very satisfactory. Bowels open to-day for first time since operation. He is taking half a pint of beef-tea, one pint of water, and half a pint of milk in the twenty-four hours.

March 4.—Slept well without morphia. General condition very good. Bowels acted three times yesterday. Motions natural. Wound healing rapidly. Had oysters to-day. Sat up for a short time in bed.

March 9.—Out of bed to-day for first time, wearing an elastic abdominal bandage. No pain or tenderness in belly. Bowels act regularly. Fish-diet.

March 13.—Getting stronger every day. Meat-diet.

March 17.—Left the Hospital well.

REMARKS.

Diagnosis.—That no two cases of disease are exactly alike applies to no affections more forcibly than to those of the abdomen, and especially to acute intestinal obstruction. In this case, as in many others, a partial diagnosis only was possible. A certain number of diseases, such as colic, general peritonitis, intussusception, and external hernia, could be excluded, while there remained three causes—twisting of the large intestine, internal or retro-peritoneal hernia, and constriction of the small intestine by bands—among which the diagnosis seemed to lie, but could not be affixed to any one with anything more than probability.

At first the symptoms made one think that perhaps colic might be the cause, due either to irritation from improper food or to lead-poisoning. Possibly this idea was suggested by the fact that some hours before the sudden onset of pain he had eaten some fish. However, the persistent course of the illness in spite of treatment, the vomiting, and the absence of any lead-line or history pointing to plumbism, negated this idea.

Against general peritonitis was the sudden onset of pain while in perfect health, which is only explicable on the theory that perforation of the stomach or intestines had then taken place—a hypothesis which the absence of collapse or any very severe constitutional symptoms on admission three days later put out of court. Then the spontaneous evacuation of his bowels four hours after the onset militated against the existence of general peritonitis. There was no distension or hardening of the abdominal walls; respiration was free, painless, and diaphragmatic, and the patient's position in bed was not that of peritonitis. Though there was tenderness to the left of the umbilicus, there was no general tenderness, and no pain on micturition.

Intussusception was negated by the absence of any tumour, either in the abdomen or per rectum, and by the fact that there was no sanguineous or mucous discharge, and no tenesmus.

Examination of the abdominal rings and the groin showed the absence of any signs of inguinal, femoral, or obturator hernia.

Any obstruction of the large intestine was highly improbable from the absence of any abdominal distension. Now although, as was seen later, the obstruction was high up in the jejunum, there was no marked diminution in the amount of urine passed. This fact may perhaps be considered as supporting the view that the marked diminution, or even suppression of urine, which occurs when the obstruction is high up, is due to shock rather than to diminished absorption from the shortened intestinal tract;¹ for this case is remarkable for the absence of collapse associated with acute obstruction occurring high up in the small intestine.

The cause of the obstruction being shown not to be explained by colic, general peritonitis, intussusception, external hernia, or obstruction of the colon, there remained (1) twisting or kinking of the small intestine; (2) some form of internal hernia, the small intestine passing through a hole in the omentum, or passing into some pouch such as the fossa jejuno-duodenalis, the sub-cæcal pouches, or those in connection with the sigmoid mesocolon; and (3) constriction of the small intestine by some form of band.

¹ Fagge's *Medicine*, vol. ii. p. 429.

As to diagnosing the first two accidents, viz., twisting of the small intestine and internal hernia, there are, it appears, no guides of any value.

With regard to constriction of the small intestine by bands, indications may be gathered from a patient's past history which suggest, though they do not determine, a diagnosis.

Bands constricting the intestine may arise from old peritonitis, producing adhesion between the gut and other contents of the abdomen. These adhesions in course of time becoming extended, bands result, round which either the attached intestine or a distant part may get twisted and strangulated.¹ Tubercular peritonitis is a prolific cause of such bands. In the patient the only possible origin for any form of peritonitis was an attack of enteric fever in October–November 1888. This fact in his history gave a slight probability to the acute obstruction being due to a band constricting the small intestine. The other form of bands which occasionally produce strangulation of the small intestine is the remains of the Vitelline duct, which passes from the lower two or three feet of the ileum, and is attached to the umbilicus. That the persistence of the Vitelline duct, either as a solid cord or as a pervious unattached *cul-de-sac* (Meckel's diverticulum), is rare is shown by Mr. Treves, who did not come across a single example in the examination of 100 abdomens.²

In our patient, although no dogmatic diagnosis between twisting, internal hernia, or constriction of the small intestine could be come to, there was yet some reason for suspecting constriction by a band, viz., the history of typhoid fever.

Treatment.—There are a few points of interest about the condition of the patient before operation.

Although there had been complete obstruction for three days, yet his general condition was good—pulse, temperature, &c. Again, the vomiting did not become stercoraceous till just before the operation, four and a half days after onset. That this absence of acute symptoms may have been due to opium is possible, and it is better in all cases in which there is a likelihood of operative interference being required to avoid giving any, in case the symptoms get masked.

As to the question of injection, it may be as well to mention that a soft tube can rarely be passed up higher than the sigmoid flexure. It almost always gets caught in a fold of mucous membrane and coils up, even when the finger is passed high up to guide the end.

¹ *Vide* Treves, Intestinal Obstruction, p. 14.

² Lectures on Anatomy of Peritoneum and Intestinal Tract. Royal College of Surgeons, 1885.

Next, with regard to the treatment of the case after operation.

The after-treatment, as regards the diet, was conducted upon Mr. Lawson Tait's method, the patient having nothing to eat or drink for sixteen hours after the operation, when he was allowed a few teaspoonfuls of hot water. This is undoubtedly one of the most important details of treatment, and it is necessary to give the nurse very exact directions about it. The patient after a time gets ravenous, continually imploring for food; and it requires all a nurse's firmness and good sense to manage such a case well and keep him quiet.

The thirst is best treated with sips of hot water; not merely warm water, but as hot as can be borne. That ice is of very little benefit is now generally believed, for no sooner is the ice melted than the thirst returns in greater severity than ever.

Injection of water into the rectum should be mentioned as a most valuable means of allaying thirst in these cases.

ON THE DURATION OF PREGNANCY.

BY

A. R. GRAHAM, M.B.

In the volume of the Reports for 1888, vol. xxiv. p. 167, Dr. Clement Godson records the somewhat remarkable opinion of two eminent London obstetric physicians on the duration of pregnancy, and himself combats their views.

Dr. Godson holds that labour commences usually 280 days after the last day of menstruation, or at a later date; very rarely before that date (p. 172). The two physicians from whose opinion he differs held that 278 days was an unusually long duration of pregnancy. Dr. Godson further expresses the opinion that pregnancy commonly commences immediately before menstruation is expected, and he agrees with the above-mentioned physicians, and with other eminent physicians whom he quotes, that menstruation during *early* pregnancy occurs not uncommonly.

Not feeling quite sure of my own accord with either of the somewhat conflicting views enunciated in the paper, I was tempted to analyse my own cases, in order to find how my limited experience would throw a light on the question. I find that I have fairly reliable records of the last day of menstruation in 236 cases, and I have reckoned the duration from that date to the termination—not to the commencement—of labour, as I have found it difficult in practice to keep accurate notes of the hour of the commencement of parturition. This would probably make my cases appear to average twenty-four hours longer than Dr. Godson's.

Of the 236 cases, 20 labours were completed on the 280th day, 83 on one of the eight days preceding the 280th, and only 48 on one of the eight days following the 280th; 53 cases were of less than 272 days duration, and 32 of more than 288 days. In other words, 20 labours kept their estimated time of 280

days, 80 exceeded their time, and 136 fell short of it. But in order to compare my cases with Dr. Godson's mode of reckoning, I ought to calculate to the commencement, not to the termination, of labour, and to this end I will deduct twenty-four hours from each of my cases as a rough method of arriving at this result. By this reckoning, only 80 out of my 236 cases reached a period of 280 days from the last catamenial cessation. These figures, although, of course, calculated on too small a series of cases to be of any great statistical value, are, so far as they go, quite antagonistic to Dr. Godson's view, as expressed on page 172, where he says that he almost always finds the confinement takes place at a *later* date than 280 days from the last day of menstruation—very rarely before—and often *much* later. But, again, my figures, such as they are, are antagonistic to the views of the two eminent London obstetric physicians quoted on page 168, for 100 out of my 236 cases exceeded 279 days, while these physicians gave evidence that “278 days was an unusually long period for the duration of pregnancy.”

As I said above, Dr. Godson holds that pregnancy commonly commences immediately before menstruation is expected. I do not clearly understand the grounds on which he founds this belief, excepting the frequency with which cases occur of labour commencing 300 or more days after the cessation of menstruation. Of my series of 236 cases there are only six reliable ones in which 300 or more days elapsed between the catamenial cessation and the termination of labour. The longest of these, viz., 305 days, was that of an anencephalous infant (alive up to the time of birth), in which I imagined that the delay in the commencement of uterine contractions might have been due to the absence of the normal cephalic pressure. The presentation in this case was practically the base of the skull.

In some women the term of gestation seems to be habitually longer than normal. I here give three instances, marking with an asterisk the labours in which, from suckling or other causes, menstruation did not occur, or its date could not be determined:—

Case A., seven pregnancies, 292, 290, *, 293, *, 293, 286 days.

Case B., three pregnancies, *, 293, 300 days.

Case C., seven pregnancies, *, *, 280, 301, 287, 276, 281 days.

These were all strong, robust women, of very active habits. Only thirteen of my series of cases were of less than 260 days, and some of these were probably premature labours, although there is no record of any suspicion of this being the case.

The under-mentioned cases of the series have an interest of their own.

Case D., menstruated in August; her husband came home for one night only, September 3rd and 4th. Labour commenced May 20th, 1 P.M.; terminated May 21st, 2 A.M.

Case E., menstruated end of August. Husband absent from August 27th till September 10th. Child born June 14th.

Case F., ceased to menstruate September 23rd, and returned home to her husband two days later. Labour commenced and terminated July 6th.

Case G., ceased menstruation November 6th. Husband at home only two nights, November 17th to 19th. Labour commenced and terminated August 20th.

Case H., catamenia ceased February 20th. Slight show again about March 2nd. Her husband (a sailor) was with her for a few hours about February 24th, and again from March 12th to 26th. Fœtal movements were first felt on July 25th, and a premature but living child was born on October 31st. The child survived certainly for some years.

Case I., catamenia ceased August 26th (?). Returned home to her husband on August 28th. Fœtal movements first felt December 16th. Child born May 21st. She had had two previous pregnancies, one terminating at eighteen weeks, the other at full term.

In Case D., gestation must have lasted 261 days.

In Case G., gestation must have lasted 276 or 277 days.

In Case I., gestation cannot have lasted more than 268 days.

In Cases K. and L., there occurred one remarkably scanty show 18 and 26 days respectively after the cessation of regular menstruation. In K. labour occurred 285, and in L. 293 days after such cessation. It is by no means easy to say whether such cases as these are to be regarded as cases in which conception has taken place immediately before a menstrual period.

Probably surgeons in large practice in our great seaport towns could throw much light on the duration of pregnancy, as they must see many cases where the husband is only at home for a day or two at a time. I merely contribute a very small quota in the above-mentioned cases.

My figures tend to show that considerably more labours occur in fewer than in more than 280 days from the cessation of menstruation; but that over 300 days is not a rarely recorded period.

In this list the sex of the infant is nearly always recorded; and a birth of twins occurs four times. There are 126 male births, of which 40 are among the periods exceeding 280 days from the last menstruation, and 13 are of 290 days and upwards. The female births number 115, of which 35 exceed 280 days, and

11 are of 290 or more days. The abnormal proportion of male births which the series shows is therefore very nearly exactly maintained in the longer pregnancies. This short series, therefore, gives no direct confirmation of the view that the length of the pregnancy depends partly upon the sex of the foetus. In the four cases of twins there were five male and three female infants, only one case being of different sexes.

A CASE OF CARDIAC DISEASE COMPLICATING PREGNANCY AND LABOUR.

BY

C. PERCIVAL WHITE.

Eliza L., *æt.* 39; married ten years; three children; last in January 1885. She has had three miscarriages since this date—one in 1886, the second in 1887 at two and a half months, the third in June 1888 at two months.

She states that she had rheumatic fever twelve years ago, and for the last five years has suffered from palpitation of the heart on exertion; but has always been able to do her housework till five weeks ago. During the end of the pregnancy with her last full-term child she had some attacks of dyspnoea, but the labour itself was uncomplicated. The patient was first seen on May 18, 1889, when she stated that she was quite well till five weeks ago, when she had to take to her bed owing to difficulty in breathing, which has gradually been increasing. She has had a cough for some months past, which has gradually been getting worse, and has lately expectorated some frothy sputum.

Condition on examination on May 18.—Patient was unable to rest in dorsal position, finding most relief when kneeling.

Lips dusky; *alæ nasi* in motion; veins in the neck dilated, but not pulsating. Pulse, 136; irregular and very weak. Respirations, 56. Temperature, 98.6°. Chest.—Heart: Apex-beat in fifth space, one and a half inches outside the nipple-line; no thrill; auricular pulsation distinctly felt in second left intercostal space. Dulness extends to second interspace on the left side, and half an inch to the right of sternum. Sounds: Presystolic and systolic murmurs heard at apex. Systolic murmur also heard all over cardiac area, and conducted outwards; audible in axilla and at the angle of scapula. Second sound heard indistinctly at apex; accentuated at base. No signs of aortic disease discovered.

Lungs.—Impairment of resonance in front up to the level of right nipple; good resonance over rest of chest. Vocal fremitus increased over same area as impairment of resonance.

Breath sounds.—Very harsh breathing, almost bronchial in quality, on right side up to nipple. Over the rest of chest the sounds are fairly natural, with a few scattered rhonchi and sibili.

Abdomen.—Uterus reaches to ensiform cartilage. Fœtal movements not felt. Fœtal heart not heard; dulness in both flanks.

Legs.—Considerable œdema.

Per vaginam.—Cervix soft; os uteri the size of a shilling.

Urine.—Contains a quarter albumen.

The patient had some labour pains this morning.

May 20.—Has been taking digitalis since yesterday morning. Pulse no longer irregular, 120. Respirations, 52. Temperature, 98°. Has had a little sleep. Legs more œdematous. Has expectorated blood-stained sputa. Urine contains one-third of albumen. Physical signs the same. She has had no more labour pains.

May 21.—Had a "show" at 11 P.M. last night, and labour pains commenced and recurred about every hour. Pulse, 120. Respirations, 48. Legs not so œdematous. At 10.45 A.M. the os was the size of a crown. Vertex found to be presenting in left occipito-anterior position. Digitalis discontinued. At 1.40 P.M. strong pains every five minutes. Pulse-rate decreasing during them from 126 to be as low as 90. Os dilating well; membranes ruptured spontaneously at 4.30, and the head made rapid progress. The condition of the patient now became most critical; pulse rising to 150, and breathing becoming very laboured. Child born at 4.55; placenta expressed at 5.15. Child was a still-born male, skin not desquamating. The mother's condition became still worse; pulse, 150, almost imperceptible at wrist; respirations, 80, and very shallow; face cyanosed. She was revived by subcutaneous injections of æther. The uterus, which was at first well retracted, soon relaxed, and there was some hæmorrhage, after which she seemed relieved, the respirations and pulse decreasing in frequency. At 9.30 P.M. she was able to lie down, which she had been unable to do for some weeks; pulse, 115, better volume; respirations, 50; temperature, 98.2°.

May 22.—Patient has had some sleep; looks a much better colour; pulse, 106, regular, better volume; respirations, 46. Physical signs: Heart's apex half an inch outside nipple-line; murmurs not so loud; second sound more clearly heard at apex.

Bronchial breathing heard behind at right base ; œdema of legs much less.

From this time she made an uninterrupted recovery. On May 27th the condition of the physical signs of chest was as follows :—

Apex-beat in fifth space, half an inch outside nipple-line ; cardiac dulness reaches to upper border of third costal cartilage, does not extend beyond the right border of sternum ; no auricular pulsation. The murmurs are, the same, but less pronounced. Percussion-note and breath-sounds over whole chest natural. Respirations, 36. Pulse, 84, regular, fair volume. She got up for the first time on June 4th. On June 12th the physical signs the same. Urine still contained a trace of albumen.

This case seems worth reporting, as well illustrating what a severe complication heart-disease may be of pregnancy and labour ; it also emphasises several points referred to by Dr. Angus Macdonald in his work on "*Heart-Disease during Pregnancy.*" As is common in cases of severe cardiac disease complicating pregnancy, labour supervenes before full term. In the case in question, the last monthly period ended on August 25, 1888, the child being born on May 21, 1889, thus making labour premature by ten days ; but from the condition of the infant I am inclined to think the patient cannot have been more than eight months pregnant. It is interesting to note that she was comparatively well till towards the end of pregnancy, when the destruction of the equilibrium, which had been established in the chronic heart-disease by compensatory arrangements, took place, and the usual distressing train of symptoms supervened. Again, as is often the case in mitral stenosis complicating labour, death nearly occurred after the completion of the third stage. The irregularity of the pulse during labour was also a very marked feature in the case, it soon becoming regular again after labour, as is shown in many of the cases reported by Dr. Macdonald ; the presence of a large quantity of albumen in the urine was almost as transitory. This patient was singularly free from pulmonary trouble considering the severity of her cardiac disease, especially as there was well-marked mitral regurgitation as well as stenosis, the physical signs in the lungs having entirely cleared up ten days after labour.

ON WHITLOW.

BY

W. MORRANT BAKER.

It may be thought by some that it is impossible to say anything fresh on the subject of such a common disease as whitlow; and it is not unlikely that many, after reading the following brief notes, may feel confirmed in that opinion. At the same time, I venture to believe that this disease is one of those which, from its very frequency, is apt to be treated too often in a routine fashion; the same methods being employed for every variety of it, and, as a consequence, with frequent damage to the usefulness and integrity of the part affected.

The special points to which I wish to draw attention are the following. The usual or routine fashion of diagnosing and treating whitlow; the difficulty which often exists in diagnosing, with any certainty, inflammation with impending or actual suppuration within the tendon-sheath (true thecal whitlow) from cellulitis (including under the latter term, for the present purpose, all forms of erysipelas and phlegmonous erysipelas affecting the tissues of the fingers and hand, but not specially affecting or not affecting at all the sheaths of the tendons); the methods of diagnosis; and the necessity of making such diagnosis, in order that the calamity of injuring the patient by surgical treatment may be avoided.

It will be well, in the first place, to quote what is said on this subject in some of the leading text-books, that one may not be accused of setting up an imaginary position for the sake of assailing it.

The usual opinion regarding whitlow is very clearly given by Mr. Erichsen.¹ "There are four degrees of whitlow. In the first, the inflammation commences in the cutis or immediately beneath it." "In the second degree, the mischief commences deeply in the fibrous

¹ Science and Art of Surgery, 8th edit., vol. ii. p. 928.

fat of the pulp of the finger." "In the third degree, the sheath of the tendon is affected, either primarily or secondarily, by burrowing of pus into it, giving rise to the condition known as thecal abscess." "In the fourth degree, the mischief either commences beneath the periosteum of the unguis phalanx or rapidly extends to it, causing necrosis of the bone. These degrees are occasionally distinct, but more commonly in clinical practice they merge into one another."

With respect to treatment, when milder measures have failed, Mr. Erichsen adds, "A free incision should be made in the palmar aspect of the finger, its length and depth proportionate to the extent of the inflammation." "The incision may be done safely, by making the incision toward the head of a metacarpal bone, upon the bone itself and parallel to its axis, so as to avoid the digital interspaces. The sheath of the flexor tendon should be spared if possible; but if it be affected, it must be freely opened, or the tendon will certainly slough and the finger be permanently stiffened. This incision should be made from the proximal towards the distal end of the finger, so that if the patient involuntarily draw it back, it may meet the knife."

Mr. Timothy Holmes, writing of thecal whitlow,¹ remarks, "An incision is urgently needed, whether suppuration has or has not taken place. The relief to the pain and tension afforded by a free and deep incision in the middle line of the finger is decisive and immediate; and if the incision be made before the abscess has formed, so much the better for the integrity of the part. If, on the other hand, it is delayed, the inflammatory effusion will separate the tendon from the vessels which supply it and cause sloughing of the tendon; or suppuration will penetrate the periosteum, producing necrosis of the phalanx, or may even burrow backwards into the palm of the hand and destroy the whole function of the member."

Speaking of the treatment of inflammation of tendons, Mr. Bryant remarks,² "A clean cut should be made as soon as hardness of the parts, with external evidence of inflammation, appears. If pus escape, the practice must be good, but if serum only, the operation will tend to arrest the progress of the affection at its onset, prevent the formation of pus, and probably check the disease. The incision should be vertical over the middle line of the finger, and the centre of the tendon."

Mr. John A. Morgan writes³ with reference to treatment of all forms of whitlow excepting the cutaneous, "*Early* incision through

¹ A Treatise on Surgery, by T. Holmes, M.A., Cantab, 5th edit., edited by T. Pickering Pick, 1888, p. 526.

² Practice of Surgery, 4th edit., vol. ii. p. 317.

³ Heath's Dict. of Surgery, vol. ii. p. 813.

the affected part, in the middle line and down to the bone, is the only means of allaying pain and of preventing extension of the disease."

In the article in Holmes's "System of Surgery"¹ it is said with regard to treatment, after preliminary measures have failed to give relief, "A free incision must be made along the centre of the finger, and though there may be but very little or no pus in the sheath, yet the division of the tensely strangulated structure, and the escape of blood and serum, afford the greatest relief."

From the above extracts it may be assumed that the usual treatment of cases in which the symptoms point to the presence of pus within the sheath of the flexor tendons is to make a free incision into the sheath along the centre of the finger; and, in cases of doubt as to the actual presence of pus, the same incision should be made, on the assumption that such treatment may prevent its formation. And, in the face of advice coming with such high authority, I am not prepared to say that the practice is always wrong; although I venture to think it may be improved upon, even in cases in which the theca is unquestionably affected. But the fact that a free exposure of the flexor tendons by incision in cases of whitlow will, in most instances, be followed by their sloughing, whether suppuration has actually occurred within their sheath or not, is scarcely, I believe, sufficiently accentuated; and the extreme importance of not incising the sheath, when it is healthy, is not sufficiently recognised. There is, indeed, much truth in Sir William Fergusson's remarks on this matter.² Speaking of the free incisions often made in cases of whitlow, he adds, "In some of these cases it may be a question whether the disease or the knife has caused most mischief; but even to admit the latter free of blame, the surgeon and patient too should be prepared for bad consequences when the inflammation has gone so far as to necessitate this practice. I have often, in such cases, seen the sheaths so opened as to permit the tendons to start to the surface of the wound. At first they have appeared quite healthy, but, ere long, sloughing has taken place. Now although sloughing may take place in tendons irrespective of any interference with the sheath, and although sometimes, when tendons are exposed, they do not slough, I have never seen that the surgeon has had much cause for congratulation after such free use of the knife."

The exposure of a tendon in a healthy condition of the surrounding parts, as in the various injuries of the hand with which every surgeon is so familiar, is frequently followed by

¹ J. Lockhart Clarke, re-edited by Arthur E. Barker, vol. ii. p. 175.

² A System of Practical Surgery, 5th edit., 1870, p. 199.

complete recovery and restoration of function, and is quite a different matter from its exposure by the knife when all the neighbouring tissues are in a state of inflammation, often of a septic character.

These facts lead naturally to the consideration of the question, "Under what circumstances is it necessary to incise the tendon-sheath?" or, in other words, to the consideration of the extreme importance of any means of diagnosis by which the calamity of incising it unnecessarily may be avoided.

The difficulties in the way of deciding this point—whether, on the one hand, the inflammation essentially affects the theca, originally or by extension, or, on the other, is confined for the most part to the adjacent tissues—are in many cases great. In both groups there is usually a considerable amount of swelling, with acute pain and fever; and it is impossible, in many cases, to detect such limited tension or fluctuation as would indicate the position of the small quantity of retained pus (even if it exist) which may be the chief cause of the patient's distress. To wait until its situation becomes obvious is to leave the patient unrelieved from intolerable pain and, perhaps, until the finger or hand is irreparably damaged. To lay open the sheath of the tendon, when this measure is not required, may, on the other hand, ensure the occurrence of the mischief which we are most anxious to prevent.

Now, I believe we may with care often get a very good notion of which of the two groups of cases we are dealing with. But we must begin by discarding the common idea that cellulitis, at its commencement, has a *special* affection for the tendon-sheaths, and that the latter must be incised to *prevent* their becoming affected. They are often, unfortunately, involved with all the other tissues, when sloughing is extensive, and when relief has not been given early enough to the tense and poisoned tissues; but they are not always involved, at an early period, unless the inflammation begins in them; and if incisions are made freely through the skin and subcutaneous tissue, they may and often do escape. In the case of so-called phlegmonous erysipelas or cellulitis of an arm or leg, the surgeon gives relief by free incisions; but he does not proceed at once to lay open the sheaths of all the muscles and tendons, and thus expose them to the poisonous fluid which is infiltrating the limb. Why should he, in a like case, *begin* by laying open the tendon-sheath of a finger? The answer is to be found, I venture to think, in the fact that it is almost impossible in many cases to tell whether the case is one of cellulitis or of true (primary) thecal whitlow; and that, in the uncertainty, all the cases are treated alike.

The history is sometimes (more frequently, I believe, than is

commonly supposed) a valuable guide both to diagnosis and treatment. When, for example, there is a clear history of a punctured and probably poisoned wound, as in so many of the instances in which surgeons and nurses are the patients, and when the puncture has not reached the tendon or its sheath, we may assume that the latter structures will suffer only by extension of the cellulitis to them, and that this extension may never occur if relief by incision of the superficial parts be given in good time."

I feel afraid to say that there is no *special* affection for the interior of a tendon-sheath on the part of the poison introduced no farther than the skin or subcutaneous tissues,—no more special desire, that is to say, to enter this than other structures, because I know that this is contrary to the belief of many surgeons whose opinions are entitled to the greatest respect. But having carefully watched for this in numerous cases, I can at all events state as a positive fact, that very often indeed the poison does not affect the theca injuriously if the latter be left by the surgeon intact, even in cases in which one or more fingers and the hand, wholly or in part, appear to be involved.

Of course, everything depends on whether the tendon-sheath is or is not affected. If the theca is tightly distended with fluid, it must be opened; although the usual manner of doing this is, I venture to think, not the best. If, however, there is no distension or actually present inflammation of the sheath, the laying it open resembles the laying open of a knee-joint, in the case of inflammation and suppuration around it, in order to prevent it from suffering damage.

It has been just said that it is extremely difficult, in many cases, to decide whether the disease with which we are dealing has already involved the flexor tendons of a finger and their theca. It is, therefore, important to utilise anything that may help in the diagnosis; and I would mention here a symptom to which, so far as I know, attention has not been drawn, but which is often of much value. I refer to the power, or the loss of it, on the part of the patient, of flexing voluntarily the *distal* phalanx of the affected finger. In the case of true thecal whitlow, the movement of the tendons is, at an early stage of the disease, usually restrained or abolished, either from the instinctive restraint of muscular contraction on account of the pain caused thereby (as the movement of the chest-wall may be restrained in pleurisy), or because the normally polished surfaces of the tendon and its sheath have become roughened or partially adherent.

The manner of testing this point is important; and, without a little care, the observer may be misled. In a normal condition of the hand and fingers, it will be noticed that the *terminal* phalanx cannot be voluntarily bent, until the *second* phalanx has been to

some extent bent also, unless the second phalanx is by some means fixed and a *point d'appui* is thus provided for the action of the profundus tendon; and it is scarcely necessary to add that in an inflamed condition of the finger, such as we have in whitlow, the power of bending the terminal phalanx is still further restricted by the swollen condition of the soft tissues, quite apart from any abnormal condition of the tendons or their sheath. In order, therefore, to estimate the movement of the tendon within its sheath, the second phalanx of the finger affected must be fixed; and this is best done by the surgeon placing his thumb on the front of the second phalanx, and the end of one of his fingers of the same hand on the back of the first. The patient is now asked to bend his finger; and the surgeon will be able easily to recognise both by sight and feeling the range of movement, if any, still possessed by the tendon. If the terminal phalanx remains motionless, the presumption is that by some means the profundus tendon is tethered. But, in many cases, the observer, if he has not tried this test before, will be astonished to find how strongly and effectually the flexor tendons can be made by the patient to act, even when the finger looks hopelessly spoiled; and, under such circumstances, the sheath should not be incised without the strongest assurance of the presence of pus within it.

I have ventured to deal with this symptom, which may seem trifling, in some little detail, because I believe it to be of much importance. It has occurred to me, over and over again, in examining fingers affected with whitlow, and in which all the tissues are too much infiltrated with inflammatory products to enable one to get any idea of the real state of the tendon-sheaths, to fall back on this test of the condition of the tendons, and to find that they are still unaffected. Of course, under such conditions, incisions must be made and freely. But the theca must be carefully avoided, and not aimed at. If the case is one of those sweeping attacks (usually sub-periosteal) in which all the tissues are so injured that ultimately necrosis of bone will occur, all the relief possible will be obtained by free incision down to and through the periosteum, in situations where this can be reached, without free exposure of the tendons. But it is not with such cases as these that I am here dealing. Unfortunately, the tendons will in any case probably perish with the bone, unless the terminal phalanx alone is involved, whether the sheath be opened or not. The cases to which I am desirous of drawing attention are the many in which inflammation, frequently septic, is extending in the tissues, but in which, contrary to all appearances, neither bone nor tendon-sheath is essentially involved.

As my object in this paper is merely to ask for a reconsideration of the surgical dictum that early and free incisions should be

made into the tendon-sheaths in all cases in which they may possibly be affected; and to assert, as a fact, that in very many cases of *supposed thecal* whitlow the disease is not essentially thecal, I do not propose to enter on the whole subject of the treatment of whitlow, true or false. The general principles of surgery must be, here as elsewhere, our best guide. But I would add one remark as to the best place for the application of the knife, when the opening of the theca cannot be avoided; or, in other words, when the case is really one in which pus or other fluid is confined within it.

I have already expressed an opinion that the usual method of incising the theca is not the best. It is true that a free incision along the front of the finger gives the most complete exposure of the inflamed internal surface; and were this the only consideration, it would be above criticism. But, unfortunately, while the immediate effect is good, the ultimate result is very often calamitous; that is to say, the patient recovers with a finger of which the flexor tendons are either hopelessly tethered by adhesions, or in which, from their sloughing, they are absent altogether. Frequently, moreover, there is enough scarring and contraction, or even withering of the finger to be objectionable, apart from the disablement, more or less, arising from its stiff condition. Can these results, even in the case of true thecal whitlow, be avoided? Of course, not always; but I believe that in some cases they can; and that sufficient relief may be given to the tense and suppurating theca by less "heroic" measures than the free incisions commonly recommended. On the whole, I am disposed to think that the incision recommended by Mr. Christopher Heath is the best in most cases of thecal whitlow of a finger. In a lecture published in the *Medical Times and Gazette*, June 18, 1881, Mr. Heath, whom I am glad to claim as an advocate for the exercise of great caution with respect to opening the tendon-sheath at all, writes in reference to true thecal whitlow, "If it is not shortly arrested, incisions will be necessary; and it is here that mistakes are often made. The incisions, whether made along the centre or the sides of the finger, ought *not* to open the theca or sheath of the tendons, for if the sheath is opened in this position the tendons invariably slough, and the patient is left with a stiff finger. For this reason, incisions on each side of the finger are safer than one in the centre, that may unawares let out the tendons, which will look perfectly healthy at the moment, but soon become sodden and softened." Speaking of a case in which matter had formed in the sheath and required evacuation, Mr. Heath adds: "I proceeded to evacuate the matter by making an incision through the palmar fascia, over the head of the metacarpal bone. You will remember that the superficial palmar arch

never comes farther forward than the middle one of the three creases or lines found in the skin of the palm, and that the digital arteries arising from it, in the spaces between the flexor tendons, bifurcate some half-inch from the webs of the fingers. There is plenty of room then for a sufficiently free incision in the centre of any of the fingers below the transverse crease which marks off the finger from the palm, or, as I have said, over the head of the metacarpal bone. Matter flowed as soon as I had introduced my knife through the palmar fascia, and I enlarged my incision towards the wrist upon a director, to the extent of nearly an inch, without seeing anything of the flexor tendons. The result has been that the boy has gone out in a week with a perfectly useful finger, whereas, if I had opened the theca and exposed the tendons, they would now be suppurating, and the finger would certainly become useless."

With this advice of Mr. Heath's I quite agree; and although, when suppuration has actually occurred within the theca, adhesions more or less will probably form, as they will, in a suppurating joint or serous cavity, the ultimate result will be much better, with respect both to the aspect of the finger and its usefulness, than in the case of loss of the tendons, which so commonly follows their free exposure. The conclusions which I venture to deduce from the foregoing observations are the following:—

1. That true thecal whitlow, common as it is, is far less common than is generally believed.
2. That the diagnosis of *thecal* whitlow from other forms of the disease is often most difficult.
3. That an important guide in diagnosing the varieties of whitlow may be obtained by testing the range of movement of the flexor tendons, especially that of the flexor profundus.
4. That with reference to treatment, it is most important that thecal whitlow should be diagnosed from other forms of the disease which most closely imitate it, but in which the tendons and their sheaths are not essentially involved.
5. That the theca should on no account be incised as a prophylactic measure, but only when the surgeon is assured of its being affected.
6. That in all cases of (presumably poisoned) wounds producing whitlow, in which there is reason to believe that the original puncture or other injury did not involve the theca, the latter structure should not be assumed, without good reason, to be affected.
7. That in cases of true thecal whitlow, relief should be given to the distended tendon-sheath by a comparatively small incision into it, over the head of the metacarpal bone or thereabouts, and not by a free incision, exposing the tendons, along the palmar aspect of the finger.

ON
THE OPERATIVE SURGERY OF MALIGNANT
DISEASE OF THE SCROTUM.

ILLUSTRATED BY THE FURTHER HISTORY OF CASES
WHICH HAVE BEEN TREATED IN THE HOSPITAL.

BY

HENRY T. BUTLIN.

In Chapter xxv. of "The Operative Surgery of Malignant Disease" (London: J. & A. Churchill, 1887), under the heading "Results of Operations," I was forced to confess that our knowledge on this head, whether we consider the immediate or remote results of operations for cancer of the scrotum, is lamentably defective. Although many of the papers and books which I consulted spoke of the prognosis as not very bad, and pointed out how glands in the groin which had been enlarged at the time of operation had afterwards subsided, I was not able to discover any reliable account of the actual results of operation on a series of cases. Since the publication of the book, I have been very much interested in the subject of cancer of the scrotum, and hope at some future time to lay before the profession some account of the work in which I have been employing my leisure. In the meantime, at the request of the editors of our Reports, I shall endeavour to supply, from our own Hospital cases, such definite information on the results of operations practised for the disease as I have been able to collect.

A careful examination of the Surgical Registrar's notes, which were commenced about the year 1869, the examination of which is rendered easy by the admirable index which we owe to Messrs. Cripps and Bowlby, shows that 39 patients have been under treatment in the Hospital from that time until the end of 1888. For

the last twenty years the average number of different patients with cancer of the scrotum has amounted to about two a year. The cases have not, of course, been quite equally divided over the whole period, but they have been so evenly spread over it that there has been scarcely one year during the whole period in which there has not been one new case of the disease, and there is absolutely nothing to indicate that the disease is in the smallest degree less frequent now than it was twenty years ago. If the number of cases be compared with the number which are recorded in the Hospital statistics during the same years, the latter will be found to exceed the former, a circumstance which may probably be accounted for by the fact that several of the patients were inmates of the Hospital on several occasions.

On the question of employment I hope to speak at length at some future time, but may here state that the large majority of the patients were chimney-sweeps.

Thirty-eight of the 39 patients were treated by surgical operation. The case in which no operation was performed was that of a man, 29 years old, who had an extensive epithelioma of the scrotum and suppurating glands in the groin: the disease was considered to be beyond the reach of treatment. Of the 38 patients who submitted to operation, I have been able to discover a more or less complete account of the further history of 24, in addition to the information which the Hospital records afford of the immediate results of the operations in all the cases. It will be convenient to consider the results, as I have done for other parts of the body, under the following headings:—
1. Mortality due to operation; 2. Cures effected by operation; and, perhaps, 3. Are patients who are not cured benefited by operation?

1. *Mortality due to the operations.*—Two patients died of the result of the operations practised on them. The relative mortality was therefore about 5 per cent. The operation itself was trivial in both cases, for it consisted simply in the excision of a small cancerous patch, without even opening the tunica vaginalis. There was no excessive hæmorrhage in either case, and there was no complication, such as erysipelas or wound-poisoning. It would be difficult to find examples of a more trivial operation, and this undoubtedly is the explanation of the fatal result. For neither patient was a fit subject for operative treatment. The one was a man 35 years old, who suffered from dilatation and hypertrophy of the right side of the heart and from cystitis. He died on the twelfth day from pneumonia, which he contracted shortly after the operation. A post-mortem examination was made, but without

the discovery of any secondary growths or of any condition indicating blood-poisoning from the wound. The other was a man 79 years old, who sank slowly from exhaustion within two days of the operation. Neither of these patients would have been subjected to a more severe operation, for they were obviously unfit to undergo it. But the character of the disease of the scrotum, the knowledge of what it would in time become, and the smallness of the growth, induced the surgeon in each case to run the risk of a minor operation in the hope that the patient might have sufficient strength to bear him through.

In spite of the difficulty of thoroughly cleansing the skin and of maintaining the wounds aseptic, it is evident that operations on the scrotum are well borne and are seldom fatal. In 31 of the 38 cases, the operation consisted merely of the free removal of a cancerous warty growth, or plaque, or ulcer. In five the tunica vaginalis was opened and the testicle exposed, and in one of the five the disease, which affected all the right half of the scrotum, had penetrated so deeply that it was necessary to remove the testicle. In two cases the groin glands were removed, as well as the primary disease of the scrotum.

In no fewer than six of the cases in which the operation consisted merely in excising the disease of the scrotum, the excision was followed in the course of the same day by hæmorrhage, which necessitated a redressing of the wound and the ligation of one or two small vessels. But this may easily be understood of wounds made in such a tissue as the skin of the scrotum, in which the vessels are difficult to secure, and often difficult to find, when the patient is under the influence of an anæsthetic and the scrotum is exposed to cold, and where it is difficult to apply sufficient pressure to prevent the occurrence of such reactionary hæmorrhage. No serious consequences resulted from the loss of blood in any of these cases.

Of other complications of wounds, the only one which is noted is erysipelas, and this occurred in the case of but one patient, who lost, as a result of the violent inflammation, the whole of the skin of the scrotum.

I am surprised that there is so little to tell of wound complications in so many wounds of such a part of the body; for in all this it must be borne in mind that the number of operations practised on these 38 patients was many more than 38, since several of them were subjected to two or more operations.

2. *Cures effected by operation.*—Under this head I have to tell a much more agreeable tale than I had expected. Taking the

whole of the 39 patients, the results may first be tabulated as follows:—

Not treated by operation,	1
Died of operation,	2
Not traced after operation,	14
Died of return or advance of disease,	9
Died of other causes,	3
Alive during autumn of present year,	10
	—
Total,	39

It is, of course, disappointing that in so many as 14 cases the further history has not been ascertained. I have still hopes that I may learn what happened to some of these patients. But when the circumstance is taken into account that some of the patients were in the hospital twenty years ago, it is not surprising that they have been lost sight of, and no definite information can be obtained respecting them. I should not have traced so many as I have done had they followed other callings than that of chimney-sweep. That business is frequently handed down from father to son; and, if it passes to persons of a different family, the sweep still lives, if possible, in the same house as his predecessor. I believe all the London sweeps might have been discovered with little difficulty, were it not for the complete destruction of the quarters in which some of them had lived.

Leaving out these cases, and the one case in which no operation was performed, there remain 25 of which some account has been obtained. And in 13 of the 25 the account is satisfactory. It is not even certain that the nine persons who are reported to have died of return or advance of the disease really did so. Owing to the situation of the disease, and the dislike of the patients and their friends to speak directly of it, it was in two or three cases impossible to obtain anything like a precise account of the immediate cause of death. The people seemed prone to consider that the cancerous disease, whether it outwardly appeared or not, was the real cause of death, in so far that they often spoke of it as having weakened the patient so that he never really recovered from its effects. In two cases I discovered that death, which was attributed to the return of the cancerous disease, was due to other causes. The widow of an old man said that her husband had never recovered the effects of the disease and operation, and that it had killed him at a later period. But on searching the register of the Rotherhithe Infirmary, where he had died, I discovered, by the kindness of the medical officer, that the cause of death was "bronchitis and exhaustion" from old age. The widow

of another patient also intimated that her husband had never recovered from the operation, which consisted simply of the excision of a small epithelioma of the scrotum. But I found from Dr. Inman of Hackney that he had died, apparently of phthisis, some six years after the operation, without recurrence of the disease, or affection of the lymphatic glands.

The satisfactory cases are as follows:—Six patients alive and free from disease, and two dead of some other disease than cancer more than three years after the last operation was performed, so that eight patients may be claimed, on the three years' limit, to have been cured of their disease by operation; three patients alive and well, and one patient dead of some other disease than cancer more than two and less than three years after the last operation; and one patient alive and well at the end of a year after the last operation. The longest periods of immunity are five years, six years (two cases), eight years, nine years, and ten years. The results will compare favourably with those for the removal of cancer of almost any other part of the body. One-third of the patients whose further history is known can be claimed to have been cured by operation on the same time-limit as we have been for some time past in the habit of employing in the consideration of the results of operations for cancer; and there are several other patients who in a little time may come to be regarded as cured.

The correctness of the diagnosis of cancer was not confirmed in every instance by a microscopical examination of the disease after removal, but it was proved in several of the cases.

The cases in which a cure was effected contain among their number one in which the disease had penetrated so deeply that it was necessary to expose the testis, and one in which the glands, also distinctly epitheliomatous, were removed from both groins. I saw this patient the other day, five years after the operation, and examined the scrotum and groins: he was in perfect health. Among the patients who have very closely approached the three-years' limit is also one man from whom the groin glands were removed on both sides.

The cases in which the patients were subjected to repeated operations have a special interest, for they throw a light on the life-history of the disease. Among the cured cases, there is only one of them, that of an old man, whom I discovered and examined by the kindness of Dr. A. H. Robinson in the Mile-End Old Town Infirmary. His first operation was about the year 1855, when Mr. Paget removed a warty cancer from the scrotum. The second operation was at least twenty years later, in 1876, when Mr. Marsh removed two or three indurated lumps from the old cica-

trix, in which they had been noticed about eighteen months. And the third was performed by Mr. Willett in 1880, who removed an epithelial ulcer, which had penetrated so deeply that it was necessary to expose the testicle to remove the growth. Nine years after the last operation the old man was quite free from any sign of cancerous disease.

Among the cases in which partial success may be claimed, and which may become in time wholly successful, are three in which more than one operation was performed. The first is that of a man 45 years old, whose penis was amputated in 1882 for the cure of cancer of the foreskin. In 1886 a "pimple" formed on the scrotum, was rubbed off, formed again, and slowly grew to be a hard raised plaque. It was removed in 1887, together with an enlarged hard gland in each groin. I saw this man two years and a half after the last operation, when he appeared to be in perfect health. Unfortunately the cancerous condition of the glands does not seem to have been proved by a microscopical examination, so that it cannot be distinctly affirmed that they were really cancerous. The absence of such proof is the more important on account of the comparatively large number of cases of cancer of the scrotum (in surgical literature) in which enlarged glands have been left untouched when the primary disease was removed, and where the enlargement subsided within a short period of the operation. Cases of subsidence of enlarged glands in association with cancer have been reported for many other parts of the body besides the scrotum, but they would appear to be of more frequent occurrence in connection with scrotal cancer than with the cancers of any other part of the body. On the other hand, there are two or three cases among those which have been in the Hospital in which the glands have been left untouched in the groin, either because they appeared to be too seriously diseased, or because it was hoped they might subside, and in which the patients lost their lives from the steady progress and ulceration of the disease in the groins.

A very interesting case is that of J. S., aged 42 years in 1880, from whom during that year a small warty growth was removed from the front of the scrotum. In 1882 a larger warty growth was removed from the same place. In 1883 another growth appeared in the scar and was removed. At this time the glands in the left groin were enlarged and hard. In 1887 he submitted to a fourth operation for the removal of a small recurrent tumour of several months' duration: the groin glands on the left side were still much in the same condition as when he had been last in the Hospital. I saw this man in October of the present year, nearly two years and a half after the last operation. He had not had

any further recurrence, and there was said to be no trouble in the groin ; but he was not disposed to allow me to examine him, so I am not able to speak with certainty on this point.

The last of the three cases is that of a man from whose scrotum a growth was removed at King's College Hospital in 1883. He remained well until the end of 1887, when a second growth appeared in the scar of the operation. Careless of himself, and busily engaged in his work, he allowed it to grow larger and deeper, until, in September 1888, it was found necessary to remove not only the whole of the right side of the scrotum, but the testicle as well. Happily there was no affection of the glands, and, when I hunted up the patient in September of the present year, I was told by his wife that he was in excellent health and at work.

There are two cases in which the end was not so fortunate. A man, 55 years old, was operated on in 1874 for a growth of the scrotum, uncomplicated. This was removed and speedily recurred, so that a second operation was necessary in 1875. Whether the disease recurred again in the scrotum or affected the glands in the groin I could not ascertain, but his son's wife told me he died some time after his second admission into the Hospital from another outbreak of the same disease.

The history of the other patient was much more curious. He was admitted into the Hospital in 1878 with a large mass of adherent glands in the left groin, discharging most offensive pus, and bearing all the characters of the malignant affection of the groin glands which occurs in association with primary cancer of the scrotum. He stated that he had had a cancer removed from the scrotum in 1858, and again about 1864 or 1865. And there was a note in the Hospital Registration of his admission into the Hospital in 1873, when Mr. Baker removed a deep-set cancerous growth from the scrotum, and was obliged in doing so to open the tunica vaginalis. There had been no affection of the scrotum since that period, nor could we find any disease of the old scars. And the note in 1873 distinctly stated that the glands in the groins were quite healthy, as far as could be judged by outward appearance and feel.

In other cases in which the disease was removed from the scrotum, the patients died from affection of the groin glands, without any recurrence in the seat of operation.

Such cases as these afford an answer to the third question which I had set down. For there cannot be a doubt that the successful removal of the primary disease afforded great relief to the patients who were at a later period killed by glandular disease.

I think the results which have been related in this paper warrant

the following conclusions on the operative treatment of cancer of the scrotum :—

1. That the prospect afforded by removal of uncomplicated cancer of the scrotum is very hopeful. The operation should be as early and as free as possible. There need be the less hesitation in very free treatment of cancer in this situation on account of the superabundant skin, the ease with which operations there are recovered from, and the speed and completeness with which the wounds are healed, and all traces of the operation are as nearly as possible obliterated. In this connection it is well to mention, as an encouragement to operators, that in the most successful of the cases, that in which the patient is alive and well at the end of ten years after the operation, the removal of the growth was followed by an attack of erysipelas, which caused the whole of the skin of the scrotum to die. It is not unlikely that this man owes his long immunity from the disease to the assistance which the sloughing lent to the knife of the surgeon. The skin was quickly replaced, and the testicles were covered in.

2. Cancerous affection of the glands need not deter the operator from removing the primary disease and the glands with it, if they are within the reach of even a severe operation.

3. Operations for recurrent disease may be undertaken with a far better prospect of success than is usually offered by such operations.

CLINICAL NOTES AND OBSERVATIONS

FROM THE

ESSEX AND COLCHESTER HOSPITAL.

BY

ALEXANDER WALLACE, M.D.

DISUSE OF LIMBS AFTER SEVERE DISEASE : A PSEUDO-PARALYSIS.

CASE A.

B. C., a girl, *æt.* 14, was admitted April 5, 1888. A dark-haired, pale child, quite unable to stand or walk. Was carried in a chair. She had had a severe attack of rheumatic fever, affecting her ankles, a year before, and has never been able to walk since. Expression despondent; phlegmatic. Her mother and self both doubted if anything could be done for her. When seated she could move her limbs freely. Sensation was good. So I expressed, to their surprise, a confident prognosis of recovery.

April 6.—Sleeps well. Bodily functions fairly well performed. There is much wasting of the muscles of upper and lower extremities and of the back. The muscles are soft and flabby. Sensation is unimpaired. There is no true paralysis. When lying on her back she can move and flex all her limbs. Reflexes are increased. Urine, *sp. gr.* 1030, acid, containing urates. Cardiac sounds clear. Ordered meat-diet, *ol. morrhuæ* ζ i. *ter die*, *ferri ammonio citras gr. iiss. ter die*, and Stohrer's battery (interrupted current) 5°, every other day, to the back loins, and lower extremities. Rubbing and kneading were also used daily, with swaying movements of arms and body.

April 9.—Weight, 5 st. 7 lbs.

April 17.—Weight, 5 st. 8 lbs. Improving. General health good. By the nurse's help she can stand a little, and extend one limb before the other. She now was ordered *tinct. ferri sesquichlor. ℥v.*

liq. strychniæ Miiss. out of bitter infusion, ter die. Battery continued.

April 20.—Battery to be used every day. She is now beginning to sit up. Arms and back much stronger.

May 1.—Still improving. Is now placed on the table, and made to kick her legs about at a ball strung up in front of her.

May 9.—Is now walking about with some slight assistance. Limbs much firmer and stronger. Weight, 5 st. 11 lbs. Mist. quina gr.i. ter.

May 17.—Uses a skipping-rope, and goes into the garden. Muscles of arms and legs in good condition. Reflexes still increased. Discharged as out-patient, and told to play about with other children, but not to go to school.

June 21.—Going on well. Gaining strength. Limbs fuller and firmer.

November 1.—She continues to improve. Is now a well-nourished, happy-looking girl, going to school, and once more enjoying life.

CASE B.

A. B., from the same village in which B. C. lived, a fair girl, æt. 10 years 10 months, was admitted an in-patient May 17, 1888. She and her mother had heard that Case A., contrary to all local expectation, was again walking about. She came in rosy and sanguine, determined to have a share in the same good fortune. Her history, as given me by her mother, was more serious. In August 1886 she had mumps or glandular swellings in the neck¹ (no sore throat); this lasted one week, and was followed by much wasting and prostration. She could swallow figs and dates, but could not take solid food. For a month she had severe pain in the head, brow, and forehead; no pain in back, but could then walk about the house a little. In November she was "taken off her legs," unable to walk or get on her feet; remained so all that winter and ever since. Cannot now walk or stand; has no pain; no loss of sensation; no feeling of pins and needles or cramps in lower extremities; reflexes normal; sight good; micturition and defæcation perfect; wasting is not confined to any one muscle or set of muscles, but is general, with flabbiness. Her mother states that there is less wasting now than was the case after the first seizure. She is rather a small child for her age, but cheerful and smiling; ready to do anything to get well.

May 18.—Photographs were taken, to show the wasting of the limbs, and their inability to support the weight of the body (3 st.

¹ I have a suspicion that this was a diphtheritic attack.

10 lbs.). An acid mixture and meat-diet were ordered, with rubbing and kneading of the muscles and exercise of the back twice daily, viz., movements and swaying to and fro of the spine, also crawling on her knees, to which she was accustomed.

May 22.—Add. *misturæ, liq. strychniæ* ℥iiss. ter die; Stohrer's battery (interrupted current), strength 5°, to be used every other day to the muscles of the back and limbs. She sleeps well; general health good. Urine acid, sp. gr. 1030, urates. Is a moderate feeder.

May 25.—Does not much like the battery; says the limbs feel stronger afterwards; the muscles react well. She is now able to advance one leg before the other when her weight is supported by the nurses holding her up under the armpits.

May 27.—Begins to go about alone.

May 29.—Can now stand, and begins to walk with slight assistance from a crutch; has more colour; muscles contract well when battery is used.

June 1.—Is now standing in front of me without support and playing with a kitten; runs about the ward without any assistance; enjoys her food. Ordered to go out of doors into the garden, and have a skipping-rope and a ball to play with.

June 5.—Weight, 3 st. 12 lbs. To have *tinct. ferri sesquichlor. ℥v.*, *liq. strychniæ* ℥iiss. ter.; battery and kneading as before. Walks and runs about, but with a little stiffness, especially about the muscles of the feet and when jumping.

June 9.—Battery, strength 8°.

June 14.—Weight, 3 st. 13 lbs.

June 19.—Battery, strength 10°; general health good; moves with more spring.

June 22.—Limbs are now firm and feel healthy.

June 26.—Discharged as out-patient; able to walk and jump about, but rather in a wooden way; told to play about with other children, but not to go to school yet.

November 1.—Has continued under observation; she has now perfect use of her limbs, which are firm and healthy; has grown rosy and happy; goes to school.

REMARKS.

These cases A. and B., which both left the Hospital, after a seven weeks' stay, in good command of all their limbs, after a period of disuse of one year and twenty months respectively, are good examples of a pseudo-paralysis which readily yields to treatment, but which, if not recognised, might easily be mistaken for either a form of infantile paralysis or a true paraplegia (myelitis), to the

great disadvantage of the patient, and the possible discredit of the medical attendant. The diagnosis is easy. Take the weight of the body off the limbs and then test for paralysis. Sensation and motion remain, but weakened by disuse; the wasting is general, not particular, so that the weakened limbs, unable to support the weight of the body, are incapable of movement. Remove the weight, and they move, though feebly.

In these cases, while the interrupted current, strychnine, and iron are useful, yet kneading and rubbing, with swaying movements of the back and limbs in a sitting position, are of the greatest help. A ball to exercise the arms and to kick with the feet while the patient is in a sitting posture, and a skipping-rope as soon as possible, are most valuable aids to treatment.

These cases likewise throw a side-light on the *modus operandi* of "faith healing." The first child, B. C., came in taciturn and despondent, not expecting to get well after a previous illness much milder than that of A. B. She *took five weeks* before she could walk with slight assistance, and six weeks before she could go out into the garden alone.

The second case, A. B., after twenty months' disuse of limbs, came in sanguine and hopeful—a bright, cheery child; and in *twelve days* after admission I was astonished by seeing her cutting about the ward by herself with only a crutch for occasional support, and in a fortnight after admission she was in the garden with her skipping-rope. She "came in determined to get well" (so she said), and with faith in her doctor, her recovery was rapid.

CASE C.

E. A., æt. 17, was admitted August 13, 1888. A girl, the youngest of five children. Has been in service as nursemaid. States that just before last Christmas she had rheumatic fever, which lasted one month, with pains all over her, but chiefly in the legs. Then for two or three months she got about. Sixteen weeks ago she had a relapse, with pains in back, legs, and præcordia: is rather better now, but suffers pain in knees, ankles, and thighs, and constant pain in body with headache. Catamenia reported regular. She cannot walk or stand. Says she feels pins and needles about her hands and feet. Ordered milk-diet, a tepid bath, and a mixture with sp. ammon. foetid. ℞. ter die.

August 14.—Has slept well. A rather slim, well-grown girl, with fair skin, dark brown hair, very flushed cheeks, eyes unduly bright; temperature somewhat elevated, 100°. Says she has pain in back and legs; face perspiring freely; tongue clean; pulse 108, small; has not taken food. Heart-sounds anæmic,

with prolonged musical systole; cardiac dulness normal; the wrists, elbows, shoulders, knees, and ankles are flexible, and compressible without pain; the muscles of the thighs and legs are the seats of pain; the spine is somewhat tender under pressure and under jar; there is tenderness over both ovaries and uterus; the mammæ are very tender: she complains of headache. Bowels not open; urine slightly acid, sp. gr. 1020, pale, no albumen. House-pills and medicine were ordered, with nepenthe ℥x. h.s.; and as the idea of spinal mischief or of rheumatic joint-affection was excluded by the examination, the case was looked upon as one of disuse of limbs complicated with hysteria, and Stohrer's battery (interrupted current) 15°¹ was ordered to be applied to the spine and legs, with kneading and rubbing of the limbs daily. Fish-diet. Pt. mist. ammon. fœtid.

August 16.—Bowels have been freely moved. Pains are less; face and hands are moist with perspiration of a slightly acid odour, but to a less extent than before. On getting her up, the muscles of thighs and legs are much wasted. She cannot stand without assistance, and when thus aided by two nurses, can only just put one leg before the other, even when all weight of body is taken off. Nepenthe has only been required for two nights. She was ordered to practise swaying movements of the back in bed, and to get up daily, and do her best to walk with assistance.

August 17.—Catamenia present.

August 21.—Sleeps better; face flushed; eyes bright; bowels open; appetite improving; tongue moist, with a thin white fur; skin perspiring; pulse 120, small, rhythmical. Pains less, but headache continues. Ordered an acid mixture, with liq. strychniæ ℥iiss., tinct. digitalis ℥iiss.

August 22.—Less pain, less perspiration, with slight rheumatic odour. Mammæ still very tender. Slight improvement in walking.

August 24.—Has managed with assistance to get round an oblong table, supporting the weight of head and shoulders by her hands on the table, but moves very slowly; reminds one of a sloth by her curious swaying movement before a limb is moved. Less headache, less pain; temperature 100°; tongue clean; appetite good; bowels open. Gets up in the evenings and is dressed. Ordered mutton-chop.

August 28.—Is up and dressed in the morning; headache slight; no pain in limbs; face pale; eyes less bright; aspect placid and composed. Pulse 120, weak. Gets round the table as before, by herself, very slowly; takes five minutes to go round, resting

¹ I think 15° to 20° degrees at this period really only equalled the 5° to 10° of the former cases.

on her hands, and seems to experience the most difficulty when swinging the leg forward. Temperature normal; no longer taken.

August 30.—No pain or headache; appetite good; bowels open; pulse 108; no mammary tenderness; no tenderness in thighs or groins.

September 4.—Weight, 6 st. 8 lbs. No headache; no pains; no tenderness. Pulse 120. Heart-sounds regular but weak; no murmur; systole prolonged, musical. Goes round the table in five minutes; the gluteal muscles seem at fault. Ordered the lumbar muscles, and large posterior muscles of the thighs, and the gluteal muscles to be well kneaded and galvanised.

September 10.—Now begins to walk alone; left foot moves forward more readily than the right. Pulse weak still. Weight, 6 st. 10 lbs. Ordered tinct. ferri sesquichlor. ℥x., liq. strychniæ ℥iiss., quinae gr.i., tinct. digitalis ℥iiss. ter die.

September 18.—Feels much stronger; walks up and down with less drag and more evenly. Weight, 6 st. 11 lbs.

September 21.—(Goes into a lower ward to divine service and into the garden with slight help up and down stairs. Walks now without a stick.

September 25.—Weight, 7 st. General health good; walks alone with more power; muscles of thighs and legs are now firm and in good condition.

October 2.—Weight, 7 st. 2 lbs. Catamenia just over; walks well; health good.

October 18.—Weight, 7 st. 2 lbs. Muscles firm and hard; moves freely and easily in all directions. Discharged to go to a convalescent home at the seaside.

November 17.—Have heard to-day that she walks about without any limp, and continues quite well at home.

CASE D.

E. C., æt. 27, admitted February 20, 1879.

Occupation.—Housemaid.

Family history.—Her father, two brothers, and a sister died of phthisis. Mother living; her left leg is contracted after rheumatic fever.

Personal history.—Had measles when young; scarlet fever four years ago. In March 1878 suffered with varicose veins; wore an elastic stocking.

Present illness.—On August 15, 1879, while in service at Clacton, in consequence of repeatedly having got her clothing wet, she contracted acute rheumatism (?). Was in bed till December—four months. In November she had no use either

in her hands or feet. In December she began to recover sensation in her hands, then gradually she was able to move them slightly. Legs remained without sensation or power of movement.

On admission.—Patient is rather thin and pale. Is able to move hands and arms, and to grasp fairly firmly with left hand; not so firmly with right. Sensation is normal; in legs there is only slight power of movement. Heart-sounds normal, though weak. Urine, sp. gr. 1030, high-coloured; deposit of lithates; no albumen nor sugar. Bowels open. Patient perspires freely.

Ordered milk-diet and mist. quinae gr.i. c. pot. iodid. gr.iii. t.d.s. Knees and ankles to be painted with iodine, as there was still a suspicion of rheumatic taint about the case.

February 26.—No rheumatic pains have been felt; slight stiffness of joints exists. Tongue clean; bowels open; appetite fair. Rep. mixt.; meat-diet.

March 5.—Some stiffness; no pain. Calves of legs much emaciated. Galvanism ordered twice a week to the wasted muscles.

March 13.—Muscles a little firmer; some stiffness. Ordered tinct. ferri sesquichlor. ℞x, liq. strychniæ ℞v. ter die. Galvanism every other day.

March 19.—Muscles firmer. Patient can now walk if held up. Galvanism every morning.

April 30.—Improving. Now walks about almost without assistance, but with much effort, and drags one leg round the other.

May 2.—Improving rapidly; walks about.

May 28.—Now walks alone with the aid of two sticks.

June 11.—Walks about with one stick.

June 18.—Walks about without any stick; has rather a peculiar waddling gait. Discharged. Weight, 7 st. 13 lbs.

Galvanism with the continued current was applied in the following way:—Patient took one pole of battery in her right hand; the other pole was placed in a bowl of water in which both feet were immersed.

REMARKS.

Case C. differs from A. and B. in that she had lingering about her traces of a recent rheumatic attack, as evidenced in the acid perspiration, slight rise of temperature, and muscular pains. There was also a further complication, as evidenced by the tenderness over uterus and ovaries, and in the mammæ. In fact, at first suspicion was aroused in the minds of those about her that she was more or less a hysterical malingerer, but that view was, after close examination, abandoned. Moreover, she expressed herself as anxious to get well, as ready to undergo any treatment

conducive to that end, and, I must add, she conducted herself accordingly. She was miserably thin, and her limbs weaker and more wasted than was the case with A. and B. These cases had preceded her in the Hospital ward, and I think that the hearing about them helped her in her endeavours to get well; for it was certainly hard work for her at first to drag her disused limbs round the table. These endeavours, however, were rewarded by rapidly increasing power in the muscles.

Case D. was that of an adult, who, according to her own account, had lost, during a prolonged attack of acute rheumatism,¹ the power both of sensation and movement. When in the Hospital we found sensation normal; power very limited. Here there was also a rheumatic (?) taint latent, which required careful watching. On March 5 galvanism was begun tentatively. A week later strychnine and steel were given, and then, as there was no return of rheumatism (?), the treatment was pushed, so that in about three weeks she began to walk about again, and six weeks later was discharged convalescent.

In this case, admitted February 20, special treatment was commenced March 5. She began to walk April 30, and on June 18 walked freely, so that her cure occupied about three and a half months. This, as compared with the other cases mentioned, seems protracted; but in this case there were no kneadings and rubbing of the limbs, no movements to and fro of the trunk and limbs, and galvanism was applied by the continued current through the medium of a bowl of water; so that not only were the muscles themselves less stimulated, but the patient's mind was much less occupied by the details of cure; and this I think is of great value in restoring tone to the muscles. Their own movements, the quiver of the muscles under the battery, the reviving sensation, all help to stimulate to fresh progress, to prevent weariness, to create an appetite for food and promote recovery.

CASE E.

H. B. O., æt. 30, but looking much older, red-haired, was admitted July 19, 1889.

Note.—She is married; has had three children, one only now alive; the last was born fifteen months ago, and lived eleven weeks. “She had a great loss” at the confinement, and “got up” very slowly. She has been ailing ever since, but the last two months is much weaker. She sleeps well. Tongue is clean;

¹ The history seems to me to be rather that of a spinal attack than of a rheumatic attack, especially as sensation was lost, and that she was in bed for four months without cardiac or joint-complication.

appetite good; no cardiac murmur; pulse 100, small; bowels regular; catamenia reported normal. She is much emaciated and very weak; muscles of arms, legs, and thighs much wasted; grasp of hand very feeble; reflexes absent; no spinal tenderness; sensation good everywhere; motor power of legs when she is lying on her back, the weight of the body being taken off, is fair; but she cannot walk, or even stand, without assistance; temperature normal. Was ordered milk-diet with an alkaline draught containing rhubarb *ter die*, and Stohrer's battery 10° daily to be applied to the spine and wasted muscles; friction and swaying movements for the spine and limbs were also ordered.

July 23.—The catamenia being present rather freely, was ordered an acid mixture with liq. strychniæ \mathfrak{m} iss. and ext. ergotæ liq. \mathfrak{m} x. *ter die*. Mutton-diet.

July 26.—Going on slowly. She was ordered to commence moderate exercise along the ward, being upheld by the nurses, and tinct. ferri sesquichlor. \mathfrak{m} x. c. liq. strychniæ \mathfrak{m} v. with ol. morrhuæ \mathfrak{z} ii. *ter die*.

July 30.—A slight quiver of ankle clonus was observed. The muscles respond better to the battery. Pulse 120; grasp of hand very weak.

August 6.—Muscles are firmer and respond better; battery is now given at 20°¹ for half-hour daily. Hitherto she had exercised with the help of the nurses, but now she moved about alone, supporting her weight with one hand on a chair, which she pushed along in front of her. I set her now to walk round a table, resting her weight on her hands; this she did in about three minutes. To take porter half a pint daily.

August 13.—Sleeps well; appetite good; tongue clean; the muscles of the arms, calves, and thighs are much firmer, and respond well to the battery at 20° daily for three-quarters of an hour. She sits and rubs her own feet and legs, and walks round the ward with the aid of a stick, the nurse walking alongside in case of a fall. Urine, sp. gr. 1010, acid, no albumen; weight now first taken, 7 st. 4 lbs.

August 20.—Up all day; walks about by the help of two sticks only; has been into the garden; was helped down the stairs, but got up alone. Pulse 84, small; grasp still weak; sensation good everywhere; no knee reflex. Urine, sp. gr. 1014, acid, clear.

August 27.—Walks well with one stick only as a feeler; when the eyelids are shut has vertigo; pulse 84; goes out.

¹ The battery at this time was not very active. I should estimate that the real power should be indicated at from 5° to 10° instead of 15° to 20°.

September 3.—Stronger; shuts her eyelids and stands steady. Weight, 7 st. 6 lbs.

September 12.—Walks without a stick a little unsteadily; grasp good; no reflexes; muscles respond well and are in good condition. Weight, 7 st. 8 lbs. Was discharged to go back to her family.

September 26.—Came in a good condition as out-patient.

I scarcely hoped for much success with this patient. All reflexes were in abeyance; she looked so much older than she really was; she was also much older and more emaciated than any of the foregoing cases. However, she soon responded to the same treatment. After eighteen days' stay in the Hospital, we noted marked improvement, and after fifty-five days she left us in fairly good condition, walking with ease.

This group of cases, four of which have come under my notice during the last eighteen months, are a good illustration of a sequela of disease to which I cannot give a name, but which is easily diagnosed from grave spinal mischief by the presence of sensation which is perhaps impaired, by free movement of the limbs when the weight of the body is otherwise supported, and by the extreme muscular wasting. Prognosis is favourable. In treatment, the main point is to ensure the patient's confidence in ultimate recovery and to occupy the mind with details of treatment; rubbing and kneading of the wasted muscles with exercise pushed by degrees to the limit of fatigue, the interrupted current, cod oil, iron, and strychnia, complete what is generally a rapid cure, to the delight of the patient and friends, who are as proud to exhibit the newly recovered power of walking as a mother is of her baby's first attempt to walk. A skipping-rope and ball are valuable aids to convalescence. These cases also are a good illustration of how small a part drugs often play in the environment of convalescence. I mean, that without the other adjuncts mentioned, viz., confidence, hope, kneading, exercise, efforts to walk, mental concentration on the daily improvement, and the amusement and stimulation of the battery, progress would be much slower.

IRRITABLE PHARYNX.

There is a condition of irritable throat, or rather pharynx, not uncommon (but not, I think, described in books), which often comes under my notice—perhaps more common among young females than males. A patient will, on coming, complain of cough, worse night and morning, especially while dressing and undressing, very irritable, and generally dry, or perhaps with a scanty, difficult expectoration of tough mucus; if coming on in the night-time, then very troublesome and violent, preventing sleep. On auscultation, there are no indications of bronchitis; chest-sounds are clear throughout. You may notice that the voice is somewhat husky, and you learn that this irritable cough is allayed by food, that it is better after meals, and especially after hot drinks. You now examine the throat, and find the tonsils are scarcely enlarged, but they and the arch of the palate are somewhat reddened, and the mucous membrane is swollen, the uvula is red and somewhat elongated, but the degree of redness and swelling is much less than that of tonsillitis. The back-wall of the pharynx has, however, a very different appearance to the smooth somewhat pale-pink look of health. It is tumid, of a dusky (rarely a bright) red, and the mucous membrane *seems corrugated and thrown up in ridges, with probably two or three roundish, elevated swellings, like papules.* You may see small blood-vessels running up and down, and the surface often has a glazy, dry look, with a thin film of sticky mucus. Here, reaching upward somewhat behind the palate arch, and downward to the epiglottis, is the source of the irritation; and being behind the arch, it is out of the reach of gargles, but is in contact with all that is swallowed. The pulse is generally a little weak, bowels somewhat confined, liver not acting freely, urine somewhat deficient in specific gravity. There is generally a gouty taint underlying this complaint. You will further trace out that it is aggravated by dry air or dust, by a north or east wind, and is better when the wind is south or west; that when sitting in a room where gas is burnt, the cough is much worse; that it is relieved by demulcent drinks, such as barley-water, black-currant tea, hot milk, and that a hot drink early in the morning at rising is especially grateful, being provocative of the expectoration of a little tough mucus, after which the throat is much more comfortable, and the exercise of the voice, which previously had been difficult, and accompanied by much cough, now becomes easy.

For treatment, I am accustomed to mop the surface with a large pencil brush, dipped in equal parts of glycerine, hazeline, and tinct. ferri sesquichlor., rotating the brush up behind the arch and downwards to the epiglottis twice or thrice. This generally brings away tough mucus. The operation is less unpleasant than might be supposed if done quickly, and patients soon get used to its performance twice or thrice a week. Spraying the throat with astringent solution is also efficacious, but in most cases it is desirable to give tinct. ferri sesquichlor. internally, with an occasional pil. hyd. c. col., to recommend warm drinks and food locally soothing, an avoidance of dry air, dust, &c., and to carry about some glycerine lozenges or jujubes. Cocaine tablets are useful, and a compound sulphur tablet night and morning seems to do good. Different lozenges, some astringent, some demulcent, suit different people.

I have found this condition of throat very troublesome, often recurrent, and apt to become chronic, especially in those who have to use their voice loudly. I have only once found it accompanying a case of phthisis (acute), but it is often present in those whose livers are sluggish. The violence of the cough is apt to tease the patient not a little, and alarm the friends. People who have to talk much, and suffer from these throats, can do so more easily by taking frequent small sips of citric acid and water, slightly sweetened by glycerine or sugar, and the distressing cough at night may be held in check by sipping slowly glycerine and hazeline, equal parts, in small quantities. Kay's essence of linseed, taken the last thing at bedtime, is also very useful, with small doses of bromide and iodide of potassium daily. The following four cases, taken from among my out-patients of this summer, illustrate the affection as generally presented to my notice.

CASE I.

Elizabeth H., *æt.* 23, single, a tailoress (August 29), had been ailing four months with cold, sore throat, and anæmia. Tongue large, clean; bowels open; pulse weak. To take tinct. ferri sesquichlor. ℞x., liq. strychniæ ℥iiss. out of bitter infusion, and pil. aloes co. omni nocte; her throat presenting the usual characters, was mopped out as described above.

September 9.—She was also ordered a borax gargle.

September 30.—Better.

October 10.—Throat was well.

CASE II.

Henry M., æt. 27, a blacksmith (July 1), had been ailing four months, with dyspnoea. Had a dry cough all last winter without expectoration. Pulse quiet; tongue clean; bowels regular. Throat examined; has the characteristic appearance. It was mopped out once a week, and he was directed to take the mist. ferri sesquichlor. (℥x.) and a sulphur lozenge night and morning.

Under this treatment the throat got better gradually. On the 15th, the hoarseness continuing, his chest was examined, and proved healthy.

July 29.—We gave him potass. iodid. gr.iii., potass. bromid. gr. x. out of a bitter infusion.

August 8.—His throat was better, and we again returned to the steel treatment.

August 22.—His throat was so much better that he discontinued coming.

CASE III.

Elizabeth R., æt. 20, a housemaid where much gas was burnt (March 11), had been ailing three months with headache. Bowels costive; tongue coated; digestion impaired. Complaining only of her indigestion at first, she was treated with liq. strychniæ ℥iiss. out of a dilute hydrochloric acid mixture and pil. aloes co. Her digestion improved, but she now complained of cough, and (April 1) her chest having been examined and found healthy, her throat was looked at. The mucous membrane was found to be greatly thickened and ridged, very bright red colour, shiny, and excessively tender. She was put on the steel treatment, her throat mopped out every week, and two sulphur lozenges given daily. She improved slowly.

May 20.—She was put on potass. iodid. gr.i., potass. bromid. gr.x. out of bitter infusion, and pil. hyd. c. col. o. alt. nocte.

June 6.—She went back to the steel tonic, and went down to Dovercourt for a change of air.

July 11.—I gave her mother directions to mop out her throat every other morning; and at her last appearance (August 8), she was so much better that she was ready for another engagement. This was one of the worst cases I have had.

CASE IV.

Frances S., æt. 19, single, a tailoress, had (Aug. 12) been ailing two months with a dry throat, which presented the usual

appearances. She was sallow; tongue coated; bowels costive; appetite indifferent. She had her throat mopped out, and was ordered pil. hyd. c. col. o. alt. nocte; potass. iodid. grs.iii. out of alkaline mixture. Her mother had come with her; so she was given the glycerine, hazeline, and steel mixture, and was directed to mop out her daughter's throat every other day.

August 19.—She was better, and directed to take two sulphur lozenges daily.

October 21.—My note is, "Throat nearly well."

November 4.—Discharged as quite well.

The amount of discomfort and annoyance, to say nothing of sleepless nights, occasioned to the patients by these irritable throats is immense. Speaking is a burden, talking to a deaf person an agony; while the ears of surrounding friends are constantly being irritated by the incessant dry bark. The affection may be mistaken for phthisis or bronchitis; but the dry character of the cough, and the fact that it is relieved by an early meal, point to the throat as the seat of mischief; and once the pharyngeal irritation is recognised and treated, comfort is restored, anxiety relieved, and recovery initiated.

SUPPURATING HYDATID CYST IN THORAX.

Puncture—Discharge of 300 Hydatids—Recovery.

H. C., a discharged soldier, æt. 29, but looking ten years older, lately a labourer, was admitted January 1, 1889. He had served twelve years, chiefly in the Madras Presidency, India, where he had had good health. He came home from India four years ago; then had rheumatic fever (?), followed by dyspnœa and an enlarged abdomen;¹ he has since worked "on the land" in a neighbouring village till a fortnight ago, when, owing to the dyspnœa, he gave up work. His pulse was weak; he had œdema of the feet and ankles, slight ascites, a dry cough, with much dyspnœa, orthopnœa, and laboured heart-action. A large abdominal tumour was noted in the right hepatic region.

Examined next day. He had slept badly; had passed a healthy bilious stool; had some thirst. Pulse 100, weak. Respiration 24.

¹ Probably the commencement of the hydatid mischief.

Tongue clean. Urine, sp. gr. 1022, acid; turbid with lithates; no albumen. Over the left lung there was clear resonance with exaggerated breathing; the right lung was dull in front from the apex downwards; at the apex only was heard coarse inspiration and expiration; no respiration-sounds lower; behind no respiratory murmur was heard below the scapula; there was no expansion, but dulness extended over the whole lung; a vocal thrill was felt half way down laterally, and a hypodermic needle being introduced three inches immediately below the inferior angle of scapula, drew off about a drachm of clear serum. Aspiration was then tried, but no fluid followed the introduction of the trocar. Heart-sounds were laboured without murmur; there was dulness over the right hypochondrium down into the hypogastrium; no splenic dulness; dulness on left side extended low down in the hypochondrium. Temperature rising in evening to 103°. There is a history of previous syphilis with bubo.

The right half of abdomen is much larger than the left. He was ordered an ammonia mixture with potass. iodid. gr.iii. ter.; milk-diet; beef-tea; one lemon and gin ℥ii. daily.

January 4.—Slept badly from frequent cough. Sputa glairy, partially moulded, adhesive mucus, with small air-bubbles. Face swollen. Bowels not open. Urine, sp. gr. 1025, acid; turbid with lithates; no albumen. Skin moist, perspiring. Pulse 100, small. Respirations 25. Decubitus on right side; on right leg is a large old ulcer, size of a crown, with numerous coppery spots over legs having pustular heads. Heart's action laboured; no murmur; on left side the dulness extends upwards, displacing the heart somewhat; over left lung loud compensatory breathing is heard; there is dulness from the right clavicle to level of umbilicus in the axillary line, whence ascending a little, the dulness crosses to left side an inch above umbilicus, and extends upward to an inch below left nipple, reaching backward into the left lateral region; on the right hypochondrium the enlargement is more solid and firmer, also more tender than on left side; the surfaces of the tumour feel smooth.

Posteriorly respiration of left lung good; on right side there is a faint respiratory murmur heard all along the spine to base of lung, but no sounds are heard laterally; vocal resonance is somewhat accentuated. Microscopic examination of serum did not reveal the presence of hooklets; nevertheless the diagnosis pointed to hydatid cyst. He was ordered nepenthe ℥xv. h.s.; to have the right side painted with iodine, and to have mutton-diet.

January 8.—He has had no pain; sleeps better after his night draught; cough easier; appetite indifferent; bowels open freely; tongue has a thin white fur; abdomen less tense. The urine, sp. gr.

1015, with a trace of albumen, has been scanty, running down to 12 oz. in the twenty-four hours. The hard edge of the liver can now be detected in the mesial line of the epigastrium, and also to right of it, where there is tenderness and a brawny feel; the left hypochondrium is softer and more resonant. Stools of a loose character and light colour. Respiration-sounds were heard a little more plainly along the spine, and also laterally. The dose of potass. iodid. was increased from gr.iii. to gr.viii. His weight was 10 st. 10 lbs. Two pints of milk extra daily were added.

Measurements of chest were now taken:—

Vertically in the right sternal line	12 $\frac{1}{2}$ inches
" " right mammary line	13 $\frac{1}{2}$ "
" " right axillary line	14 "
Total circumference in the mammary line	39 $\frac{3}{4}$ "
" " of the right half	20 $\frac{1}{4}$ "
" " of the left half	19 "
" " two inches below the ensiform cartilage	41 "
" " right half	21 $\frac{1}{2}$ "
" " left half	29 $\frac{1}{2}$ "
" " at umbilicus	39 "
" " right half	21 "
" " left half	18 "

January 11.—Slept badly. Cough less troublesome. Sputa grey tough mucus, moulded, in watery fluid. Bowels open freely. Urine scanty. Some œdema of right face and about the back. There are night perspirations. Some thirst. Appetite fair. No pain. Pulse 100, small. Tongue clean. No dyspnoea. Respirations 20. His temperature had now risen to 102.4°, and fluctuation was detected at a spot 2 $\frac{1}{2}$ inches just below the nipple, with indication of pointing. A consultation was held, and my surgical colleague made an incision at the spot mentioned. A large quantity of pus was ejected violently, accompanied by several large decomposing hydatid cysts. He was ordered brandy \bar{z} iv. instead of gin.

January 29.—Altogether now about six pints of pus have been ejected from the opening, with over 100 large and small hydatid cysts; the right clavicular region is now tympanitic; air enters more freely. Pulse improving. Urine increasing in quantity, one-third more. Bowels freely open. Temperature has now dropped to 99°. Was ordered an acid mixture with quinae gr.iss., liq. strychnia \mathfrak{M} iss., tinct. digitalis \mathfrak{M} iii., with mutton-diet, one pint extra-strong beef-tea, one egg, and two pints milk daily.

February 1.—Sleeps well; cough all but gone; sputa none; no hydatid cysts were at any time expectorated, or passed per anum. Tongue cleaning rapidly. Stools lately have been of a dark-

greenish or dark-slatish colour (old broken-down solid fæces). No œdema. Pulse 72, weak, irregular. Ulcer on leg healing. Temperature has now dropped to about 99° at night, normal in the morning, and the urine has risen for the first time to a normal quantity. Percussion is clear under the right clavicle, tympanitic over mamma, with a feeble respiratory murmur, almost doubtful. Voice-sounds clear. There is depression of chest-wall under clavicle, with a distant tinkling sound. Percussion on right side gives dulness from mamma to umbilical level; clear resonance on left side; behind, respiratory murmur is heard from scapula to base along the spine laterally; in the middle and lower lung cavernous breathing with amphoric voice-sounds are heard. He was now ordered porter *oi.* with brandy \bar{z} ii. daily.

February 5.—More cysts have been ejected from the opening daily by coughing; about 100 in all. Pulse 100, small. Ulcer on leg healing. Bowels now steady. Urine free.

February 8.—Sleeps well. Appetite good. Tongue clean. No dyspncea; no pain. A few cysts are ejected daily with some pus. No bile or bile-staining observed in the ejected matters. At a consultation the question of a counter-opening behind was negatived; but it was determined that as the cavity, as indicated by a sound introduced, passed backwards and upwards towards the scapula, to get the patient to sit upright, so as to assist drainage by that position.

February 12.—He has been sitting up four hours daily to change his position. The wound still discharges thin creamy pus, about *oi.* in every twenty-four hours. Pulse 120, small. Bowels open. Appetite good. To have *ol. morrhue* \bar{z} i. bis die, and quinine mixture as before.

February 15.—Temperature has risen a little, to about 100°. Passes daily about three-fourths of a pint of pus, slightly tinged with bloody serum. About twelve cysts, some large, have been ejected this week. Can sit up four hours daily. Sleeps well. Appetite good. Tongue rather white and dry; some thirst. Pulse 84, better volume. Leg healing. There is a clear percussion-note above nipple with hyper-resonance from below to the opening out of which air is expelled on coughing with a trumpet-note. From clavicle to nipple respiratory murmur is feeble. There is no tenderness; edge of liver felt in its normal position. Behind, no amphoric note is heard; right lung somewhat dull, with a feeble respiratory murmur from apex to base; voice-sounds slightly accentuated.

February 22.—The temperature has risen a little the last two evenings. He sleeps well, with slight cough and night-sweats. About half a pint of pus, rather more tinted, is discharged daily. Tongue clean. Appetite good. Pulse 100, moderate volume, soft.

Two large hydatids have passed this week. In the recumbent position air but no pus is evacuated; on sitting up and coughing, pus is ejected, sometimes forcibly. He sits up six to eight hours daily. Pressure three-fourths of an inch above the orifice stops the exit of air. From orifice to nipple there is hyper-resonance; above nipple, normal lung resonance. The liver edge is felt three inches below the orifice; below that is bowel-resonance; above that is modified resonance (air in cyst?). Outline of waist much less rounded.

Total circumference at umbilicus	. . . . .	38	inches
" " right half	. . . . .	18	"
" " left half	. . . . .	20	"
" " two inches below ensiform cartilage	. . . . .	39	"
" " right half	. . . . .	19	"
" " left half	. . . . .	20	"
" " at nipple	. . . . .	36 $\frac{1}{2}$	"
" " right half	. . . . .	18 $\frac{1}{2}$	"
" " left half	. . . . .	18	"
Vertically, dulness at the axillary line measures	. . . . .	3	"
(probably there is air in cyst)			
" " at mammary line measures	. . . . .	6	"
" " at sternal line	"	6 $\frac{1}{4}$	"

Auscultation: good respiratory murmur from clavicle to nipple, but not below; amphoric breathing is faintly heard. Posteriorly, the upper third is dull, but there is resonance over middle and lower third. Near spine there is a feeble respiratory murmur from apex to base near the spine, but in axillary line no respiratory murmur is heard from edge of scapula downwards.

February 25.—In consultation, a long probe was passed with a little difficulty into a large cavity, seven inches in depth, running backwards and upwards; the probe took a direction parallel to the mesial line of the body. Ten oz. of a sol. of tinct. iodi 3i. ad oi. aq. was injected. A little pus and some air escaped on coughing, and made him feel faint. At 6.20 P.M. the temperature, which had been gradually rising for the last four days, reached 104.4°, its highest point. Had much cough after the injection; ejected from the orifice greenish purulent mucus, not mixed with air; in the afternoon he got up, and coughed up or vomited gradually 14 oz. of greyish grumous fluid.

February 26.—Did not sleep well. Appetite indifferent; thirsty; no sickness. Pulse 84, small. Tongue clean, dry. Skin moist, with a slight icteric tint. Some cough. Had a slight rigor last night. The sound (uterine) passed slowly and carefully backwards from the opening and upwards, without giving pain, to the extent of nine inches. Up to 6 $\frac{1}{2}$ inches it could not be rotated, but at that depth it described without being

impeded an arc of about five inches in diameter. The arc described had its rounded edge towards the ribs. Pushed farther on, it could not be rotated. The point was described by the patient as felt under the angle of the left shoulder-blade, but could not well be felt through the parietes; nine inches, measured externally from the wound in the direction in which the sound passed, just reached the inner edge of the thoracic wall. Was ordered mist. ammoniæ c. tinct. cinchonæ ʒss., tinct. digitalis ℥iii., sp. chloroformi ℥xx., 6tis horis. Brandy ʒv. daily.

March 1.—Slept well. Has a sallow look. Appetite good. Cough and expectoration nil. Pulse 90, rather smaller. After consultation, the direction of the cavity being considered to be upwards and backwards, but not directly under the angle of the scapula, the opening was enlarged, and a long enema tube (india-rubber) passed in; 13 oz. of warm carbolised water were injected, 6 oz. of which came out, a sweet-smelling, slightly coloured fluid, and during the night 7 oz. more of the same were passed.

March 5.—Six hydatid cysts passed, size of a Tangerine orange.

March 20.—Passed an hydatid cyst.

March 22.—Discharge of pus when he gets up has lessened to about 2 oz. Temperature, which ran up to 100° on the 19th, has become normal. He sleeps well. Has slight cough. Tongue clean. Appetite good. Pulse 84, small. Leg ulcer all but healed. Abdomen resonant to four inches above umbilicus.

March 29.—Sleeps well. The wound discharges in the morning, with the change in his position, an orange-coloured serum with a purulent deposit. Tongue clean. Pulse 84, small. Has a better colour. Walks about and breathes more easily. Put on meat diet; one egg, one pint milk, one pint porter daily, instead of brandy. Weight now 10 st. 12 lbs.

April 9.—Temperature is normal.

April 20.—Has no pain; no cough. Goes out. Passed an hydatid cyst this morning. Pulse 84, fair volume. Weight, 11 st. 2 lbs. A slight rise of temperature, 99.4°, was noted to-day.

April 26.—No pus has passed the last three days, only about 1 oz. of serum. Sleeps well. Pulse 60, fair volume.

May 3.—Serum only, no pus discharged this week. When he lies on his back he can feel the end of the tube inside.

May 7.—Uterine sound causing a little pain inside, passed 6½ inches only, with its curve in a direction parallel with the curve of the chest. When three inches deep, it seemed to pass through a narrow channel; it could scarcely be rotated at all, and the end of the passage was very tender. After this the air entered and was expelled more noisily and more freely.

May 22.—A weak solution, 6–8 oz. of iodine and water, was

injected and retained a few seconds; it then returned without affecting the patient in any way.

May 29.—Seven small hydatids were expelled and the injection repeated. No cough; no pain.

May 31.—Injection repeated.

June 1.—Seven more hydatids passed, small and white.

June 2.—Four oz. iodine and water injected; after that about twenty hydatids, all small and white, passed.

June 3.—Another score hydatids passed.

June 4.—Six oz. injected; came back quite clear; no hydatids. Appetite not so good. Does not sleep so well. Some pain from right hip to knee. Pulse 84, rather small. Weight, 10 st. 11 lbs.

June 7.—One hydatid passed. He is rather sallow.

On June 8, 11, and 14, the iodine solution was injected and returned clear. No more hydatids passed. No pus or serum passed. Health good.

June 21.—One injection this week was retained thirty-six hours; it was felt under the scapula; made him feel queer, and he expectorated a salt mucus. Weight, 11 st.

June 28.—Had a rigor yesterday at 6.30 A.M.; lasted two hours; hot stage ended at 12, then sweated profusely up to this morning. Four doses of gr.v. of quinia were given every three hours, and another gr.v. in the morning. Temperature went up to 103.4°, dropping in evening to 102.8°, and to 98° this morning. No iodine injection since 21st. Dulness is now made out to extend two inches around the orifice and two inches laterally, and somewhat upwards to the inferior angle of scapula, above which it extends for two inches; healthy respiratory sounds are heard elsewhere all over lung. Urine, sp. gr. 1030; acid, lithates. To repeat his former medicine.

July 5.—No iodine injection given this week. No discharge. No air passed the wound. Has still a yellow look; otherwise well. The sinus is now 2½ inches deep; the tube has been shortened from time to time, and is now discontinued. Beyond the 2½ inches there is resistance to the passage of the sound. Dulness as before. Weight, 10 st. 13 lbs.

July 18.—Urine clear, sp. gr. 1020; has slight deposit of albumen with heat and nitric acid.

July 26.—Albumen present in urine estimated at one-fifth. No cough. Feels well. Urine passed twice in night.

August 2.—Urine, sp. gr. 1027, acid; contains a trifle more albumen. General health good. Pulse 84, rather small. Appetite good. Sleeps well. Bowels open. Dulness extends for one inch above nipple to four inches below it; thence it extends upwards towards the axilla, and laterally to the scapula. Pos-

teriorly the right lung is a little less resonant than the left, and a metallic tinkle is still heard on both sides the chest. On a level with the nipple in left lung there is healthy, slightly exaggerated respiratory murmur.

Discharged on 5th, convalescent.

September 16.—Seems much stronger, and looking better and firmer. No discharge from wound. No dyspnoea. Feels well and strong.

November 2.—Looking well and in good condition. No cough; sleeps indifferently; gets up in night three times to urinate, passes about three pints. Bowels reported open; appetite good; no oedema of the face. Urine tested after drinking a glass of beer, sp. gr. 1000; acid; clear, good colour; albumen about one-tenth. There is some dulness from axilla to nipple and mid-sternum, extending downwards 6–7 inches; the lower edge of liver is felt in mesial line, three inches below sternal notch and four inches above the umbilicus; the abdomen is somewhat large, and tense and dull in the flanks; a somewhat faint respiratory murmur is now heard all over chest both anteriorly and posteriorly; the old distant tinkling sound is heard with each inspiration at the site of the incision.

REMARKS.

On admission, from the dulness all over the right thorax and distended abdomen, it was clear that we had to deal with a large tumour affecting both the liver and right lung. As, however, the man had been at work till a fortnight before, had only suffered from dyspnoea, and as natural bile was passing, as evidenced by the fæces, and as the thoracic disturbance indicated pressure rather than disease, though against that view was to be set the high temperature, 103° , we passed an exploratory needle under the idea that we had hydatids to deal with, and tested the fluid for hooklets, but to no purpose. The aspirator following gave no results, probably having missed the cyst, or pushed the cyst-wall in front of it. After a few days the bowels began to act freely, and a quantity of old scybalous matter was got rid of, to the great relief of the patient and the lowering of the temperature. The urinary secretion remained, however, low, owing doubtless to the pressure. And so matters went on to the 25th January, the dyspnoea being greatly relieved, the bowels acting freely without medicine. Then came indications for action. Fluid pointed below the nipple; an opening was made, and suppurating hydatid cysts with pus were ejected forcibly. A large discharge of pus followed, with ejection of many hydatid cysts, till February 23, after which the discharge lessened gradually, but did not cease finally till

June 10. On the whole, at least 300 cysts of all sizes were ejected, and over thirty pints of pus, or pus and serum mixed. The wound closed about July 12.

It was inferred early in the case that as no hydatids had passed per anum, and as no bile or bile-stained fluid escaped from the wound, that the cyst was external to the liver. Similarly, as no hydatids or pus were coughed up, it was inferred that the lung was not involved, the fact of air being inspired and coughed out being explained on the supposition that the cyst was in the pleural cavity pressing on the lung, and acted upon by the inspiratory and expiratory effort; the amphoric breathing and tinkling sounds being produced by the presence of air drawn in and retained in the cyst. It will be noted, however, that the tinkling sound was still heard (November 2) deep-seated beneath the site of the incision.

Had this cyst, containing so many hydatids and so much pus, been situate in either the liver or the lung, the organ in question would have suffered such damage that life could not have been sustained; and therefore, as a case of a patient sustaining successfully the onus of a large decomposing hydatid cyst, this case is especially valuable. As regards the presence of albumen in the urine, noted January 8 in small quantity, then none at all, then (July 18), when the discharge of pus had ceased and the wound had healed, in larger quantity, and again, on November 10, in smaller quantity, it is a question whether or not kidney mischief may be commencing. The first albumen on January 8, and that on November 10, may have been due to pressure by a loaded colon; that in July to the ceasing of habitual discharge from the wound. Future observation must decide this point.

SIMPLE CICATRICIAL STRICTURE OF, THE AIR TUBES.

BY

SAMUEL WEST, M.D.

Simple cicatricial stricture of the air-tubes is, with very few exceptions, the result of past syphilitic ulceration, especially if the ulceration has been associated, as so frequently happens, with necrosis and exfoliation of cartilage. The healing of syphilitic ulcers is characterised by three great peculiarities—(1) The remarkable power of contraction which the scars exhibit; (2) By the massive production of new connective tissue which often takes place, for in this respect a syphilitic cicatrix resembles more closely keloid, *i.e.*, a hypertrophied, than a simple scar; and (3) The strange tendency that contiguous ulcerated surfaces have to form adhesions to each other. These peculiarities explain why syphilis is so common a cause of stenosis throughout the air-passages. All syphilitic scarring does not lead, of course, to stenosis, for scars are not infrequently discovered post-mortem which had given no evidence of their presence during life.

Simple Stricture of the Larynx.

Syphilitic scars are common in the region of the epiglottis and in the aryteno-epiglottidean folds, and, as they contract, may lead to great distortion of parts, even so as to produce an apparent narrowing of the entrance into the larynx; but these deformities very rarely produce actual obstruction, unless the parts about the glottis are also involved. When this occurs, the entrance into the larynx may be reduced to a narrow vertical chink.¹ This form of syphilitic stenosis is rare. In the commoner form, the scar-tissue develops round the glottis, usually at the level of the

¹ Coll. Surg. Mus., Prep. 3486.

true cords, which are themselves involved and take part in the stricture, but occasionally both above and below them. The orifice of the glottis may then be reduced to a small round hole, sometimes not larger than will admit a medium-sized catheter.¹

Simple stricture of the larynx, though very rare except as the result of syphilis, has been observed also as following severe burns, diphtheria,² typhoid fever, glanders, and measles.³

The symptoms are those of chronic laryngitis, with those of laryngeal obstruction superadded. They are often extreme, and liable to sudden and severe exacerbations, so that without warning urgent dyspnoea may arise, and, if not relieved, be rapidly fatal. For this reason, when stenosis is advanced, tracheotomy is usually performed early, as a precautionary measure, and as a preliminary to the actual treatment of the stricture itself.

When the immediate symptoms have been relieved by tracheotomy the stricture may be dilated, with or without previous incision, by the passage of bougies or by the use of graduated cones, as Schroetter advocates. In many cases the stricture has been stretched and relief given by such means, but it is rare for the patient to be able to dispense with the tube, which in most cases has to be worn for the rest of life.

The most remarkable, but at the same time the rarest form of syphilitic stenosis is that in which a web is formed by the cohesion of ulcerated surfaces on opposite sides of the larynx. Although a very rare lesion, still twenty-two cases have been collated and analysed by Sommerbrodt,⁴ by whom the literature is also given up to date. In the majority of the cases, as would be expected, the cohesion took place between the true cords, but in others between the false cords, and in a few below the true cords in the subglottic region. The web develops from before backwards; that is to say, it is the anterior portions of the cord which first cohere, and this cohesion may take place with very great rapidity. Thus, in Sommerbrodt's own case, the membrane formed over the anterior third of the cords within fourteen days, and involved the whole length in six weeks; while Rossbach records a case in which the membrane was complete in six days. The aperture left through which respiration takes place is posterior, and usually sickle-shaped.

Webs in the larynx are almost invariably due to syphilis, but a few may be traumatic and follow wounds, especially below the

¹ Coll. Surg. Mus., Prep. 3489.

² Demme, Würzb. med. Zeitschr., ii. and iii.

³ G. H. Mackenzie, Edin. Med. Journ., xxix. 317.

⁴ Berl. klin. Woch., 1878, 175.

cords (Rossbach);¹ and in one case the web was probably congenital.²

The symptoms produced by such webs are of course those of stenosis, but often not to the degree which might be anticipated.

The only treatment practicable consists in division by the knife or cautery with subsequent dilatation. This treatment has been practised successfully by Sommerbrodt, Rossbach, Elsberg, and others; and in one case Elsberg resected the membrane in its entirety.

Simple Stricture of the Trachea and Bronchi.

Although syphilitic cicatrization is much rarer in the trachea and bronchi than in the larynx, still it seems to exist in them more frequently without symptoms. Such scars without symptoms are usually in the long axis of the tube, and, though they may produce much deformity, do not lead to stenosis; they are often small, but may be very numerous, and are sometimes of considerable extent. When the cicatrix is transverse, as it must of necessity be after exfoliation of cartilage, stenosis is the result, and, as in the larynx, the contraction is aggravated by the massive formation of new connective tissue.

In both trachea and bronchi, the scar-tissue may occupy the whole transverse section of the tube, and may involve all the coats, and even spread to the parts outside it; but occasionally the chief seat of the connective tissue growth is in the inner part, and, where the cartilages are preserved, it may be entirely internal to them.

In the trachea the favourite seat of syphilitic stenosis is just above the bifurcation, and it then usually involves one or both bronchi, especially the left. If the stenosis exist in the trachea alone, it is not infrequently found in the middle portion, but in the upper part it is much rarer, and is then almost invariably associated with cicatrization in the larynx.

It is possible for one or both bronchi to be stenosed while the trachea remains free, but this is very unusual; still rarer is it to meet with cicatricial stenosis of the small bronchi, though a case of this kind is recorded by Lancereaux.

A very complete case of the common kind is described by Mr. Sydney Jones.³ A patient, 31 years of age, expectorated two and a half years before death several complete rings of the trachea. When he died, a dense cicatrix was found in the

¹ Langenbeck's Archiv, vol. ix. p. 491.

² Seifert, Sitz. d. Phys. med. Ges. zu Würzb., 1888, No. 2.

³ Trans. Path. Soc., vol. x. p. 60.

trachea two inches above the bifurcation, and from this part the rings had completely disappeared; both bronchi were stenosed, the left most, which for the distance of an inch was so narrow as to admit with difficulty a No. 12 catheter.

A similar case is recorded by Dr. Gibb.¹ It is remarkable for the length of the stricture, which extended from the middle of the trachea to the bifurcation, and involved both bronchi. The case is interesting further as having been associated with a growth on the right side of the larynx in the region of the false cords, which may probably have been a syphilitic papilloma.

This case was described as one of simple fibrous stricture, but there is little doubt that it would have been called in the present day syphilitic.

If one bronchus only be affected, the stricture may be so considerable that a fine probe will hardly pass through it. Whether complete obliteration could ever occur in a main bronchus is open to doubt, but in the small bronchi it is of course possible, though very rare. (Ratgen).²

There is, of course, nothing in the scar itself which is pathognomonic of syphilis, but the diagnosis is usually clear from the history of the case, the distribution of the lesions, and the evidence of syphilis elsewhere. Thus Goodhart³ records a case in which the whole trachea was puckered with scars and both bronchi stenosed. These lesions were associated with fibroid degeneration of the heart, aneurysm of the thoracic aorta, and with nummular aortitis.

Syphilitic stenosis of the trachea and bronchi may also occur in congenital syphilis.⁴ Thus, in Parker's case, which is perhaps the most interesting on record, a child had tracheotomy performed at the age of seven years for what was believed to be syphilitic laryngitis. He died at 15 with the symptoms of tracheal stenosis. The trachea for an inch and a half from the bifurcation was reduced to less than a quarter of an inch in diameter, and the left main bronchus was almost completely occluded. The section showed that the greater part of the new tissue was internal to the cartilages.

Of the few non-syphilitic cases, tracheal stenosis is described by Lublinski⁵ and Korti⁶ as following a tracheotomy wound (*cf.* also Coll. Surg. Mus., Prep. 3513).

Anything corresponding with a web across the trachea is almost unknown; but Türck⁷ describes and figures one such

¹ Trans. Path. Soc., vol. xv. p. 90.

² Virchow's Archiv, vol. xxxviii.

³ Trans. Path. Soc., vol. xxvi. p. 13.

⁴ Trans. Path. Soc., vol. xxxvii. p. 19.

⁵ D. med. Woch., 1887, p. 554.

⁶ Langenbeck's Archiv, 1881, 822.

⁷ Krank. d. Kehlk., 501.

case, which occurred in a lad of 18 years of age, who had suffered with dyspnoea from the age of 12, and in whom no evidence of syphilis could be obtained.

Diagnosis.—It is not difficult to diagnose tracheal or bronchial obstruction, but to determine whether that is due to syphilitic stenosis is often attended with insuperable difficulties. Still the diagnosis has been frequently successfully made from the history and general features of the case.

The *prognosis* is grave as regards life, for a sudden paroxysm of dyspnoea may at any moment occur and prove fatal; and if the stricture continues to increase, death must follow the gradual increase of the obstruction.

Treatment.—Recovery is impossible; and the best that can be hoped is that the stricture should remain stationary. The affection is usually beyond all treatment, medical or surgical, and although Lublinski¹ records a successful case of the dilatation of a tracheal stricture by catheterisation after tracheotomy, such treatment is rarely possible, and, considering the doubt that must in most cases attach to the diagnosis, forcible dilatation of this kind is attended with too great risk to be often carried out.

¹ Loc. cit.]]

CASES FROM SIR WILLIAM SAVORY'S WARDS.

BY

EDMUND CAUTLEY, M.B.

HÆMATURIA.

ILLUSTRATED BY CASES.

The seat of hæmaturia may be either the urethra, the prostate, the bladder, the kidneys, or the ureters. Hæmorrhage from the urethra is not usually of such a degree as to require treatment in the wards, and as it was due in none of the following examples to this cause, such cases will not in this paper be taken into consideration.

Commencing then with the second class of cases, namely, those in which the hæmorrhage originates in the prostate or bladder, we find that the causes commonly assigned are wounds of the bladder or prostate, congestion of the prostate, ruptured prostatic vein, tubercular disease of the prostate, acute cystitis, ulceration of the walls of the bladder, cancerous and villous tumours and stone in the bladder. As a general rule the blood is not intimately mixed with the urine; that first passed may be quite clear, while towards the end the urine becomes brighter and brighter in colour, and even at last pure blood may be voided. This especially holds in cases in which the prostate is the source of the hæmorrhage, and in cases of stone. It is, however, by no means a reliable or absolute rule, as it depends to such a large extent on the quantity of blood in the urine; especially is this true in cases of new growths in the bladder. Clots, too, are sometimes present. Then, again, blood is not a constant occurrence in these affections; at times it may be entirely absent; but it is never safe to assert its absence in any case unless a careful microscopic examination has been frequently made.

Let us turn now to some cases illustrating these points.

CASE I.—Probably one of ruptured prostatic vein. The urine contained much blood and a good many clots, giving rise to severe spasm and pain, with frequent desire to micturate.

CASE II.—Calculus vesicæ in a child aged 4, who was brought to the Hospital for retention of urine. No blood had ever been noticed. Lithotripsy at a single sitting was performed with perfect success.

CASE III.—Calculus vesicæ in a boy aged 12, who had had lateral lithotomy performed four years before. Most of the symptoms dated back a year and a half, but the hæmaturia had only existed one week, in spite of there being some cystitis, as evidenced by the presence of albumen and pus in the urine.

CASE IV.—Villous papilloma of bladder. There was a great deal of hæmaturia, but as it dated back only about a year, and the patient's age was 59, the growth was supposed to be a malignant one. By the aid of the endoscope, however, an accurate diagnosis was made, but unfortunately the general condition of the patient was considered too unfavourable for operation.

CASE V.—Epithelioma vesicæ. Patient was admitted with stricture and chronic cystitis, and the cancerous origin of the cystitis was not diagnosed. There was no history of hæmaturia, and none occurred while under observation, not even after catheterisation with silver catheters. Yet an extensive ulcerating epithelioma was found after death.

CASE VI.—Tumour of the bladder. In this case, on the contrary, the hæmaturia was excessive and of long duration; the first attack occurring seven years before. This long history is strongly in favour of a non-malignant growth, especially when we consider also the duration of the intervals between the attacks of hæmorrhage. The endoscope afforded no assistance. The age of the patient was in favour of malignancy. No portions of growth were found on microscopical examination. On the whole, considering the age and general condition of the man, it was deemed inadvisable to subject him to any operation.

From these cases it is fairly evident that the diagnosis of vesical hæmaturia and its causes is not one of very great difficulty; it is clear, however, from Cases IV. and VI., that the differentiation of innocent from malignant growths is not easy, and at times even impossible; so much so, indeed, that it requires the microscope to identify the nature of the growth post-mortem.

Let us turn, then, to the consideration of renal hæmaturia, and confess that here, indeed, we are very liable to be at fault. To enumerate shortly the different causes of renal hæmaturia, there are: Traumatic injuries; simple contusion; shaking of the kidney, as in riding, probably often due to the unsuspected presence of a renal calculus; embolism or thrombus; congestion due to cold; drugs; reflex irritation produced by catheterism; acute nephritis;

granular kidney, *vide* three cases recorded by Mr. Bowlby in *Lancet*, 1887; extension of inflammation; various diatheses, *e.g.*, hæmophilia and scurvy; parasites, *e.g.*, bilharzia; calculus; tubercular disease; various forms of malignant disease.

Now, Sir Henry Thompson lays down a general rule that urine passed without pain or other local symptom is more likely to derive its blood from the kidney than elsewhere. We find this holds true in all the following cases, with the exception of the last, and of two cases of renal calculus, in one of which oxaluria was supposed to be the cause of the painful micturition, while in the other the diagnosis, though probable, was not verified. Another general rule, too, is that the blood is intimately mixed with the urine, the colour of the water passed consequently varies with the amount of blood contained. The urine may contain clots, in which case they are generally casts of the ureters, and quite different from the flattened blood-clots sometimes found in vesical hæmaturia. Blood-casts of the uriniferous tubes are occasionally found in cases of acute tubal nephritis.

CASE VII.—Renal calculus. The diagnosis was based on lumbar pain, hæmaturia, oxaluria, and pyuria. Micturition was frequent and painful, probably on account of the irritating nature of the urine. Nephro-lithotomy was performed, and the wound, made in the pelvis of the kidney alone, and not involving the renal substance, healed with perfect success.

CASE VIII.—Renal calculus. The diagnosis was based on the paroxysmal attacks of lumbar pain and the presence of broken-down blood-corpuscles and oxalates in the urine. Nothing was found on examination of the bladder. It is worthy of notice that in this case, in spite of the severity and duration of the symptoms, no hæmaturia was ever noticed by the patient.

CASE IX.—Renal calculus (?). Here the vesical symptoms were very prominent indeed: extreme frequency of micturition; foul, ammoniacal urine, sometimes containing pus and blood; hæmaturia, the blood being passed alone, or intimately mixed with urine. The renal symptoms consisted of attacks of sharp-cutting lumbar pain, accompanied by thirst, nausea, and vomiting, rise of temperature, and temporary suppression of urine, and sometimes rigors, followed by hæmaturia, bright red blood being passed and no clots, showing that the attack could not have been due to a blood-clot plugging the ureter. Almost certainly he had a stone in his kidney. The only other diagnosis at all likely is tubercular disease of the kidney, an affection which may also give rise to lumbar pain, foul and purulent urine, hæmaturia, pain on micturition, and much increased frequency of micturition.

No tubercular disease was found in any other part of the genito-urinary tract. The very definite and very acute attacks of pain and the character of the hæmaturia are strongly in favour of the diagnosis of stone. He improved a great deal while under treatment, and was eventually sent to Swanley unoperated on. When he returned, he said he had had no more attacks of pain, and he passed his water less frequently, besides being much improved in general health. It certainly should not therefore be laid down as a rule that operative measures should always be resorted to in supposed cases of stone in the kidney.

CASE X.—Contusion of the kidney, attended by hæmaturia and frequent micturition, but no pain on micturition; some lumbar pain.

CASE XI.—Possibly one of renal calculus; the lumbar pain and the sequence of exertion and hæmaturia are in favour of this view.

CASE XII.—Perhaps due to prostatic congestion.

CASE XIII.—Probably due to rupture of a small vessel at the neck of the bladder. The hæmaturia was definitely ascribed to a strain. The frequency of micturition and the occurrence of hæmaturia, with a burning sensation at the end of the act, are much in favour of this diagnosis.

Enlarged Prostate—Hæmorrhage in Bladder—Acute Cystitis.

George C., æt. 64, Kenton Ward, May 4 to June 6, 1888.

Previous condition.—Symptoms of enlarged prostate for four years, commencing with retention, for which a catheter was passed. One week passing blood. Urethral and suprapubic pain.

On admission.—Pained and anxious appearance. Frequent desire to micturate, but cannot. Constant spasm and pain.

Course, &c.—No. 12 catheter passed, and blood and urine drawn off. After this his bladder was emptied frequently.

May 5.—Urine alkaline, thick, reddish-brown; much blood. His bladder was washed out daily with lotio condi, and the condition of his urine slowly improved. Spasms became less.

May 25.—Water acid, clear, and not offensive. Temperature sometimes raised. Patient can pass the catheter for himself.

Calculus Vesicæ—No Hæmaturia—Lithotrixy.

Thomas B., æt. 4, Abernethy Ward, September 22 to October 7, 1888.

History.—September 22.—No water passed since preceding morning. A pint of urine drawn off with a soft catheter. Frequency of micturition for some time, with pain at the end of penis; worse after the conclusion of the act. Never any blood. Stone detected on sounding.

Treatment.—September 26.—Lithotrity performed by Mr. Savory; fragments washed out.

Course.—Never any rise of temperature. A few more fragments and some small blood-clots passed during the next two days. Very little pain and less frequent micturition.

October 3.—Quite convalescent. No fragments detected with the sound.

The stone was a uric acid one, and probably about the size of a damson-stone.

Calculus Vesicæ—Lithotrity.

John A., æt. 12, Abernethy Ward, June 28 to July 25, 1888.

History.—For nine years he has had more or less trouble with his water, incontinence, and (?) pain. Six years ago operated on for stone at Hitchin Infirmary, but none found. Four years ago lateral lithotomy performed, and a stone the size of a pigeon's egg removed. After this he was unable to hold his water. Sometimes when passing, it would suddenly stop running, causing him to strain and have much pain. One and a half years ago circumcised; incontinence then ceased. Since then he has had occasional pain at the end of the penis, frequent micturition, sudden stoppage in the flow, and a week ago some hæmaturia.

Present condition.—Urine contains albumen and pus. A stone detected on sounding.

Treatment.—Lithotrity. No. 10 lithotrite used. Fragments washed out. The fragments were phosphatic.

Course.—Some more fragments passed next day. No rise of temperature. Frequency of micturition ceased.

July 24.—No stone detected on sounding.

Villous Growth in Bladder.

Thomas T., æt. 59, typefounder, admitted to Kenton Ward, under the care of Mr. Marsh, on July 17, 1888.

Previous history.—No alcohol for eight years, and temperate previously. Gonorrhœa thirty years ago. Never syphilis. Never been abroad. Has suffered from "rheumatics." Right hip dislocated at the age of three, and now stiff.

Family history.—Mother died of "galloping consumption" at the age of 50.

Previous condition.—Twelve months ago piles; blood in motions. Got better under treatment. Blood passed also per urethram. A catheter was passed.

October 1887.—Treated as out-patient for hæmaturia, which soon ceased; ten weeks before admission it again commenced, and has continued since.

Present condition.—Very anæmic. Has lost much flesh. Lungs and heart not quite healthy. Occasional suprapubic pain before micturition. No stricture. Urine, sp. gr. 1012; contains much blood and albumen.

Course.—The bladder was examined by the cystoscope; a growth, black on surface, size of a mulberry, could be seen. Pain for a few days after examination.

August 17.—Hæmaturia almost entirely ceased. Patient sent to Swanley.

August 30.—Came back with exacerbation of old symptoms. More weak and wasted. Not passing much blood. Temperature raised a little. Pulse very feeble. Wanders in his sleep at night.

September 4.—Gradually sank and died of exhaustion.

Post-mortem.—Kidneys extremely granular. Left ventricle of heart much hypertrophied. Lungs a little emphysematous. Pleura generally adherent. Bladder a little hypertrophied; just to the outer side of the left ureter is a villous papilloma, size of a hazelnut, attached by a flat riband-like pedicle to the posterior wall of the bladder.

Epithelioma Vesicæ—No Hæmaturia.

Robert M., æt. 76, ship's outfitter, Abernethy Ward, November 18 to December 16, 1888.

History.—Gonorrhœa fifty years ago. Seventeen or eighteen years ago retention of urine. Treated by catheterisation at Guy's Hospital. After that he passed a catheter on himself for ten years. Six years ago another attack of difficulty of micturition, followed by dribbling away of his urine. Operated on at the London Hospital, after which he recommenced auto-catheterisation, and had no further trouble. Three months ago difficulty of micturition. Incontinence of urine. No. 6 catheter passed weekly.

November 16.—No catheter could be passed. Frequent micturition, foul urine, some pain.

Previous history.—Temperate for twelve months. Used to drink, but was not an habitual toper.

On admission.—Looks ill, old, rather shrunken and anæmic. Urine, sp. gr. 1038, alkaline; contains phosphates, mucus, and trace of albumen.

Treatment.—November 21.—No. 6 silver passed, and left in about twenty minutes. Bladder washed out weekly with lotio condi.

November 19 to 21.—Acidi salicyl. gr.x. ter die.

November 21 to 30.—Hst. pot. bromidi co. ter die.

November 30 to December 10.—Ammon. benzoat. gr.v. ter die. Quinine, brandy.

Course.—In spite of drugs and washing out the bladder, the urine continued foul-smelling, alkaline, and contained much phosphatic deposit. Never any blood found, even under the microscope.

December 16.—Death from exhaustion.

Post-mortem.—Tubercle at apices of both lungs. Lungs very œdematous and congested. Right kidney: pelvis and calices filled with pus. Left kidney normal. Bladder hypertrophied; whole of the right side occupied by an extensive ulcerating epithelioma surrounding right ureter. Right ureter much dilated and filled with pus. Slight stricture of urethra in membranous part. No enlarged glands.

Tumour of Bladder.

Thomas M., æt. 63, fitter at engine-works, Abernethy Ward, December 27 to February 11, 1889.

History.—Seven years ago hæmaturia for a short time. Felt cold in the back on passing water; occasional pains in hips. Four years ago another attack, lasting two or three days; some pain in the back, and frequency of micturition. One year ago another similar attack.

September 18, 1888.—More hæmaturia; micturition about every two hours.

September 23, 1888.—Gave up work on account of weakness. Attended a doctor for the hæmaturia, and it ceased for a month; since then it has continued at intervals.

Previous history.—Has been an engine-driver. Always healthy and temperate. No venereal disease. Winter-cough for some years.

Treatment before admission.—Gallic acid given during the attacks, with some benefit. A few days ago a sound was passed, but no stone found; this was followed by a good deal of hæmaturia. Has been under the care of Mr. King, a former student.

Course, &c.—Urine, sp. gr. 1037; contains urates and triple-phosphates. No portions of growth found.

January 2.—Endoscopic examination; the bladder could not be freed from blood, and nothing was seen.

January 25.—At consultations, Mr. Savory expressed the opinion that it was a case of malignant growth. Two other members of the staff thought it an innocent one, and advised suprapubic exploration.

February 1.—Endoscopic examination; nothing could be seen. It was thought that something in the bladder overlapped the mirror.

February 11.—Went back to Wales in good general health, but more anæmic than on admission. The hæmaturia continued during the whole period of his stay in the Hospital, and did not seem much affected by either gallic acid or turpentine. The endoscopic examinations caused very little pain, but were followed by a little scalding and some increased hæmaturia.

Result.—Patient died two or three months after his return home.

Bladder kindly sent to Mr. Bowlby, who found a large irregular growth occupying the right side of the bladder, at first sight looking like an epithelioma, but apparently, on further examination, not infiltrating the bladder-wall or neighbouring structures.

The microscopical appearances are those of epithelioma.

Renal Calculus—Hæmaturia and Oxaluria.

Frederick B., æt. 24, railway labourer, Abernethy Ward, September 29, 1887, to May 5, 1888.

Previous history.—No previous illness.

Family history.—Maternal grandfather suffered from gravel.

Previous condition.—July 1886.—Pain in right loin for six weeks.

April 1887.—Another attack; urine red.

August 1887.—A third attack.

Present condition.—Strong, healthy man; good appetite. No swelling or tenderness in loins. Pain on micturition. Nothing abnormal found in bladder. Urine acid, sp. gr. 1027, smoky, red corpuscles, albumen, and oxalate crystals.

Course.—October 27.—Pain in left loin also. Less urine; more blood and oxalates.

November 10.—Urine only one pint; pus present. Consultation: decision to wait, on account of uncertainty as to which kidney is affected.

February 19.—Up two days for three hours each, followed by pain in loins, chiefly on right side; more frequent micturition; scalding on micturition; blood and oxalates in the urine.

February 24.—Exploratory operation decided on.

March 10.—*Operation.*—Stone felt in pelvis of kidney on right side. Incision made in pelvis and stone removed. Kidney substance not injured.

Result.—A good deal of constitutional disturbance for three days. The wound did remarkably well and healed successfully.

May 4.—Wound quite healed. Still some pus in the urine.

Contrexéville water was given for three months without benefit.

Renal Calculus (?)

John W., æt. 28, draper's assistant, Abernethy Ward, April 9 to May 24, 1888.

History of present illness.—For fifteen years paroxysmal attacks of lumbar pain shooting down in the course of the ureter, and into the right testis, but not down the thigh. At first these attacks occurred every six weeks, with complete immunity during the intervals. Two years almost daily attacks, and never complete immunity. The paroxysms sometimes last eight hours; they are increased in frequency and severity by exertion. Does not remember passing blood or gravel. Has never been jaundiced. A doctor in the country found blood in the urine, and probed the kidney, but with negative result.

Previous history.—Scarlet fever when a boy.

Family history.—None of stone, gravel, or uric acid diathesis.

Course.—Urine frequently examined. Oxalates, hyaline casts, and a few broken-down red corpuscles. Patient had occasional paroxysms of pain.

May 3.—Consultation under anæsthetic. Nothing found in bladder. No fulness in loin or abdomen. Probable diagnosis—renal calculus.

May 24.—Went home on account of his mother's illness. Contrexéville water seemed not of the least benefit.

Renal Calculus (?)—Character of Hæmaturia Variable.

George T., æt. 15, newsboy, Abernethy Ward, August 18, 1888, to March 1889.

History.—Two years ago in Henry Ward with incontinence of urine. No stone found in bladder. When discharged, he could only hold his water for half-an-hour. Fourteen days ago pain below ribs on left side. The pain would last about two hours, during which time he could not pass water. Afterwards he had to strain to pass water, and then passed blood with it. Since July 28th he has had no such pain. Has been micturating every quarter of an hour for some time.

Previous history.—Never any other illness.

Family history.—None of phthisis or strumous affections.

Course.—August 3.—Sounded; no stone found, and bladder felt soft. No subsequent hæmaturia. Urine, sp. gr. 1011, very ammoniacal; no blood, pus, casts, or uric acid crystals.

August 14.—Urine, sp. gr. 1014, pale coloured, smoky, much less ammoniacal, thick cloud of albumen; contains a little pus and blood.

August 17.—Urine not ammoniacal when first passed.

August 27.—Pain in left side. Passed a few drops of blood. Temperature 101.6°.

August 29.—Passed an ounce of bright red urine.

September 3 and 4.—A few drops of blood. Urine, sp. gr. 1012, alkaline, not ammoniacal, albumen.

September 7.—Again sounded, with negative result. Blood afterwards in urine.

September 19.—Much pain, some blood.

October 11.—Sharp attack of pain; sick; hæmaturia. Temperature 103.8° E.

October 17.—Urine contains no blood, a few pus and epithelial cells and triple-phosphates.

October 19.—Consultation, under chloroform. Nothing felt per abdomen, per rectum, or by sound.

October 28.—Sharp cutting pain in left lumbar region for about two hours, during which time he could not pass water. Says the pain is "like knives running into him." After that he passed a small quantity of water containing much blood. He vomited after making water, and felt sick all day and was very thirsty. Temperature 103.6° E.

December 29.—Free from pain and quite comfortable for last two months. Has been up and in the square. Frequency of micturition about the same. To-day he had again a rise of temperature, headache, vomiting, and pain in left loin for about ten minutes—the pain not very bad. Passed water afterwards without any blood in it. Temperature 102.3° E.

December 30.—At 3 A.M. felt giddy and sick, vomited his tea, and had a rigor. Urine contains a few pus cells, but no blood.

January 2.—Again sounded. Bladder felt a little rougher on left side. Temperature 100° E.

January 24.—Consultation; exploration advised.

February 6.—Again sounded. Nothing found.

February 7.—Circumcised. The boy's prepuce was long, and had become irritated by the frequent micturition. After this he did not pass his water quite so often.

March 1.—Sent to Swanley.

Except for the attacks of pain, the boy enjoyed very good health. His hæmaturia was slight and inconstant. His urine constantly alkaline and frequently ammoniacal.

There was no enlargement of spermatic cord or vesiculæ seminales.

Treatment.—Diet: D. L., milk, eggs, fish, and watercress. Contrexéville water one pint daily from September 11, 1888, to February 19, 1889. Quininæ sulph. gr. i. or ii. in forma pulveris from October 8, 1888, to February 19, 1889.

Injury to Right Kidney.

Frank T., æt. 20, coach-painter, Abernethy Ward, September 4 to 22, 1888.

Previous history.—Has had painter's colic.

Previous condition.—September 1.—Tumbled through a trap door and landed on his right side. Suffered much pain, and on making water ten minutes later he noticed blood in it. Since then he has micturated every twenty to thirty minutes, and has always passed blood.

Present condition.—Pain about region of right kidney. Urine contains much blood.

Course.—Gradual subsidence of pain and disappearance of blood from urine.

November 11.—Blood no longer noticed.

November 14.—Got up; had a little more pain, and his temperature was raised for three days, but he had no hæmaturia.

Blood intimately mixed with Urine.

William V., æt. 35, organ-grinder, Abernethy Ward, October 19 to November 19, 1888.

History.—August 1888.—Urine blood-stained. No pain or straining on micturition. Twinges of pain in right lumbar region. During September hæmaturia at intervals of three or four days. October 16 and 18.—Hæmaturia.

The pain in the lumbar region is not always followed by hæmaturia. Of late hæmaturia has been invariably produced by exertion, disappearing when he lies up for a day or two. Pain more in right loin. Sometimes after micturition he has a pain and feels as if he wanted to repeat the process.

Previous history.—None of venereal disease. Right arm lost in a circular saw. Teetotaller for eleven years. Made one voyage to Bombay when 15 years old.

Family history.—None of phthisis or gout.

Course, &c.—October 23.—Urethra and bladder examined, and nothing abnormal found.

October 24.—Urine contains blood and epithelial debris and uric acid crystals. No bilharzia ova found. No casts. Urine, sp. gr. 1011 to 1022.

Gradually improved. Sometimes a little lumbar pain. Occasionally blood or albumen or both in small quantities. Cessation of hæmaturia for a fortnight before his discharge. Temperature never raised.

Treatment.—Rest in bed. Contrexéville water. Light diet.

Urine intimately mixed with Blood.

Charles B., æt. 56, clothing cutter, Kenton Ward, September 20 to October 7, 1888.

History.—August 1.—Great difficulty in micturition. Since then, frequent micturition by night and day.

September 19, 7 A.M.—Passed a good deal of blood mixed with urine.

Past history.—Urethral discharge, lasting a fortnight, forty years ago.

Family history.—One sister died of phthisis.

Present condition.—Healthy man. Nothing abnormal found in thorax or abdomen.

Course.—Subsidence of hæmaturia in a few days. No definite cause found. No calculus. No bilharzia.

Blood passed at the end of Micturition.

Albert R., æt. 26, clerk, Kenton Ward, November 30 to December 7, 1888.

History.—November 24.—Strained himself in the morning when pulling some sacks about. On next making water, he passed about a teaspoonful of blood at the end of the act, and had a burning sensation. Since then he has micturated about every quarter of an hour, and has always passed a little blood at the end of the act.

Past history.—Gonorrhœa six years ago. Has been in American and English navies. Temperate.

Family history.—Mother died of asthma.

Present condition.—Healthy-looking. Normal temperature. No pain or frequency of micturition as long as he keeps in bed. Still passes a little blood. Urine, sp. gr. 1018; contains albumen.

Course.—December 5.—Sounded: nothing abnormal found; bleeding not increased. Eventual subsidence of the bleeding and frequency of micturition.

FRACTURE OF THE BASE OF THE SKULL.

Several accidents of this kind are seen every year in the Hospital, and, as a general rule, the diagnosis is comparatively easily made. In some cases, however, the symptoms are apparently so trivial, compared with the severity of the injury, that there remains a halo of doubt about the case, unless, as too commonly happens, it terminates in the post-mortem room.

It is for this reason, therefore, we record the two following cases, forming, as they do, an excellently marked clinical contrast, both in the initial symptoms and in the course they pursued: perfect clinical comparisons, too, inasmuch as they terminated fatally, and the nature of the injury was consequently accurately made out.

Commencing with the first case, we find a clear history of injury, confirmed by local evidence of it in the occipital region; also a history of temporary unconsciousness followed by vomiting; in fact, just what one would expect in an ordinary case of concussion of the brain. The patient, a man, walked into the Surgery, and was then quite conscious, and answered questions rationally. Still he appeared a little dazed, and for some time could not remember his name or address, and could give no account of the accident. His pupils were of little assistance, the right being *hors de combat* on account of old injury, and the left giving only negative evidence. In the right external auditory meatus was found a little blood, and the pulse was noticed to be infrequent, somewhat irregular, and of slow rise and fall. On these symptoms a diagnosis was based, and the man induced, much against his will, to come into the Hospital. For nine days after this he remained in much the same condition; his pulse continued infrequent, and at times slightly irregular; his temperature, though never high, was more markedly irregular, and at times much higher in the morning than at night. He slept well, and complained of no pain, though, on questioning, he owned to some occipital headache. He even felt so well that he frequently expressed a wish to go home. Suddenly and unexpectedly the change came. Early in the morning on the tenth day he woke up, vomited freely, complained of severe occipital headache, and was exceedingly restless and continually tried to get out of bed. The preceding day his temperature had been practically normal, and there was nothing in his condition to indicate the commencement of such an unfavourable change, unless indeed we can lay

stress on the fact that his pulse was more infrequent. Now his temperature rose four and a half degrees, and continued high until the fatal termination, which occurred on the seventh day after the onset of these symptoms. During the whole course of the illness there was neither paralysis nor deafness, nor any escape of cerebro-spinal fluid from the ear. The little bleeding that had occurred stopped almost immediately, and would not amount to more than two teaspoonfuls. Yet at the post-mortem it was found that the fracture had extended through the petrous bone, and also that the membrana tympani was lacerated. In this case, then, we see that the cardinal symptoms of fracture of the base were practically entirely absent.

Let us turn now to the other case. Here there is no clear history of injury, and no local evidence of it; only an account of a probable fall on the head, and that, too, not from any great height. Apparently the accident was nothing like as severe as in the preceding case. This patient was a boy aged 14, and a boy's skull would probably be more yielding and less liable to fracture; hence perhaps we might conclude that the injury must have been a very severe one since it did induce fracture, and that therefore the cerebral injury was more severe than in the case of the man, and consequently the cerebral symptoms developed much sooner. The signs of fracture of the base were all present, viz., bleeding from the ear, left facial paralysis, deafness of left ear, left external strabismus. There was also vomiting, and evidence of cerebral irritation in the semi-curved up position he assumed, in his half-closed eyes, his irritability, and his constant cries. The vomit was slightly blood-stained. The bleeding from the ear was soon replaced by a very free escape of cerebro-spinal fluid, which continued off and on during the whole illness.

Again, in marked contrast to the other case, the pulse was neither infrequent nor irregular. His respiration was rather more shallow than in health, and was quite regular.

And now let us refer to the temperature chart, and notice how steadily the temperature rose until reaching its maximum on the fifth day; compare it with the length of time that elapsed in the other case before any serious rise took place; remark, too, how it presented the same peculiarity of being sometimes higher in the morning than in the evening.

The course of the case was much the same as that of the other when the severe symptoms developed. From time to time there were slight intermissions, and for a short period the temperature came down a little, but there never was any radical improvement. Nevertheless, in spite of the severity of the symptoms, the boy lived four days longer than the man; in spite of the fracture

being almost identical, there was never any infrequency of the pulse, probably to some extent explainable by the height of the temperature, but not entirely so; and irregularity of pulse and respiration were some time in developing. What, indeed, is the cause of such infrequency and irregularity in cerebral injuries seems a problem hard to solve. Why did it not occur in both these cases?

Fracture of Base of Skull.

George W., æt. 30, gasfitter, Abernethy Ward, January 5 to 20, 1889.

History.—January 5.—Was swinging on a chain which gave way, causing him to fall a distance of 14 to 16 feet; was unconscious for about three minutes, and almost immediately afterwards vomited. Brought at once to the Surgery, and vomited on arrival. He walked into the Surgery.

Condition on reaching the Hospital.—Looked a little dazed. Quite conscious, and answered questions perfectly rationally. Could give no account of the accident, and could not remember his name and address for some time. Pulse 60, rather slow, and a trifle irregular. Temperature 96.4°. One pupil obscured by corneal opacities, the other apparently normal and reacting well. A little blood found in meatus of right ear. A little swelling in occipital region on right side. No paralysis. He apparently did not feel ill, and was with difficulty persuaded to stop in the Hospital.

Previous history.—Many accidents as a boy. Sight of right eye lost from injury.

Family history.—Is the last living of seven sons, one of whom died of "water on the brain."

Course.—January 7.—Urine normal. Less dazed. Occipital headache. Temperature, M. 99.6°; E. 800.2°. Bowels open twice, after pil. cal. c. col. gr.x. and hst. sennæ co.

January 8.—Less occipital headache; some pain in frontal region. Temperature, M. 99.8°; E. 98.5°. Bowels not open.

January 9.—Head still gives him a little pain and feels heavy. Temperature, M. and E. 100.4°. Pulse 54. Pil. cal. c. col. gr.x. given.

January 10.—A little cough and pain in head on coughing. Temperature, M. 101.6°; E. 98.4°. Pulse 60. Bowels open thrice, after hst. sennæ co.

January 11.—Less pain and feels better. Wants to go home. Temperature, M. 104.8°; E. 99°. Pulse 60. Bowels not open.

January 12.—Temperature, M. 99.4° ; E. 99.6° . Pulse 60. Bowels not open.

January 13.—Temperature, M. 98.5° ; E. 99° . Pulse 48. Bowels open once.

Up to the present, that is, during nine days, the symptoms have been remarkably slight. He has slept well. There has been no evidence of cerebral irritability, and he has felt comfortable. The headache has been slight and inconstant. The irregularity of the pulse at times was so slight as to be barely noticeable. No deafness. No paralysis. Only about a teaspoonful of blood escaped from his ear after admission, and never any cerebro-spinal fluid. The temperature has been irregular, but has never reached 102° ; as a rule, it has been higher in the morning than at night.

December 14, 3 A.M.—Awoke and vomited freely. Complained of severe headache. Became very restless and tried to get out of bed.

9 A.M.—Still restless. Thirty grains of bromide given without apparent effect.

11 A.M.—Much the same; rolls about in bed. Appears to hear questions, but does not answer. Pulse 72, irregular. Head shaved; ice-bag applied. Calomel gr.v. given.

11 P.M.—Understands and answers questions. Vomited at 10.30 and 11.15 P.M. Pulse 72, regular, fair volume. Respiration regular and shallow. Pupil reacts. During the day the temperature at 8 A.M. was 103.4° ; at 2 P.M. and 5 P.M. 104.2° ; at 8 P.M. 103.6° ; at 11 P.M. 103.4° .

December 15.—Less delirious. Is conscious and answers questions. Vomited again this morning after some milk. Tongue furred. Lies on his back and has only a little pain in head. Pulse 72, irregular. Respiration 26 to 32. Temperature 103° to 104° all day. Calomel gr.v. given. Bowels open twice.

December 16.—Very restless during the night, rolling about and trying to get out of bed. Occasional low muttering.

This morning he is quiet and unconscious. Looks up when spoken to, but will not answer questions. Generally lies on his back with his hands on his forehead. Some muscular twitchings of arms and legs. Skin moist. No distinct *tâche cérébrale*. Temperature 102° to 103.4° . Pulse 72. Respiration 28. Pupil reacts. Tongue drier and more furred. Involuntary micturition. Bowels not open.

December 17.—General condition worse. More stupid and unconscious. Irritable, but keeps quiet. Water and motions passed under him. Temperature 101.8° in morning, gradually rising to 104° at 5 P.M. and 11 P.M. Pulse 80. Respiration 24. Bowels open once. Mustard-poultices applied to calves.

December 18.—Low muttering all night, and still continuing. Does not answer questions, but looks up when addressed. Not so irritable. Takes well. Pupil dilated and reacts to light. Tongue dry and brown. Temperature variable, between 99.6° and 103° , and pulse varying from 90 to 120. Respiration 28. Bowels not open.

December 19.—Continued unconsciousness without any lucid interval. Constant low muttering delirium. Pulse 102, much weaker and smaller. Taking badly. Towards night his pulse became more frequent, he got more and more comatose, and died quietly early in the morning on December 20.

Post-mortem.—Scalp discoloured by old extravasated blood in right occipital region. Suture between right occipital and squamous bones had been shaken loose, and from the anterior part of this suture a fracture extended directly downwards and forwards across the groove for the lateral sinus and then straight across the petrous bone, causing some comminution of the roof of the tympanum. Membrana tympani also lacerated. Right frontal lobe had been a little contused on its under surface, and there was general meningitis at the base, with much recent lymph, but not much fluid. All the viscera were normal.

Fracture of Base of Skull.

Thomas D., æt. 14, Abernethy Ward, February 11 to March 2, 1889.

History.—Admitted at 11.30 A.M. Had been found lying on floor of a warehouse, and was thought to have been getting up to reach something, and to have fallen backwards for a height of about four feet.

Condition in the Surgery.—Keeps himself doubled up, with his face buried in his hands. Cries out loudly for his mother. Vomited. Pupils equal in size. Left external strabismus. Left side of face paralysed. Bleeding from left ear. Deafness.

On admission.—Assumed a semi-curved up position in bed. Eyes half closed. Regular pulse. Shallow respiration. Blood-stained vomit. Rather profuse hæmorrhage from left ear, and, later on, cerebro-spinal fluid. Temperature 100.4° E. Ice-bag applied to head. Calomel gr.v. given.

Course.—February 12.—Conscious after a good deal of rousing. Sleeps most of the time with his eyes half closed and lying on his right side. Complains of pain in head. Morning temperature 98.4° ; evening temperature 99.6° . Pulse 112. Respiration 16. He had gr.v. of calomel twice. Ice-bag continued to his head. His bowels acted once in the evening.

February 13.—Quite conscious, and speaks distinctly, but in a drawling manner. Profuse discharge from ear. Still vomits. Head shaved. Morning temperature 100.6° . Pulse 96. Respiration 18. Evening temperature 100° . Pulse 108. Respiration 16. Bowels open once.

February 14.—Slept fairly; rather restless at times, and talked a great deal. Conscious and answers questions. Eyes still half closed. Paralysis unaltered. Lies on right side, with head a little retracted. Temperature rising, being 102.4° in the morning, and 102.5° in the evening. Pulse 108-96. Respiration 24. Bowels acted twice in the forenoon. Twenty grains of pot. bromidi given at night.

February 15.—Bad night. Twenty grains of bromide had no effect. Cries and moans, but sheds no tears. Speaks only indistinctly, and hardly understands what is said to him. No squint. Paralysis and retraction of head unaltered. Rather less discharge. Respirations irregular, 20-24, with a tendency to Cheyne-Stokes type. Morning temperature 104.2° , evening 103° . Pulse steady at 96. Bowels acted twice in the forenoon, and once in the evening.

February 16.—Slept better. Quite conscious, and talks in a whining manner. Takes well. Less discharge from ear. Head not so retracted. Temperature high, 102.8° in the morning, rising to 104.4° in the evening. Pulse 100. Respiration 28. Bowels open once.

February 17.—Slept very little and was noisy. Semi-conscious. Excessively fidgety and picking at bed-clothes. Lies on left side and moans unintelligibly. Hardly any discharge from ear. Temperature in the morning 102° ; in the evening 103.8° . Pulse 120. Respiration 24. No action of the bowels.

February 18.—Only slept for an hour. Not taking as well. Does not understand what is said to him, and rambles on in his talk from one sentence to another without any apparent sense. Pulse and respiration both irregular. Right pulse weaker than left. Little discharge from ear. Head retracted, and he cries out when it is moved. Tongue moist and furred. Passes water under him. Pulse varying from 108-144. Temperature 102.8° - 102.6° . Respiration from 24-30. Five grains of calomel given, after which the bowels acted twice.

February 19.—No sleep at all. Cries out at intervals. Does not recognise any one. Cannot see at all. Fidgets more with his fingers. His morning temperature was 102° , rising in the evening to 102.4° . Pulse 130. Respiration 28. Bowels acted once in forenoon.

February 20.—No sleep. Pulse running. Is losing ground.

Morning temperature 101° . Pulse 156. Respiration 20. Evening temperature 102.6° . Pulse 32. Respiration 28. No action of the bowels.

February 21.—Condition unaltered. Morning temperature 103° . Pulse 138. Respiration 24. No action of the bowels.

February 22.—Slightly better. Pulse fuller. Can see a little. Temperature morning and evening 100° . Pulse 108. Respiration 32.

February 23.—Slept a little. Does not fidget quite so much. Takes better. Pulse (120) and eyesight are improving. Respiration more regular, 35. Continues to pass water under him. Morning temperature 101.2° , evening 100° .

February 24.—Still rather better. More conscious and quieter, but screams a good deal whenever his head is touched. Puts his tongue out when told to. Takes well. Still fidgets with his hands, but less so, and is not so irritable when they are held. Lips a good colour and moist, and no longer covered with sordes. Tongue moist and clean. Cheeks a little flushed. Skin supple and not dry. Faint *tâche cérébrale* on forehead. Pupils equal, rather dilated, and react slowly to light; conjunctiva of left eye injected. Closes his eyes when the finger is brought near them, and attempts to blow out a lighted match brought near his face. Discharge from ear is less, and is still quite clear. No improvement in paralysis. Pulse regular and small, varying in frequency from 132 in the morning to 102 in the evening. Respiration 36–28. Temperature in the morning 101.8° , in the evening 100.6° . Passes water under him. Bowels not open for five days. Abdomen rather retracted and rigid; reflexes well marked; very distinct and easily produced *tâche cérébrale*. A little less hyperæsthetic. Patellar reflexes exaggerated. Legs a little drawn up and hyperæsthetic. Has wasted greatly. Temperature never under 100° .

February 25.—More conscious, but not so well on the whole. Morning temperature 101° . Pulse 144. Respiration 28. Five grains of calomel given, after which the bowels acted twice.

February 26.—Rather better. Slept very well and is taking well. Much more conscious. Morning temperature 102.4° . Pulse 120. Respiration 28. Bowels acted three times. Evening temperature 102.6° . Pulse 136.

February 27.—Worse. Pulse more frequent and smaller, 144. Respiration quickened, and irregular in volume and rhythm, 28–36. Discharge from ear has been absent during last two days, but has now begun again. Rather flushed. Not taking so well. Does not cry much unless his head is moved. Bowels acted both morning and afternoon.

February 28.—Bad night. Quite unconscious. Swallows with difficulty. No discharge from ear. External strabismus of left eye. Taking fairly. Had convulsions this morning. Temperature 102°. Pulse 144. Respiration 32.

March 1.—Convulsions this morning. Limbs still keep twitching. Flushes at times, and then as suddenly turns pale. Quite unconscious. Restless. Fidgets with right arm and hand. Does not swallow. Extremely emaciated. Respirations short, jerky, and irregular, 36; at times almost stertorous and dying away until they can hardly be felt. Pulse 156.

March 2.—Died at 3.30 A.M., after convulsions.

Post-mortem.—Fracture extending from left parietal bone through petrous bone, and there dividing into two, one of which passes through the tympanum, and the other through the canal of the nerves. Length of fracture about three inches. Brain contused at one spot. Lymph exuded about base of brain and round the left side into the fissure of Rolando. Viscera normal. Whole body extremely emaciated.

TWO CASES OF ABDOMINAL TUMOUR,

AND

A CASE OF GANGRENE OF LUNG,

TREATED BY OPERATION.

BY

H. SYMONDS, M.B.

A CASE OF VERY LARGE ANEURYSM OF THE ABDOMINAL AORTA.

James S., æt. 32, fishmonger, admitted into Luke Ward, under the care of Dr. Gee, on May 21, 1889.

One month previously he had had pain across the loins, worse on movement. After one week the pain left the back and came into the lower part of the abdomen, where it remained; not worse on one side than the other, and not increased on micturition. He had not himself noticed any swelling in the abdomen. For one week he had passed very little water. For four days he had lost his voice. He had lost flesh and become pale during the month of illness. Denied syphilis. Had never previously had pain in the back.

On admission, the patient looked very ill; the face and lips were excessively pale. He spoke in a whisper. An attempt to see the larynx with the laryngoscope failed on account of an overhanging epiglottis, and the patient was so feeble that the attempt could not be persisted in. The epiglottis was noticed to be exceedingly pale.

The pulse was 104, very small and weak. Respiration 28.

In chest.—Nothing abnormal was found.

In abdomen.—Occupying the outer part of the right iliac region, and running upwards and outwards above the crest of the ilium

into the lumbar region, was a distinct swelling; it gave the impression of being in the abdominal walls, and was firm and boggy to the touch. It was very tender, and pulsated distinctly. There was some tenderness in the left iliac region; none elsewhere in abdomen. No swelling of legs.

During the first thirty hours after admission a catheter was passed twice, but only about four ounces of urine were found in the bladder altogether, and the patient passed none voluntarily. After this the patient passed water freely. The urine was high coloured, a little thick, acid, with a cloud of albumen.

During the succeeding three days the swelling increased very much in size, till it reached upwards to the margin of the ribs and projected markedly in the lumbar region; the pulsation, too, became much more distinct and was expansile. No bruit could be heard over the front and side, but behind, near the vertebral column, a systolic murmur was heard.

As a rule, the patient did not have much pain; but several times, especially during the night, he had severe attacks of pain down the outer side of the right thigh, lasting for an hour or two and causing him great distress.

On the 25th a fine exploring needle was introduced and arterial blood drawn off. Examination per rectum showed perhaps a slight fulness to right side.

Pulsation in both the femorals was very feeble, and that on the right side hardly felt at all.

The patient became more weak and feeble, sometimes wandering a little at night, and on June 1 died suddenly. The swelling did not alter much during the last six days of life. He still continued to have the attacks of pain, and often referred the pain to the right knee. During the last four days he had some œdema about both trochanters; none of feet or legs.

Except on May 23, when the temperature was 100.2° morning and evening, the temperature was normal.

Post-mortem.—Larynx natural; pneumogastrics and left recurrent laryngeals natural. Heart natural; lungs some emphysema. Some atheroma of thoracic aorta, but slight; also of abdominal aorta.

On opening the abdomen, the muscles, particularly on the right side and near the pubes, were found thickly infiltrated with blood. Blood-stained fluid and much blood-clot were in the abdominal cavity.

After removing the bulk of the viscera, a large dark-coloured swelling was seen filling the right half of the abdomen, hiding the right kidney, and pushing the ascending colon in front of it. It extended upwards behind the aorta, reaching the diaphragm.

On slitting up the aorta, a hole was found at the back of it opposite the cœliac axis; it was slit-like in shape, extending along the axis of the vessel; it had rounded edges, and was quite one inch and a half long. This led into an enormous sac, which extended upwards behind the aorta to the diaphragm, but more extensively downwards and to the right. The empty sac, which was roughly oval, measured quite eight inches in length; the interior was fairly smooth and polished; there was no organised clot in it. It appeared to have ruptured into the connective tissue and muscles at the outer and posterior part of the right side of the abdomen.

The last two dorsal and the first lumbar vertebræ were very much eroded, especially on the right side.

The right kidney lay just in front of the anterior wall of the sac, wrapped in tissues thickly infiltrated with blood. Both kidneys were pallid; otherwise normal. No evidence of pressure on the ureters.

The case was interesting (1) from a diagnostic point of view, and (2) as showing how large an aneurysm of the abdominal aorta may become.

When first seen, and before the pulsation became so marked, the character of the swelling rather suggested a pyonephrosis of the right kidney, which had burst into the abdominal wall, and was tracking downwards and to the front. The nearly complete suppression of urine present at first added weight to this view.

Another possibility seemed to be a localised peritonitis.

The situation of the swelling was not one in which one would expect to find an aneurysm, but when, after a few days, the swelling got larger, and began to pulsate in an expansile manner so very markedly, there was little room for doubt that one had to deal with a tumour directly in connection with the arterial system, *i.e.*, either an aneurysm or a pulsating sarcoma, and the introduction of an exploring needle proved this to be the case. No ill effects followed the puncture. Of the two possibilities, aneurysm was thought to be much the more likely, and one probably in connection with the right common iliac artery, though the aorta, was suggested as a possible source. The absence of pain in the back, except for one week, in spite of the great erosion of vertebræ, was noticeable. The attacks of pain in the thigh and knee must have been due to pressure on the lumbar plexus. The exceedingly anæmic condition of the patient was a prominent symptom throughout; the aphonia was doubtless due to his feebleness. The sudden death was due to the bursting of the aneurysm into the peritoneal cavity. Nothing was found post-mortem to explain the transient suppression of urine.

A CASE OF ABDOMINAL TUMOUR—DISTENDED GALL-BLADDER—PERITONITIS.

Another interesting case of abdominal tumour occurred about the same time in the practice of Mr. Thomas Moore, and was remarkable for the insuperable difficulties in the way of a correct diagnosis.

Mrs. W., a widow, about 65 years of age, was taken ill on May 20, 1889. She had had ague when young, and was a free liver; otherwise she had had no symptoms of importance, except short seizures of constipation, with rise of temperature, sometimes accompanied with vomiting. These in every instance yielded to treatment, and had been attributed to the ague.

When first seen, she complained of pain and tenderness in the right iliac region, rather below and to the inner side of the right crest, where she had knocked what she called "her lump," and a swelling there was apparent, subsequently said to have been in existence some time, but never before complained of. It could be felt about the size of a closed fist, somewhat brawny and surrounded by a dull area, especially upwards, where its limits were continuous with those of the liver.

Tongue furred; bowels constipated; usual quantity of urine (sp. gr. 1007; no albumen; no sugar); pulse quick and small.

Between May 20 and 28 she became weaker, and the tumour more red, indurated, and tender.

On May 28 seen by Dr. Gee in consultation, who thought the tumour was a collection of fæces in the colon with surrounding peritonitis. He advised enemata. These were given, and much fæcal matter came away, but the tumour persisted.

June 1.—Again seen by Dr. Gee, but she was then dying, and on June 2 she sank and expired.

Post-mortem examination thirty-six hours after death.—Lungs slightly emphysematous. Heart natural. Abdomen: liver enlarged and thinned out to such a degree as to hang like a curtain half-an-inch thick in front of the intestines, and to reach nearly to the iliac crests. The tumour was the end of the gall-bladder, filled with mucus, bile, and three small gall-stones. In shape the gall-bladder was like a large sausage, about 1 inch wide and about 8 inches long. Its lowest extremity had a gangrenous patch on it, and around was recent lymph and some in process of organisation, so that the gall-bladder, intestines, and right kidney were matted together. The liver had a deep transverse groove

across it. The right kidney was but an abscess cavity filled with pus, the left granular and contracted. The intestines contained but little fæces.

The points of interest were the difficulty of diagnosing the nature of the tumour and the kidney-disease—difficulties which could not be cleared away until after the post-mortem examination had thrown its light on what was previously obscure. Then the recurrence of the attacks of constipation and rise of temperature could be explained, due no doubt to attacks of an inflammatory nature around the gall-bladder, less violent than the last.

Then, too, could be appreciated the difficulties in the way of the diagnosis, which were not all cleared up by the removal of fæces on May 29.

There was nothing to guide one, even if the gall-bladder had been thought of. The best opinion to hazard was the existence of some malignant disease, probably in the kidney. Here again the urine showed nothing, so that the right ureter must have been plugged. Tight lacing was a prime factor towards the condition of the liver, witness the transverse groove, while the kidneys were alcoholic. It may be added, too, that there was no jaundice.

CASE OF GANGRENE OF LUNG TREATED BY OPERATION.

Edward N., æt. 33, a galvanised iron-worker, was admitted on May 11, under the care of Dr. Gee.

He gave a history of having six weeks previously fallen upon his head a distance of 14 feet on some stone steps, and then, when in an insensible condition, of having slipped into some very foul mud in Deptford Creek, being submerged for more than a minute. He was an in-patient for a fortnight in the Seamen's Hospital, Greenwich, with symptoms of fracture of the base of his skull. During three weeks he was kept under observation there; no symptoms were noticed pointing to disease of his lungs.

The patient said he had not been well since the accident, and that three weeks previous to admission he began bringing up very foul expectoration, which had continued since.

Previous history:—Intemperate, but otherwise healthy.

On admission, patient did not look very ill; no great dyspnoea. Pulse 112, fair strength. Temperature 101.8°. Breath was not foul.

In the chest, the only abnormal physical signs were rather abundant large râles at the left base.

On the first night after admission he had five long attacks of cough, and brought up a good deal of most offensive material, consisting mostly of thick, tenacious muco-pus with much thinner brownish fluid; this fluid contained only a few pus cells.

On the 14th an exploring needle was introduced into the lower left axilla, but nothing was withdrawn except air having the same smell as the expectoration.

On the 16th some bronchial breathing and bronchophony were to be heard in places over the left base, with abundant râles; and on the 18th there was distinct impairment to percussion, diminished vocal vibration, weak breathing, with some faint bronchial breathing and bronchophony.

The general condition of the patient was worse now than on admission, but still not very bad. His temperature ranged from 101° to 103° . He continued bringing up large quantities of the same fœtid expectoration, and his breath was most offensive. Unfortunately the expectoration was never carefully examined for pieces of lung tissue.

Operation (by Mr. Walsham).—On the 18th about one inch and a half of the eighth rib, a little outside the erector spinæ muscle, was resected and the pleura opened. A cavity which seemed to involve a great part of the lower lobe of the lung was thus opened up. The finger introduced could not reach its limits in all directions; but where felt, its walls seemed to consist of loose shreddy lung tissue. The cavity, which contained the same offensive material as was expectorated, was washed out, and several pieces of broken-down lung tissue came away during the process. A large drainage tube was left in.

The patient was very much relieved by the operation. He still for a few days brought up some, though much less, foul expectoration, and the side, from which came a good deal of offensive discharge, required to be dressed and washed out twice in the twenty-four hours. Some more pieces of undoubted lung tissue were washed out in the first twenty-four hours after the operation, but none later. Within a week, the expectoration and breath were quite sweet, as a few days later was the discharge.

The temperature did not come down till a week after the operation; afterwards it was always normal.

The cavity rapidly got smaller. On the 29th an attempt was made to explore it with a cystoscope, but it was not very successful.

Patient at first did perfectly well. By June 12th he was able to get up, and there was very little discharge. On June 2nd he had had a slight hæmoptysis and bleeding from the wound, fol-

lowing a tender spot being touched on the introduction of the drainage-tube.

By June 16th he was able to take gentle exercise out of doors, still with a drainage-tube in the side.

On the 25th, however, during the night, he had a pretty smart hæmoptysis, bringing up about half a pint of blood; there was also some bleeding from the wound. On the 26th he had another attack, rather more severe, and on the 27th another, which proved rapidly fatal by suffocation.

During the last hæmoptysis he coughed up a small piece of what proved microscopically to be undoubted lung tissue.

Post-mortem.—In the lower part of the left lung, between the lobes, was a cavity about two inches long, and at the widest part about one inch broad, into which the drainage-tube went. It contained a little blood-clot, and extended beneath the pleura for a short distance into the upper part of the lower lobe. The lung was perfectly natural around, and no bronchi could be traced opening into the cavity. There was no thickening of the pleura. A careful search did not reveal the seat of the hæmorrhage. The upper part of the lung was free from adhesions. No tubercle anywhere. The right lung, the bronchial glands, and all the other internal organs were natural.

(The left lung with the parts around are preserved in the Museum.)

REMARKS.

There can be little doubt that this was a case of gangrene of the lung, and before the operation this was thought to be the most likely cause of the fœtid expectoration. The only other diagnosis possible would be that of empyema; but against this were the facts that the expectoration was not true pus, and contained at least one fragment of undoubted lung tissue, while others came away from the wound both at and after the operation, and at the post-mortem examination the pleura was found everywhere natural.

As to the cause of the gangrene, it seems likely that pneumonia was set up after the accident, through septic matter having been drawn into the lungs when the patient was unconscious.

The case illustrates the fact that gangrene of the lung may be present and yet the general condition of the patient may not be very alarming.

The results of the operation were in many ways eminently satisfactory. The operation seemed distinctly indicated, as, although the nature of the disease could not be clearly made out, yet the physical signs were sufficiently distinct to show from what part

of the lungs the fœtid expectoration came, and nothing but good could follow a free exit being made for it.

As shown in the notes, the man did perfectly well after the operation, and the post-mortem examination showed how the cavity had contracted and the lung recovered itself.

It is greatly to be regretted that the drainage-tube was not removed when the discharge became slight; it seems almost certain that the hæmoptysis was brought about by the irritation of the tube causing ulceration of a vessel.

CASES FROM MR. WILLET'S WARDS.

BY

J. G. E. COLBY, M.B.

Acute Abscess of the Tongue.

Richard C., æt. 24, carver, admitted into Pitcairn Ward, October 26th.

Fourteen days ago noticed soreness in the mouth and throat, and found he could not swallow properly; then his tongue became swollen and painful, and a gland in the submaxillary region became enlarged and tender.

On admission, he was slightly feverish and seemed ill. The tongue was enlarged, indented by the teeth, covered with a thick white fur, and could not be protruded.

Occupying the centre of the organ, from the foramen cæcum to $\frac{3}{4}$ inch from the tip, was an ill-defined swelling, elastic and giving the sensation of deep fluctuation. The fauces were not affected, nor was there any wound of the tongue or change in the mucous membrane.

Says that he has smoked a good deal and drunk moderately. No history or indication of syphilis.

A median incision let out $1\frac{1}{2}$ oz. of healthy pus; and a probe could be passed in two inches towards the hyoid bone. There was no slough. The wound healed well, and the patient was shortly discharged.

Remarks.—After recording the facts of the case there is little more to say. With the history given and the facts presented there could be little doubt as to the diagnosis; the only other possibility being a gumma, but the history and acuteness of the attack precluded this.

Abscess of the tongue appears to be uncommon, and when chronic has been mistaken for cancer; but occurring as this did,

without any predisposing cause and in an otherwise healthy individual, it is rare.

Three Cases of Arrested Pulsation in Arteries.

1. William W., æt. 9, admitted to Harley Ward at 7.30 on October 18th, suffering from injury to the root of the neck.

At 7 P.M. patient was pushed down into the road, and while on the ground, face downwards, the wheel of an omnibus struck his left shoulder, and squeezed the right side of the thorax against the kerbstone.

On admission, he was pale and cold; respiration regular, but jerky and with inspiratory difficulty. Pulse frequent, and with good volume in the left arm, but completely absent in the right from the root of the neck downwards. Above and below the right clavicle was a small area of surgical emphysema, with a general fulness of the root of the neck and extreme looseness of the acromio-clavicular joint.

The right arm was cooler than the left. No fracture was detected. The abdomen was rigid.

At 10.30 he complained of abdominal pain, but at midnight he was easier, and the arm was warm, with good capillary circulation.

On the 19th he had abdominal pain. On the 20th bruising appeared over the right clavicle and left side of the thorax. The emphysema had disappeared. There was no pulsation in the right upper limb, and the temperature was lower at the bend of the right elbow than on the left side. Sensation not impaired.

October 21.—Slight pulsation in the brachial, high up; none elsewhere. Temp. 8° Fahr. lower on the right side. Still some fulness above the right clavicle, and much bruising.

October 23.—Slight pulse in the right radial. Subsequently the pulse improved a little and all bruising disappeared. Movements and sensation in the arm were perfect.

November 25.—Condition unchanged. Pulse still very small, and extremely feeble.

2. Arthur W., æt. 19, carman, admitted into Pitcairn Ward at 5.40 P.M. on October 18th.

About 5.25, fifteen minutes before admission, he was backing some horses, when his arm was squeezed between the pole of the van on the outside and an iron girder on the inside. There was no immediate pain.

On examination, there was found to be a diffused, soft, and pulseless swelling occupying the middle of the left arm. There

was no wound nor fracture, and movement and sensation were not impaired.

The brachial artery could be felt to the junction of the upper and middle thirds of the arm, but below this no pulsation could be detected. The forearm and hand were cold and much injected, and the capillary circulation was very feeble. At 6.15 P.M. the circumference of the arm was $10\frac{3}{4}$ inches. The limb was enveloped in cotton-wool and warmed by hot bottles. At 7.5 P.M., the circumference was $11\frac{1}{2}$ inches, and he complained of numbness in the thumb. At 10 P.M., circumference $11\frac{3}{4}$ inches; arm and hand quite warm and capillary circulation good. No pulsation below the swelling except behind the external condyle.

October 19.—No increase in the swelling; some pain; general condition good.

October 20.—Faint pulse in the radial. Circumference $11\frac{1}{2}$ inches.

October 21.—Radial pulse stronger, pain less.

The swelling, and with it the pain, decreased, and pulsation became gradually more marked. The thermometer showed a difference of temperature in favour of the sound arm when it was no longer appreciable to the hand. The brachial could be traced to the middle of the arm, where it ceased abruptly at a hard cord which ran down to the elbow. Later a pulse could be detected behind the internal condyle, but none in the ulnar or radial arteries.

3. Albert P., æt 23, admitted October 17th into Harley Ward.

Shortly before admission patient jumped out of a fifth-storey window, and sustained multiple fractures of the bones of the legs and thighs, compound, simple, and comminuted.

In detail.—There was a compound comminuted fracture of the lower end of the right femur, the upper fragment projecting through a large wound on the anterior surface of the thigh. The right tibia was comminuted, and fragments had pierced the skin in several places.

In the left limb, the fracture of the femur was T-shaped, and the upper fragment projected through, and was impacted in the skin. The tibia too was comminuted, and no pulsation could be felt anywhere below the knee.

The right limb was amputated through the middle of the thigh. In the left, the projecting bone and the wound were irrigated with perchloride of mercury lotion, a piece sawn off, the fracture reduced, and a straight splint applied.

Patient never rallied, and died within two hours.

On examination of the amputated limb, the lower third of the

femur was found comminuted, and the cartilage over the internal condyle was cracked transversely. The patella showed a "star-shaped" fracture on its cartilaginous surface, the fragments being generally driven into the cancellous texture. The periosteum and fascial expansion in front were not torn, nor was the fracture evident until the joint was exposed. The tibia and fibula had been shivered into countless fragments.

Post-mortem examination of the left limb showed an extensively comminuted fracture of the shaft of the femur extending into the joint, and that a small part of the cartilage of the outer condyle had been depressed into the cancellous tissue, whilst the patella was crushed at both lateral margins. The femoral and popliteal arteries were compressed by the fragments, but the lumen was intact.

Remarks.—As to the first of these cases, there can be but little doubt, from the extreme looseness of the clavicle and the presence of air in the tissues, that there was a fracture of the first rib, and hence presumably sufficient violence to cause partial or complete rupture of the subclavian artery; but whether either of these took place, or the vessel became compressed or flattened over a displaced fragment, is impossible to say, but, in the absence of swelling either above the clavicle or in the axilla, this latter seems the more probable explanation. The amount of effusion was not great, and remained stationary without any pulsation; therefore the obliteration was rapid, if not instantaneous, and fairly complete.

In the second case, the bone being intact, the vessel superficial, and the patient coming under observation at once, the nature of the injury was much easier to determine. Though the effusion quickly increased, yet it soon reached a maximum, and without much tension. Even before this, a pulse could be felt behind the external condyle, and remained, gradually increasing.

The hard cord, subsequently to be felt in the line of the artery, was taken to be the basilic vein, from which the hæmorrhage took place.

The artery appears clearly to have been completely ruptured.

In the third case, among the many points of interest and importance, this one of interruption to the blood current in the artery was not the least, for it was really a question of double amputation; the fact that the vessel could be felt beating at the place where it was supposed to be injured going far to prevent it.

The after-examination, proving that the vessel was in no way

permanently injured, is rather an indication not always to assume that the damage opposite a fracture is so serious as to require extreme treatment.

Hydatids in the Abdomen—Drainage through the Bladder.

William J., æt. 29, umbrella-maker, admitted April 23rd, into Pitcairn.

The patient first presented himself in September 1887. At that time there were two tumours in the lower part of the abdomen, one of which was aspirated and hydatid-like fluid drawn off.

Since that time he has had no trouble, whereas formerly he had to draw off his urine with a catheter. The operation was followed by transient hæmaturia.

Now, there are three distinct swellings to be made out—one in the right hypochondrium, another in the left iliac region, and a third extending from the umbilicus downwards and to the left towards the second. They are all firm and elastic, dull on percussion, and give the characteristic hydatid fremitus.

After being seen at "Consultations" by the other surgeons, the large cyst was aspirated and a few ounces of fluid withdrawn. On this followed abdominal pain and tenderness, with an irregular temperature, dysuria, and retention of urine. The swelling increased, could be felt prominently in the rectum, and the urine became abominably foetid and contained pus and shreddy lymph.

After a further consultation, it was decided to make a free opening into the cyst.

Accordingly a suprapubic cystotomy was done, and an opening in the posterior wall of the bladder leading into the hydatid swelling was enlarged.

The urine was first drawn off and boracic lotion injected into the bladder until it returned quite clear. A median incision was then made above the pubes, and the bladder soon came upon. This was opened and examined with the finger, when it was ascertained that the whole organ was pushed bodily forwards by the cyst, and that ulceration had already established a communication between the two. This was enlarged so as to admit two drainage-tubes ($\frac{3}{8}$ -in. diameter), and enable irrigation to be thoroughly carried out.

The edges of the bladder-wound were brought to those of the skin and sutured with silk. Iodoform gauze and wool were applied.

The dressings were soon soaked, the patient became very

wet, a difficulty met by the use of india-rubber sheeting with a hole cut in the middle like an ovariectomy sheet, and drainage over the side of the bed.

The note of June 1st says:—Patient is going on nicely; only a faint fœtor in the washings. Sleeps and eats well, and feels much more comfortable. Cavity and bladder washed out daily, the urine being strongly alkaline.

Smaller drainage-tubes were substituted, and on June 22nd they too were removed. The wound healed slowly, and for a time most of the urine passed that way.

Subsequently he passed large pieces of hydatid membrane by the urethra, and the fistula closed completely. On discharge, his only complaint was of pain in the left loin and a numbness in the course of the external cutaneous nerve of the left thigh. Per rectum a little thickening could be felt in the anterior wall.

Patient presented himself again two months afterwards, and then complained of the scar being drawn in during micturition.

Remarks.—The parasitic origin of all the swellings, as suggested by the peculiar fremitus, being confirmed by the nature of the fluid withdrawn and the connection of the one in the pelvis with the bladder being supported by the presence of retention before aspiration and hæmaturia afterwards, the chief remaining interest lies in the method of dealing with it.

Aspiration having led to suppuration, probably by contamination of the trochar introduced through the rectum, the difficulty lay in evacuating the cyst with a minimum risk, and the plan adopted certainly effected this most satisfactorily.

Drainage was carried on through the bladder, thus avoiding any opening of the peritoneum, and the cavity kept clean with boracic acid.

Probably the opening in the posterior wall became larger, so as to allow of the large pieces of membrane being extruded by the contracting cyst.

PROCEEDINGS

OF

THE ABERNETHIAN SOCIETY

FOR WINTER SESSION 1888-89.

OFFICERS.

<i>Presidents</i>	Dr. W. H. HAMER and Dr. W. F. ANDREWES.
<i>Vice-Presidents</i>	Dr. G. HEATON and Mr. L. ANDREWS.
<i>Treasurer</i>	Sir WILLIAM S. SAVORY, F.R.S.
<i>Secretaries</i>	Mr. W. KENT HUGHES and Mr. C. R. STEVENS.
<i>Additional Committee-men</i>	Mr. W. E. SARGENT and Mr. A. G. GANT.

October 9.

Opening meeting.

The Annual Introductory Address on 'The Progress of Medicine at St. Bartholomew's Hospital' was delivered by Dr. Norman Moore on October 9th. This lecture was afterwards printed *in extenso* for the use of the Society.

October 16.

'Aphasia and Allied Conditions,' by Mr. Edmund Cautley, M.B.

The affections included under this heading may be divided into two classes:—I. Motor aphasia—aphasia, agraphia, amimia; II. Sensory aphasia—verbal deafness, verbal blindness, gestural blindness; and a fourth condition, the opposite of amimia, in which muscular movements can be performed by the patient, but do not give rise to 'sense images.' Thus the patient may write the letter 'a,' but it does not convey to his mind the idea of that letter.

Speech, writing, and gesture are the means of expression for mental processes, and are used to express — (1.) Ideas ; (2.) Emotions.

Now 'emotions' are more or less simple and automatic ; they are not started into action, with exceptions, by the will ; they arise independently and are restrained by the will. Hence, for their expression, simple and automatic actions are required, such as gestures.

Gesture symbols are simple, easily acquired, and easily understood ; they are the same for the race and the individual. What nation or what individual does not understand the angry frown, the contemptuous curl of the lip, or the clenched fist shaken in close proximity to the face ? Following, then, the rule that those functions which are acquired earliest in life, and are performed with least effort, have the greatest number of collateral connections, and are the latest to fail in disease, it is easy to understand that speech and the power of writing may both fail, and the power of expressing emotions by gesture yet remain. To a certain extent the power of expressing 'propositions' may also be left, *e.g.*, such simple propositions as affirmation by a nod ; but at times even this simple power is found wanting, and the patient nods whether he means yes or no.

Speech and writing, on the other hand, are the means of expressing 'ideas.' Now writing is merely expression by speech translated into symbols of a different kind. There must be, then, a very close connection between the motor area for the arm and hand and the part of the brain where 'unspoken words' are formed. A difficulty here arises—are these unspoken words or symbols started into action in different regions, according as expression by speech or writing is required, or are they energised in the same region, namely, the centre for speech, and in the case of expression by writing transmitted through and modified in a subordinate centre, namely, the centre for writing ? Against the correctness of the first view may be urged the fact that those who are unaccustomed to writing, or can only write a little, help themselves in the process by muttering with their lips the words they wish to write, thus creating a stronger, more vivid 'sense image' in their higher centre, and so increasing the power of transmission through the subordinate one. Again, on the other hand, it is a fact that aphasia may be complete without there being any agraphia ; this might be explained by supposing that the centre for writing is capable of energising of itself 'unspoken words,' and is merely modified and assisted by the speech centre.

Another consideration is that there may be agraphia and no aphasia; the centre for writing is alone involved in such cases, but the centre for speech has free communication with the opposite side of the brain. Why, then, if it presides to any extent over the power of writing, does it not set into action the centre for writing on the opposite side of the brain when that on the same side is rendered inert and useless?

The mechanism of speech is constituted as follows—(i.) A speech centre, receiving impressions, visual, auditory, &c., which start it into action; (ii.) Nerve fibres, by which the impulses started are conducted downwards from the centre through the internal capsule and corpus striatum; (iii.) A lower mechanism in the medulla; (iv.) Peripheral nerves; (v.) Muscles; (vi.) Mechanism for phonation. Speech, therefore, is produced thus: A visual or other impression energises the nervous elements in the speech centre, and 'sense images' of words are there formed; impulses are transmitted outwards along the nerve tracts through the corpus striatum, where they may be more or less modified; thence to the medulla and along the different nerves to the muscles. The muscular movements are co-ordinated according to the words to be expressed (articulation), and the larynx completes speech, enabling it to be heard at a distance (phonation). Sound produced in the larynx is merely material for articulation, with the one exception that, by its variations, it can be used as a means of expression, and is then an expressional gesture; and, like other gestures, chiefly expresses emotions, but can be educated for the illustration of intellectual processes.

In childhood, there is a double centre for speech, one on each side of the brain. The brain being most exquisitely symmetrical, it is impossible to imagine that a small portion on one side is at birth capable of discharging a function which a symmetrical portion of the other is incapable of. But, in the course of growth, the left hemisphere gradually assumes the monopoly of the speech function, except, indeed, in left-handed persons, in whom the right centre assumes the monopoly. Hence the conclusion that the portion of the brain that is the most stimulated is the most developed, and that there is a very close connection between the muscular movements of the right arm and hand and speech. The reason that the left speech centre has a greater tendency to develop than the right is perhaps the anatomical fact that the left half of the brain, even at birth, is better supplied with blood and is larger; perhaps it is because it possesses a certain potential energy at the time of birth which has been transmitted to it by inheritance, through

that region having been devoted to speech from time immemorial. Thus, in the case of a child who, at the age of eighteen months, was suddenly struck by complete right hemiplegia, and at the age of four died without ever having spoken, this potential energy in the speech centre on the left was excessive. The child suffered from congenital heart-disease. Dr. Andrew, under whose care he was, remarked that he was very intelligent, and that there seemed no reason to suppose, had not embolism occurred on the left side of the brain, that he would not have been able to speak in the usual course of childhood. In this case the centre on the right side, the supplemental centre, was little or not at all developed.

Aphasia due to permanent destruction of the speech region in the left hemisphere has been recovered from, and that this recovery is due to the right speech region taking on a supplemental action is proved by the fact that in some of these cases speech has been again lost, when a fresh lesion has occurred in this part of the right hemisphere. This supplemental action occurs far more readily in children than in adults. In children permanent aphasia from disease of the left hemisphere is almost unknown; the loss of speech rarely lasts more than a week, and then the child speaks as well as ever. Hence it is very probable that in childhood the speech processes go on more equally in the two hemispheres; one has not yet assumed the monopoly. Some individuals, with a permanent lesion, recover speech much more quickly than others.

Where, then, is this speech region?

In each hemisphere the lower part of the ascending frontal convolution contains the centres for the movements of the muscles concerned in articulation; motor processes for words leave the cortex at this part. The adjacent posterior third of the lowermost frontal convolution also contains structures which subserve speech, for it is found that if this region be rendered useless, complete aphasia results. This, then, is the 'speech centre,' and here the higher processes concerned in the production of speech are elaborated. That region in the left hemisphere is the all-important one, while the corresponding one on the right has a supplemental function.

Now this region has numerous connections—(i.) With the centre on the opposite side by fibres passing through the corpus callosum. (ii.) With the centre for the movements of the arm and hand in the middle of the ascending frontal, and with the centre for writing in the posterior part of the middle frontal. If this connection be damaged, agraphia may possibly ensue without aphasia. (iii.) With the motor area for the muscles of

articulation, and, through this, with the descending tract for the transmission of verbal impulses to the internal capsule.

Hence a lesion, either in this motor area or in the course of the nerve-fibres to the internal capsule, causes complete aphasia; and if it involve also the fibres to the corpus callosum, the aphasia is permanent; unless, indeed, the patient be taught, as a deaf mute is taught, and then the right centre may be partially educated. In neither case would there be agraphia.

If the lesion be in the internal capsule or other part of the corpus striatum, both aphasia and agraphia ensue; but since the fibres to the corpus callosum are not involved, the aphasia is more likely to be recovered from. The agraphia is due to the nerve-fibres from the motor area for the hand and arm also passing through the internal capsule. It is possible in such cases for the agraphia to be recovered from, but very improbable, for writing is even more complex than speech.

All the above-mentioned regions are supplied by branches of the middle cerebral artery, and the commonest cause of aphasia is embolism of this artery. According to the size of the embolus a greater or less portion of this area of the brain is rendered inert; if it be very small, it may only plug the branch which supplies the speech centre or the branch to the centre for writing with nutriment. Other causes of these affections are external pressure from tumours, effused blood, depressed bone, &c., and internal hæmorrhage from rupture of one of the branches of the middle cerebral artery.

With regard to the lesion which occasions amimia, it is doubtful where it is situated, and the affection has not been sufficiently recognised to enable one to state whether it can occur alone. In those cases in which it has been recognised, the lesion has been a grave one, and accompanied by aphasia, agraphia, and right hemiplegia; so it may perhaps be due to the size of the lesion rather than the situation.

You may be inclined to ask me what evidence I can bring forward to prove that the regions I have indicated are in truth the centres for speech and writing. Let it suffice in answer to explain that these are the results obtained by the careful study of cases of cerebral embolism, hæmorrhage, &c., both in their clinical history and symptoms and post-mortem examinations. The right frontal lobe may be completely disorganised without aphasia resulting; several cases are recorded. Grave lesions of the frontal lobes may be present without aphasia or paralysis occurring, provided the lesion does not extend too far back. Temporary aphasia may be due to the pressure of a small hæmorrhage; may occur in migraine or as the aura of an

epileptic fit; may also occur after acute fevers, possibly explainable by local anæmia or congestion.

The great function of the speech centre is the conversion of 'thought' into 'unspoken words;' when, therefore, this centre is rendered useless this power is lost. A great many people are under the delusion that they can think and reason without mentally converting their thoughts into unspoken words or symbols, by which thought is carried on. It is an error; it is impossible to follow out a chain of reasoning in the manner they suppose. To quote Trousseau: Undoubtedly the mind may wander a little at random without being obliged to give a corporeal form to its ideas; but as soon as it tries to make them abstract, a condition indispensable for their co-ordination, it is impossible not to clothe them in their material dress, namely, words and other symbols. Unspoken words are not the only essentials of thought and reasoning, for a deaf mute can reason from visual, and a blind man from tactile impressions. A healthy man, therefore, cannot reason without creating in his mind the 'sense images' of the words and symbols with which he reasons, and it is in this region of the brain that the conversion into a material form of thoughts and ideas, wandering unexpressed in the mind, takes place.

Allowing this to be the function of the speech centre, let us differentiate the varieties of aphasia:—

(a.) Complete inability to convert thoughts into unspoken words, due to the speech centre being rendered *hors-de-combat*. Such a patient cannot talk, but he can play games, &c., with his usual skill, since he can reason from his visual impressions.

(b.) Paraphasia, *i.e.*, ability to use plenty of words, but they are used wrongly. (1.) The words may have no meaning; (2.) The words may not express what the patient means.

The lesion is not in the speech centre; it is somewhere in the course of the outward transmission of verbal impulses, the patient has not complete control over his muscular and motor nervous apparatus for articulation. Consequently this affection would be better not included under the general term aphasia, as in it there is no defect in the conversion of thoughts and ideas into material form; the defect lies in altered or defective transmission after such conversion has taken place.

For a similar reason it is better not to include the following conditions under the head of aphasia, *viz.*:—(a.) Amentia or dementia—here the aphasia is due to the absence of thoughts and unspoken words or symbols, not to any difficulty in the conversion or expression of them; (b.) Deaf-mutism; (c.) Muscular defects due to paralysis, &c., resulting in defective articu-

lation; the failure being in the words spoken, and not in the words thought; (*d.*) Aphonia—merely a failure in the material for phonation.

Let us turn now to sensory aphasia and its four varieties. We notice at once that verbal blindness and verbal deafness are by no means uncommon, while the other two affections have been almost entirely overlooked.

Well, in this curious affection, named verbal deafness, hearing and mind are perfect, but words spoken cannot get into the patient's mind, he cannot understand what is said to him. The fault lies in the process by which the 'word heard' is converted into the 'word understood;' it is a fault which affects the understanding of speech, whereas other sounds, such as the ticking of a watch, is at once understood. The lesion in these cases is found to be situated in the posterior part of the uppermost frontal convolution, which must therefore be regarded as the seat of transformation of auditory impressions into sense images. The patient generally has a considerable power of speech, but makes mistakes in words and in their form, especially when using unfamiliar ones; he is not conscious of his errors.

In the revival of words the auditory word processes are the most important. Hence if the region where this takes place be damaged, there will be more or less verbal amnesia, and consequently the patient may not recollect the word at all, or recollects it wrongly. On the other hand, we find that verbal amnesia may occur without word-deafness, and without any impairment of the power of expressing words; the loss is never absolute, and is always a defect in the voluntary revival of words: it is due to relative inadequacy of the structures in which the speech processes go on, and is closely akin to amentia and dementia. Now deafness may be only partial; a patient may understand familiar words, but not unfamiliar ones; he may understand writing or gestures while he does not understand speech. Slow recovery may take place, even though the lesion be a persistent one; this of course being due to re-education of the centre on the right side of the brain. It is also greatly assisted by the performance of the muscular movements requisite to say the word. Thus a patient hears a word he cannot understand, repeats it over and over to himself, and suddenly the meaning flashes upon him.

In verbal blindness the fault lies in the process by which the 'word seen' is converted into the 'word understood,' and the patient, although he can see quite distinctly, cannot read or understand writing. Sometimes it is accompanied by defects

in the field of vision. It may be absolutely the only defect present, all the other processes for speech and thought being perfect. In one case recorded the patient could write, but not read his own writing. Patients with motor aphasia often cannot read, but there may be no actual word-blindness; others will often say that they can read and understand what they read, and really think they are speaking the truth; whereas if the simplest test be applied, their reading is found to be a mere delusion. The lesion causing verbal blindness has been localised in the inferior parietal convolution, in the infra-marginal part, and probably in the angular also. Gestural blindness is inability to understand gestures used by others; it is exceedingly difficult or even impossible to recognise, and is probably frequently mistaken for mere lack of intelligence, such as occurs in amentia and dementia. With regard to the fourth variety of sensory aphasia, there is also very little to be said at present. Under this heading I include loss of the power of conversion into sense images, conducive to the speech faculty and expression of ideas, of all sensory impressions which are concerned in the intellectual processes, except the visual and auditory impressions. More especially do I refer to those originated by muscular movements in writing or speaking. Thus in the case of a man who suffered from verbal blindness, and could understand writing by following with his finger the written symbols, or even by making analogous movements in the air; had he not possessed this power of understanding writing, he could not have been affected with one of the forms of sensory aphasia which come under this heading. Similarly, in the case of the man mentioned above as suffering from verbal deafness; if on repeating over and over to himself the words he could not grasp the meaning of, if even then he did not understand them, he would have been suffering from another variety of this sensory aphasia. These latter varieties require very careful and close observation in order to recognise them, and as they have not been thoroughly worked out, leave us still a field for inquiry. In many cases their recognition is impossible. In conclusion, let me point out that the more intelligent and the more educated a patient is, the more suitable is he for careful observation; while hospital patients are, as a rule, dull, unintelligent, and disappointing.

October 25.

Mr. Cautley showed a case of separation of the epiphysis of the humerus, or dislocation backward of the ulna and radius.

The surgical discussion upon 'Strumous Arthritis' was opened by Mr. D'Arcy Power.

He pointed out the great frequency of the disease, and urged its great importance. He directed his remarks chiefly to the treatment of the condition. In the vast majority of cases, he would rely only on absolute rest, but the rest in bed must be prolonged. So far from being weakened by this treatment, children actually increase in weight while thus at rest.

As regards splints, Mr. Power preferred Croft's and Bavarians to the more expensive and cumbersome varieties, and he also spoke highly of Thomas's splint, laying special stress upon the usefulness of the 'double Thomas.'

He then proceeded to the operative treatment of the disease. Excision in many cases was unsatisfactory, even at the time of its performance, and convalescence was often very protracted. Of late years the operation of arthrectomy had to a large extent supplanted excision. The joint, after having been opened, should be thoroughly examined.

Mr. Power's cases of arthrectomy had been mainly satisfactory, but he had seen many do badly.

The best indication for operation is the failure of complete rest to hinder the progress of the disease. In support of his views Mr. Power quoted Mr. Edmund Owen.

In short, he considered that arthrectomy is the proper operation in most of those cases in which excision has hitherto been performed.

An interesting discussion followed.

November 1.

Mr. Knight showed a case of lamellar cataract, and also a microscopic specimen of primary columnar carcinoma of the buttock.

Dr. Herringham then read his paper upon 'Paralysis Agitans.'

He gave a short history of the disease, and the various stages of its isolation from 1817 to the present time. To Parkinson he gave the credit of first correctly describing the disease, and to his description he adhered.

Dr. Herringham then described the chief characteristics of the disease, and explained minutely the movements of the hands and the changes in the patient's disposition.

He proceeded to describe some of the rarer forms of the disease characterised by extreme rigidity.

The diagnosis from chorea and disseminated sclerosis was

then touched upon. He also differentiated the tremors of lead-poisoning, nervousness, and hysteria.

Dr. Herringham then entered upon a minute description of the tremors, their character, and causation. He explained the method which he had adopted of recording the tremors on a blackened surface, and mentioned incidentally that he could find no difference between senile tremors and those of paralysis agitans.

All treatment was unsatisfactory.

November 15.

Mr. Crouch read his paper on 'Adenoid Vegetations.'

He began by giving a definition of the disease, and went on to discuss the distribution of growths in the naso-pharynx. He considered that, as a rule, the vegetations are not found on the Eustachian prominences, and that the deafness present is the result of inflammation set up by the presence of growths in a fossa behind the Eustachian prominence, the fossa of Rosenmüller, where they are always present in considerable quantity, in some cases completely filling it.

He then described the type of face present in this affection, and explained that its cause was the nasal obstruction. A photograph by Mr. L. E. Jowers illustrating this point was shown.

In discussing the subject of operation, he advised his hearers to always use an anæsthetic, as he considered the operation without it to be brutal and inefficient.

November 22.

Mr. Crouch showed a case of multiple sarcomata.

Dr. Gow read his paper upon 'Suppression of Urine.'

Suppression of urine was divided into two heads, obstructive and non-obstructive. The former variety was discussed and its main symptoms set forth.

It was shown that in an uncomplicated case the symptoms were muscular weakness, which gradually increased, and muscular twitching.

Death, which generally took place on the ninth or tenth day, was due to increasing feebleness of the respiratory muscles.

Cases of obstructive suppression were related.

The contrast between the symptoms of obstructive suppression and the uræmia of Bright's disease was shown, and it was therefore asserted that the latter symptoms could not be due to

retention of the urinary products alone, but that some other factor or factors must be present.

The various conditions under which non-obstructive suppression occurs were then briefly narrated.

November 29.

Dr. Rolleston showed two specimens of liver from cases of pernicious anæmia.

Mr. Knight showed a case of cataract, and a specimen of degeneration of a nerve following injury.

Dr. F. W. Andrewes then read his paper upon 'Ulcerative Endocarditis.' He first gave a brief sketch of five cases, which were clinically of the most widely diverging types.

He then gave a short account of the pathology of simple endocarditis, showing that ulceration was not confined to the malignant or septic form.

The essential character of the latter is the presence of micro-organisms in the vegetations, now known not to be specific, but to belong to more than one species of micrococcus—all believed to be identical with those found in connection with acute suppuration, diffuse phlegmonous inflammation, and probably pyæmia and septicæmia. Intermediate cases, however, occur, of which it seems as yet impossible to say whether they are cases of simple or malignant endocarditis: it is likely that ulcerative endocarditis is not a sharply defined disease, but presents varying degrees of septicity, passing downwards into the simple form.

Dr. Andrewes then described the post-mortem appearances found in ulcerative endocarditis, and mentioned a case in which the symptoms during life had seemed to point clearly to the malignant type of the disease, but which at the post-mortem proved to be a case of simple valvulitis.

In nearly all cases, old valvulitis has been found in addition to the recent septic form. In truly malignant cases distant infarctions are as frequently simple as septic. He then mentioned some of the principal symptoms of the disease, laying special stress on the acuteness of its course and on the presence of irregular fever and rigors. The principal types are the cardiac, the pyæmic, the ague-like, the typhoid, the cerebral. He gave an account of an acute cardiac type in which the patient died in thirty days of acute aortic regurgitation.

The differential diagnosis, prognosis, and treatment were briefly touched on, and a case quoted from the *Lancet* of what appeared to be undoubted recovery from ulcerative endocarditis.

Lastly, he discussed the ætiology of the disease, and mentioned the results of experiments on animals, as proving that the mere intravenous injection of cultures of the micro-organisms was without effect, unless the valves had been in some way injured beforehand.

December 6.

Mr. Napier showed a specimen of sarcoma of the pelvis extending into the inferior vena cava.

Mr. Roughton read his paper upon 'Nasal Obstruction.'

The object of the paper was to bring the importance of the subject forcibly before the Society, rather than to introduce any new ideas or observations. He dwelt upon the great importance of the nasal passages in the act of respiration. The evil effects of buccal respiration were then detailed, and they were shown to have a direct influence in the production of many morbid states, including lung affection, deafness, sore throat, dry mouth, furred tongue, nightmare, and other conditions.

The causes of obstruction were then referred to, the author dividing them into the naso-pharyngeal and the nasal; the latter being subdivided into the septal and turbinal. Under each head the most appropriate treatment was indicated.

The paper was illustrated by anatomical and pathological specimens from the museum and dissecting-room, and the most important instruments used in the treatment of nasal obstruction were also produced.

January 3, 1889.

Mr. Knight showed a specimen of cavernous nævus of the liver.

Dr. Andrewes showed a specimen of ulceration of the large intestine, in which the remnants of the mucous membrane presented the appearance of multiple polypi.

Dr. Hamer read his paper upon 'Diphtheria.'

He gave a brief account of the various forms of malignant sore throat, and related the conflicting views which had been held regarding the distinguishing characters of the different forms of angina.

He then considered the main characteristics of the scarletinal and diphtheritic forms of sore throat, and endeavoured to show that the cases of so-called diphtheria consecutive to scarlet fever were definitely distinguishable from true diphtheria.

January 10.

Dr. Hamer showed a case of neuro-paralytic ulceration of the cornea and facial paralysis, caused by instruments used during labour.

Mr. Johnson read his paper upon the 'Medical School of Vienna.' He sketched the advantages specially offered to qualified students, and the methods of conducting classes and the general mode of teaching. Special subjects were probably better taught there than was surgery, medicine, or midwifery. He drew a contrast between their nursing system and ours, and proceeded to describe the hospital and its annexed departments, and finally estimated the cost of living and the fees for courses, and gave advice as to the best method of obtaining information on the spot.

January 17.

Dr. Klein, F.R.S., read a paper upon 'The Scientific Aspect of Disinfection.'

The communicable diseases are the disorders in connection with, and in reference to which, the practice of disinfection is employed. These diseases are capable of being conveyed from person to person, either directly, as in small-pox, or indirectly, by water, food, &c., as is generally the case in typhoid fever and cholera. But in all cases it is a something which is produced within the person affected, which is conveyed to another person, in whom it sets up the disease. This something, the contagion, has been shown in many of the communicable diseases to be a living thing, *i.e.*, microscopically a minute vegetable organism, different for the different infectious diseases. These are called 'microbes' or 'disease germs,' and when these find an entrance into a susceptible individual, they multiply and set up the same disorders; so that a susceptible individual becomes, as it were, the new soil in which the contagion is sown, and by its multiplication produces a new and vast crop of the same microbes. The morbid products of such an individual are, as a rule, the materials by which this new crop is liberated into the outside world, and from here, either directly by contact, or through the air, water, and food, become disseminated. Now, infectious diseases differ from one another in the following respects in a marked degree; for in some the microbes, when liberated from the affected person, do not multiply till they are conveyed again into a fresh and susceptible person. Such is the case with hydrophobia and small-pox; but in others the microbes, when liberated, are capable of carrying on an independent existence,

and of multiplying independently of the human or animal body. Such is the case with typhoid fever, cholera, diphtheria, &c. It is clear that in these latter diseases the spread of the disorder will be facilitated. A comparatively small number of the particular microbes, finding in the outside world the necessary conditions for thriving and multiplying, such as a favourable temperature, moisture, and nitrogenous food, would, owing to the capability of the microbes to multiply with great rapidity, yield a large host ready for mischief; and experience proves that with regard to anthrax, typhoid fever, cholera, scarlet fever, and diphtheria, this is actually the case.

Now, disinfection is the process by which the power of the contagion of multiplying outside the affected person can not only be arrested, but by which the microbes themselves may be destroyed. During the last twelve or fifteen years the contagion or disease germ of a number of communicable diseases has been identified and carefully studied in their morphological and biological characters, in their life and habits, and in their distribution; and owing to the fact that many of them are capable of thriving and multiplying outside the animal body, it has become possible, by careful and systematic laboratory experiments, to study the means by which their life and action can be destroyed, or, failing this, their power of multiplication, and therefore dissemination, can best be inhibited. The result of the experiments is the subject which I bring to your notice to-night.

I will give you first a few general results, and will then pass on to the special cases.

(1.) First of all, it has been found that the different contagia differ in their habits from one another in many respects, and that an agency disadvantageous to the multiplying power of one species may be harmless to that of another; that which may be fatal for one may have no effect whatever on another; or that an agency inimical to the existence of one species in a particular phase of its life may be without influence on the same species in another phase of its career.

(2.) It has been shown that, in dealing with disease germs, the power of killing must be carefully distinguished from the power of inhibiting its growth. In this respect, the greatest confusion exists in the public as well as in the professional mind.

(3.) Further, the surroundings in which a disease germ happens to be have to be taken into account; *e.g.*, it makes all the difference in the world whether disease germs find themselves in a greatly diluted medium, or in a medium in which all the necessaries for their existence are present, as, for instance, pro-

teids. From all this it follows that, in the application of disinfectants, all these differences have to be taken into account if success is to be achieved; an irrational application, by rule of thumb—as, for instance, when a certain agency which proves efficacious in one particular condition is at once applied to all other conditions—not only will lead to waste of materials, but, what is worse still, to an imaginary security from an insidious enemy, which, I need hardly say, is worse than the knowledge that the enemy is still about. The means used for disinfection are many and various. In order to obtain a rational and accurate estimate of the efficacy of a disinfectant, this has to be tried on the disease germs in a pure state, and then under various conditions, which can be altered at will, and which we can make to imitate those occurring in nature.

(4.) And finally, the degree in which the disinfectant is used; for a certain substance, though a disinfectant in one state, is quite useless in another.

The time at my disposal is far too short to describe to you all the details of the special means used as disinfectants, and I must therefore ask leave to allude only briefly to those which are chiefly in use.

They may be classed as A. natural, and B. artificial means.

Under A.—(a.) sunlight; (b.) putrefaction, by chemical means and by the survival of the fittest; (c.) drying; (d.) dilution of the nutritive medium.

Under B.—(e.) heat, dry and moist; (f.) oxidation, as by peroxide of hydrogen and potassium permanganate; (g.) chemical means.

These work—(α) by destruction and coagulation of the substance of microbes, *e.g.*, quicklime, caustics, strong mineral acids; (β) by the action of acidity on spores and sporeless microbes; (γ) specification, possibly by coagulative power, as carbolic acid, perchloride of mercury, iodine; (δ) by gaseous disinfection.

In conclusion, we must remember that in all disinfecting processes, the cheapest, the most effective, and the most practicable means are those that are required; for it is really the general public which has to use them, and, in their application, every individual instance of infective disease will have to be considered separately.

January 24.

Dr. Lewis Jones read a paper upon 'Facial Diagnosis.'

He began by showing a series of cases whose external appearances were suggestive of certain diseases.

These included types of lateral sclerosis, aortic disease, congenital heart-disease, struma, chronic epilepsy, chronic interstitial nephritis, hemiplegia, chronic bronchitis, and emphysema.

Dr. Jones then gave a sketch of the methods used in the Medical Casualty Department, where powers of rapid diagnosis are very necessary. He then briefly defined the title of his paper, and under the heading 'Facial Diagnosis' he not only included the scrutiny of the face, but of everything which could be seen without undressing the patient. He then proceeded to enumerate some of the diseases which leave a mark upon their victims. After briefly sketching the history and development of 'Facial Diagnosis,' he gave an account of the method used in rapid examination of patients, and proceeded to enumerate seven types of disease with characteristic facial expressions, viz., the cerebral, the pulmonary, the cardiac, the hepatic, the abdominal, the renal, the uterine—describing and analysing each type.

Dr. Jones warned beginners against mistaking the lividity due to heart-disease for the glow of health, and insisted on the great importance of carefully examining the hands of the patient.

January 31.

Mr. Napier read a paper upon 'Tumours of the Orbit.'

After having detailed Lawson's classification of tumours in this region, and discussing the locality and effects of orbital tumours, he entered upon the question of diagnosis, and advocated Lawson's method of examination in the earlier stages, and in the latter auscultation and exploratory puncture.

Subdividing the first of the above divisions into—(a) orbital sarcomata; (β) tumours of optic nerve; (γ) scirrhus tumours; (δ) bony and cartilaginous tumours; (ε) fibrous tumours; (ζ) cysts—(i.) dermoid, (ii.) serous, (iii.) hydatid, he touched upon the symptoms produced by each and the methods of removal.

Passing to recurrent tumours in the orbit, Mr. Napier divided them into (a) sarcomata of choroid, and (b) gliomata of retina.

After discussing these conditions, he read abstracts of several cases exemplifying his remarks.

February 7.

Mr. Knight showed a specimen of tubercle in the vessels of the pia mater.

Mr. Kent Hughes showed a specimen of adenoma of the breast with papillomatous in-growths.

Dr. Spicer read a paper upon 'The Future of Medicine.'

He began by dividing the history of medicine into four ages, viz., the Greek, the Roman, the Harveian, and the present age. In speaking of the latter, how many isolated facts have been brought into relation with each other and brought under the domain of law.

As regards the outlook, he divided it into the scientific and the sociological outlook. On this point he quoted from Herbert Spencer and Plato.

He touched on the existing conditions of life and the constant struggle for existence. In Russia, the death greatly exceeded the birth rate in some parts. On the other hand, the advance of science helps the weaker to exist and multiply.

The best effects of medicine lay in its preventive power. As long as a physician can make the ills of life more tolerable and the pain of death more easy, he will have a high claim for consideration. A large field exists for the development of medicine. The pharmaceutical part of medicine has had its day. The purely diagnostic part has reached a state of comparative perfection.

There is a great future before us, and the advance lies in the direction of an improved knowledge of disease.

February 14.

Medical discussion on abdominal tumours, introduced by Dr. Habershon.

February 21.

No meeting of the Society took place.

February 28.

Dr. Rivers read his paper upon 'Delirium and its Allied Conditions.'

Delirium was first described, and its phenomena compared with those of insanity, and especially those of mania. The differences were shown to be dependent mainly on the difference of duration of the two conditions. Acute delirious mania and delirium tremens were described as intermediate conditions, and several instances were given of delirium from fevers or from the action of drugs acting as starting-points for attacks of

insanity. The state of delirium was then compared with that of dreaming, somnambulism, and hypnotism. Delirium and insanity were shown to be closely analogous, and it was suggested that many forms of insanity were due to morbid poisons. The fact that narcotics have been found to be harmful in cases of acute insanity was brought forward as an argument against their use in delirium. The wide separation at present existing between mental and bodily diseases was condemned, and it was urged that more attention should be paid to the mental symptoms of general diseases.

March 7.

Mr. Knight showed histological specimens of bilharzia and of growths in the dura matter from a case of Hodgkin's disease.

Mr. Lloyd Jones showed a series of tracings illustrating the effect of sipping cold water on blood pressure.

Mr. Heaton read his paper upon 'Tumours of the Bladder.' He classified and described the malignant tumours, sarcoma being especially rare.

Innocent tumours are rarer than malignant, and are usually either papillomata or mucous polypi. He then described the symptoms of tumours in the bladder, *i.e.*, bleeding, frequency of micturition, sudden stoppage of flow, dribbling of urine, either from incontinence or retention. He then passed on to diagnosis, and discussed the use of the systoscope, which was exhibited on the table. Treatment was then discussed, both palliative and radical, and the notes of several cases were read.

March 14.

Mr. Knight showed a case of sarcoma of a nævoid growth.

Mr. Wynter showed two knots in umbilical cords.

Mr. L. Andrews read the notes of two cases of fracture of the base of the skull.

Mr. Turnbull then read his paper upon 'Hypnotics.' He divided hypnotics into two great classes, direct and indirect, and proceeded to enumerate some of the principal indirect hypnotics. The action of direct hypnotics, including opium and chloral, were treated at some length. The propriety of giving opium in Bright's disease, and the extreme utility of that drug in aortic disease, were minutely discussed and analysed. The actions and effects of the newer hypnotics, *e.g.*, sulphonal and paraldehyde, were considered.

March 21.

The Annual General Meeting was held.

The following were elected officers of the Society for the ensuing year:—

Presidents—Dr. E. Cautley and Dr. H. D. Rolleston.

Vice-Presidents—Dr. J. A. Hayward and Mr. W. Kent Hughes.

Secretaries—Mr. G. G. Giffard and Mr. W. B. Addison.

Additional Committee-men—Mr. B. Seton and Mr. A. F. Stevens.

DESCRIPTIVE LIST

OF

SPECIMENS ADDED TO THE MUSEUM

DURING THE YEAR 1889.

SPECIMENS ADDED TO THE MUSEUM

During the Year ending October 1, 1889.

BY

D'ARCY POWER.

THE following report upon the specimens added to the Museum during the past twelve months will, I trust, be found to have as great interest as its predecessors. My term of office as Curator has expired, and this report is, therefore, the last which I shall have the honour to present to the Governors and to the Medical Staff of St. Bartholomew's Hospital. During the past year the Museum has been enriched by the addition of numerous and very valuable preparations, a large number of which it owes to the kindly thoughtfulness of former students of the Hospital, who are now practising in different parts of the world. So numerous have these presents become of late, that a day rarely passes on which one or more preparations are not received from these sources. To Dr. Mackie of Alexandria, to Mr. Gilbertson, and to Mr. Foulerton, the Museum is especially indebted.

In this, as in previous years, I have endeavoured more particularly to enlarge and render as perfect as possible a single series, and it will be found by reference to the succeeding pages that, on this occasion, the genito-urinary organs have been more fully illustrated by the addition of some excellent and rare preparations.

In leaving the Museum, whilst I cannot but regret that I have been unable to render it more complete, I can congratulate myself that the Department has maintained that high state of efficiency in which I found it, and in which I sincerely hope it may long continue.

Oct. 1, 1889.

SERIES I.

DISEASES OF BONE.

- 1c. The Tibio-Tarsal Bones of a Mongrel Pigeon—fantail tumbler—aged two years at the time of its death. The right tibio-tarsus presents an united fracture, situated in the middle of its length. The date of the

injury was unknown, but most of the provisional callus seems to have been absorbed. The interesting feature in the case seems to be the fibula, which is hypertrophied both as regards length and breadth. It is firmly united to the distal fragment. In the fresh state, the bony union of it with the distal fragment was much strengthened by very dense and thick fibrous bands, extending from the fibula itself to the spicula of bone now seen on the distal fragment, and it seems to have acted as a splint during the union of the tibio-tarsus. The uninjured tibio-tarsus of the opposite side is preserved for comparison.

Presented by A. G. Francis, Esq.

- 1d. A Calvaria, showing numerous patches of erosion upon its inner surface. The patches are longest and best marked on the parietal bones immediately behind the level of the tuberosities. They are tolerably symmetrical, and appear to be due to a deficiency of the inner table of the bone. As a result of this deficiency, the cancellous structure of the diploë is exposed in the form of a number of bony processes set vertically in the outer table like the teeth of a comb. The outline of the erosion is very irregular, and appears like a fretwork pattern, in many cases it seems to have followed the lines of the blood-vessels. The remainder of the calvaria shows in many places a similar erosion, though it is less marked.

From a child aged 5 years, who died with Hodgkins' disease.

The dura mater from the same case is preserved in the next specimen.

- 1e. A Portion of the Dura Mater which covered the eroded parts of the parietal bones in the preceding specimen. The external surface of the membranes presents a soft reddish velvety growth, the processes of which appear to correspond with the erosion in the skull. The inner surface of the dura mater is normal.

- 12a. The Right Tibia and Fibula, which, as the result of disuse, have undergone an extreme amount of atrophy. Both bones are extremely thin and are quite translucent. At the upper and lower extremities of the bone the atrophy has proceeded so far as to leave circular apertures, which give a cancellous appearance to the compact bone.

From a girl aged 13, whose thigh was amputated on account of central necrosis of the femur. She had been confined to her bed for three years.

The thigh is preserved in Series i. Nos. 138b and c.

See *Female Surgical Register*, vol. i. (1889), No. 367.

- 14a. A Calvaria, showing numerous small pits on the inner table, apparently due to an absorption of the bone around the Pacchionian bodies.

From a man in whose skull there was a great excess of clear cerebro-spinal fluid, which apparently compensated for much atrophy and shrinking of the brain. The patient presented no cerebral symptoms, and died from cellulitis of the leg.

See *Male Surgical Register*, vol. iii. (1889), No. 210.

- 138b. Section of the Lower Third of the Femur, from a case of central necrosis. A sinus runs from the outer side of the limb upwards and

inwards to sclerosed bone forming the external border of the femur. A curved sequestrum, measuring $2\frac{1}{2}$ inches in length by an eighth of an inch in thickness, is embedded in the centre of the bone immediately to the inner side of the medullary canal. The bone at the upper part of the section is sclerosed as a result of chronic osteitis, and the outer lamellæ are singularly irregular, the compact bone at the periphery being converted into a soft diffuent material, which was of a deep claret colour. The lower part of the section, including the whole of the cancellous tissue of the epiphysis, was of the same claret colour, and was so soft that the finger could be readily passed through its substance. This condition is due to the cancellous tissue being entirely filled with inflammatory products which have almost become purulent, the colour being due to the presence of altered blood-pigment.

A school-girl aged 13 years received an injury to the lower part of the thigh three years before her admission to the Hospital. Three weeks after the injury an abscess was opened, and a pint of pus was let out from beneath the periosteum of the femur. When first seen, she had been confined to bed for two years, and was suffering from amyloid disease. Three sinuses were found to lead down to hard bone in the femur; no sequestrum could be detected.

The bones of the leg, showing an extreme amount of atrophy resulting from the disease, are preserved in Series i. No. 12a.

A drawing is preserved in Series lvii. No. 4a.

See *Female Surgical Register*, vol. i. (1889), No. 367.

138c. The opposite Half of the Femur, from the same patient as the preceding specimen, macerated and dried. The whole of the shaft of the bone, except the part in the immediate neighbourhood of the sequestrum, has undergone a process of rarefying osteitis.

173a. A Section through an Os Calcis which has undergone necrosis. The periosteum is almost entirely stripped off the bone, which is dead. The cartilage on the posterior articulation for the astragalus has completely disappeared, whilst that covering the sustentaculum tali is eroded and can readily be stripped off the bone.

From a woman aged 46, who had swelling and pain in her foot after a slight injury. When she first came under observation, two months after the injury, there were two discharging sinuses situated on the inner and dorsal surfaces of the foot. On passing a probe along the sinuses, bare bone could be felt in the neighbourhood of the os calcis. The patient made a good recovery after the performance of Syme's amputation.

See *Female Surgical Register*, vol. iv. (1889), No. 1887.

188a. A Portion of the Right Innominate Bone, including the acetabulum. The ascending ramus of the ischium, with that portion of the body which bounds the thyroid foramen, is stripped of its periosteum and has undergone necrosis. The necrosis is limited anteriorly by the cartilage intervening between the ascending ramus of the ischium and the descending ramus of the pubes.

From a boy aged 10 years, who was quite well until a fortnight before his death, when he received a kick on this thigh. Five days after the injury he had pain in all his joints, and when first seen, his right thigh was swollen and there was considerable induration over the pectineus and gracilis. Nine days later the boy died of pyæmia.

See *Male Surgical Register*, vol. iii. (1889), No. 19.

200a. Portion of a First Metatarsal Bone, which was introduced between the ends of an ununited fracture of a tibia. The bone was engrafted on the 20th of January, and was removed as a sequestrum on the 10th of June in the same year. Its edges are thinned and eroded, the periosteum has disappeared, and the whole thickness of the bone has died.

From a man aged 37 years, who had an ununited fracture of the left tibia for eight months previous to the time of grafting the bone.

See *Male Surgical Register*, vol. iii. (1889), No. 86.

MOLLITIES OSSIUM.

293c. An extremely Atrophied Pelvis, showing a condition of mollities ossium. The bones are so light and porous as to resemble a sponge, whilst the pelvis is so "beaked" that the ascending rami of the ischium are parallel with each other. (In Case F.)

From an old subject who was brought to the Hospital for dissection.

410a. A Portion of a Scapula, showing a large enchondroma growing from the central portion of the spine. The tumour measures four inches in length by two inches in height; it is pure white in colour and has a nodular glistening exterior, which appears to be definitely encapsuled. The upper portion of the tumour is undergoing degeneration, and has broken down in its centre into a cavity, which, in the fresh condition, was filled with a mucous fluid. Microscopically the tumour consists of cartilage which in parts contains bone. There are no sarcomatous elements.

From a man aged 31 years. Seven years previously he noticed a small growth on his shoulder, which two years later proved, upon removal, to be an osteo-chondroma. The present growth appeared a year before it was removed. It formed a hard inelastic mass of the size of an orange, situated in the infraspinous fossa. It was fixed to the subjacent tissues, but the skin over it was freely movable. The scapula was excised, the patient making a good recovery.

See *Male Surgical Register*, vol. iv. (1888), No. 802.

477b. A Longitudinal Section of the Lower Two-thirds of a Femur, to which a large periosteal sarcoma is attached. The sarcoma measures $4\frac{1}{2}$ inches in breadth, and was supported by a mesh-work of bony spicules, as is seen in the opposite half of the femur, which has been macerated (No. 477a). The growth extended round the whole circumference of the femur, and was in parts pulsating. The popliteal vessels ran over the back of the tumour. Microscopical examination showed that the growth was a spindle-celled sarcoma.

From a man aged 40, who had noticed a swelling on the inner side of his left knee-joint for seven years. It was painless during the first two years, but subsequently became painful, the pain increasing in severity until the limb was removed. The opposite half of the femur has been macerated, and is preserved in the preceding specimen, Series i. No. 477a.

See *Male Surgical Register*, vol. iv. (1886), No. 1368.

480a. A Section through the Lower Half of the Femur, showing a large ossifying sarcoma. The tumour consists almost entirely of a solid, uniform, and very dense osseous substance, which completely surrounds

the lower third of the shaft of the bone. It appears to have commenced at the junction of the diaphysis with the lower epiphysis, and to be subperiosteal in origin. The medullary canal is completely obliterated.

From a girl aged 13 years, who was at the Bluecoat School, Hertford. Eleven months before her death she noticed a slight pain and stiffness in the left knee after a long walk. Three months later the knee became swollen, and shortly afterwards an enlarged and densely hard gland made its appearance in her groin. The thigh was amputated in its middle third, and a month later the enlarged gland was removed. A mass of new growth was shortly afterwards detected in the pelvis, and a month before her death there were symptoms of secondary deposit in the lungs.

See *Female Surgical Register*, vol. i. (1888), No. 978.

The lung is preserved in Series xi. No. 1728b, and a drawing in Series lvii. No. 171a.

A microscopical section of the new growth in the knee is preserved in Series lv. No. 36a, and a section of the secondary deposit in the lung in Series lv. No. 71k.

See also *Transactions of the Pathological Society*, vol. xl. p. 293.

480b. A Section through the Left Os Innominatum and Femur, from the same case as the preceding. Amputation through the thigh had been performed three months and a half previously. A large mass of ossified sarcomatous tissue is seen to occupy the iliac fossa. The shaft of the femur is extremely thin, whilst the medulla is infiltrated with a caseous material. The bones of the pelvis were so much softened that they could be cut with a knife.

480c. A Section of a Lymphatic Gland, removed from the groin of the patient from whom the two preceding specimens were obtained. It is infiltrated with an ossifying sarcoma to such an extent that it appears to be a mass of bone. It was so firmly attached to the femoral vessels that a portion of the femoral vein had to be removed with it, and is still seen on its posterior surface.

480d. A Section through a Rib, showing an infiltration of ossifying sarcoma at the junction of the shaft with the costal cartilage. The bone is destroyed to a much greater extent than the cartilage, and the new growth has clearly developed from the periosteum.

480e. Section through a Clavicle, showing an infiltration of the sternal end with an ossifying sarcoma. The growth springs from the periosteum, but it has also extended for some distance along the medulla.

From the same patient as the five preceding specimens.

480f. Section of the Upper Portion of a Tibia, surrounded by an ossifying sarcoma which grew from the periosteum. The bone has been macerated to show the method in which the ossification has taken place. The bony particles form a number of laminae, set at right angles to the axis of the bone, and extending for a distance of three-quarters of an inch from the shaft. Microscopically the tumour is a round-celled sarcoma.

From a boy aged 11 years, who was admitted into the Chichester Infirmary complaining of deep-seated pain in his tibia, which had existed for a period of six months.

‡Presented by T. Valentine, Esq.

480g. A Section of the opposite Half of the preceding Tibia. It has not been macerated, and the bony laminae are therefore not so well seen.

SERIES II.

DISEASES OF JOINTS.

570b. The Right Haunch-Bone with a portion of the Femur, from a case of hip-joint disease. The capsule has been divided, and the cartilage is undergoing ulceration, and can readily be separated from the subjacent inflamed bone. The ligamentum teres has entirely disappeared and the synovial membrane is pulpy. The head of the femur is greatly altered in shape, but it is not necrosed, and was not dislocated during life.

Presented by James Berry, Esq.

ACUTE EPIPHYSITIS.

621c. The Upper Two-thirds of the Right Tibia and Fibula, from a case of acute epiphysitis. The upper epiphysis of the tibia is completely separated from the shaft of the bone. The shaft is dead, and is undergoing a process of rarefying osteitis for a distance of two inches below the epiphysial line. The epiphysis is also dying, but the necrosis has not as yet extended to the articular cartilage. In the recent state a quantity of thick greenish lymph occupied the intermuscular planes in the neighbourhood of the diseased bone. In one place, situated immediately behind the attachment of the internal crucial ligament, a probe has been passed along a sinus by which the suppurating track communicates with the knee-joint. The joint is unaffected, but a thin layer of coagulated lymph covered the whole of the edges of the articular surfaces. The posterior tibial artery lay in an abscess cavity, and its walls were almost completely ulcerated through for nearly an inch and a half.

From a boy aged 13, who stated that he had been struck on the back of his right leg six days before his admission to the Hospital. On the day after the injury he had severe pain in the knee. On admission to the Hospital, he was found to have a swollen and red knee-joint, which was very tender. The leg was amputated twenty-three days after the admission of the patient, on account of recurrent hæmorrhage from an incision which had been made into it.

Drawings of the specimen as it appeared when fresh are preserved in Series lvii. No. 36a.

See *Male Surgical Register*, vol. i. (1838), No. 318o.

624c. The Right Hip-Joint, with the Bladder and Right Kidney, from a patient who had a sinus extending from the acetabulum into the bladder. The head and neck of the femur have completely disappeared, as the result of long-standing disease of the hip. A fistulous track (through which a piece of catheter has been passed) traverses the base of the acetabu-

lum, and communicates by a large aperture with the right side of the thickened and inflamed bladder. The right ureter is greatly dilated and thickened at its upper part; it opens into the bladder after passing for some distance through the dense fibrous tissue which renders the side of the bladder adherent to the inner wall of the pelvis. The kidney is in an advanced condition of pyonephrosis, but has retained its normal size. During life fragments of bone passed through the fistula into the bladder, where they became encrusted with phosphates, giving rise to calculi, which were removed by the operation of lithotrity.

From a man aged 27, who had a phosphatic stone in his bladder, which had formed round fragments of bone. The bone had obtained access to the bladder from the hip-joint by a fistulous passage, the result of long-standing hip disease, connecting the acetabulum with the bladder. The fragments of the bone were removed by lithotrity.

The fragments of bone and calculous substance are preserved in Series ii. No. 624b.

See *Male Surgical Register*, vol. v. (1887), Nos. 1481 and 3674.

627a. A Section through the Left Hip-Joint, from a case of morbus coxæ. The head of the femur and the acetabulum are denuded of cartilage and the bone is superficially eroded. Dense fibrous adhesions everywhere unite the two surfaces of the bones, so that there is only very slight movement between them. The remainder of the bones presents no evidence of disease, nor is there any abscess.

From a child aged 8 years. The disease of the hip had existed for a period of $4\frac{1}{2}$ years, and it was considered to be nearly cured. Death resulted from general tuberculosis. No suppuration had at any time existed in connection with the hip-disease.

A section of the spine showing angular curvature is preserved in Series v. No. 1103a.

Obtained in exchange from the Museum of the Royal Free Hospital.

639a. A Portion of the Right Femur, with the Patella, Tibia, and Fibula. The bones are united by firm ligamentous union, as a result of long-standing disease of the knee-joint. The tibia is flexed upon the femur and is drawn outwards, but it is neither rotated outwards nor dislocated backwards. The external tuberosity of the tibia is converted by the carious process into a mere shell of bone.

From a girl aged 12 years, who sustained an injury to her knee fifteen months before the amputation was performed. Tubercular disease of the joint was set up.

See *Female Surgical Register*, vol. i. (1888), No. 1298.

807e. The Bones of the Right Lower Limb of a man who had suffered from rickets and genu valgum. The inner condyle of the femur, measured at the point where the tibia rests upon it, is one-third of an inch longer than the external condyle whilst the inner articular facet of the tibia is raised a little above its fellow. The antero-posterior curvature of the shaft of the femur is exaggerated, the bending being more marked in the lower than in the upper part of the bone. The axis of the femur is bent outwards in its lower third, and is at the same time rotated upon itself, so that the linea aspera is easily seen externally. The neck of

the femur forms almost a right angle with the shaft. The external articular facet of the patella is a little larger than usual in proportion to the size of the bone.

The upper two-thirds of the tibia seem to be normal, except that at the point where the internal lateral ligament joins the diaphysis there is an irregular bony prominence, with a pair of nipple-like processes which pierce the insertion of the ligament. These projections are below the epiphysial line.

The lower third of the tibia is bent strongly inwards, so that the plane of its articular facet is placed obliquely, being largest near the external malleolus. The axis of this portion of the tibia is rotated outwards in such a way that the external malleolus is farther behind the internal than is usual.

The convexity of the tibial bend is united to the fibula by bone. The fibula has an inward bend in its lower third, which corresponds to that in the tibia, and the bone itself is in this situation massive and rough. The middle third of its shaft presents no peculiarity, but its upper third is more bulky than natural, and there are a number of osteophytes along the whole length of its hinder part, as well as at the junction of its epiphysis with the shaft.

The ligaments of the hip are natural. The internal lateral ligament of the knee is especially well developed, but it presents no evidence of having been stretched; the other ligaments are normal. The ligaments of the ankle are natural; there is no talipes valgus.

From a muscular man aged 46 years. When the body lay upon its back with the legs extended and the internal condyles of the femur in contact, there was an interval of five inches between the inner malleoli. The right leg was the more deformed, and from the condition of the skin over the inner side of the left knee, it seemed probable that it had overlapped and rubbed against its fellow during progression. The soft parts of the limb were well developed, and, with the exception of some of the ligaments, presented no peculiarity.

807f. A Section through the Head of the Left Femur, from the same patient as the preceding. The neck forms a complete right angle with the shaft.

The rest of the femur with the knee-joint was sent to the Anatomical Museum at Cambridge.

The two preceding specimens were presented by C. B. Lockwood, Esq.

SERIES III.

INJURIES OF BONE (FRACTURES).

813a. The Left Femur of a Pheasant, which has undergone an extremely oblique fracture in its upper third. The displacement is antero-posterior, the upper portion being in front. Good union has taken place without the formation of ensheathing callus.

Presented by E. W. Willett, Esq.

854a. A Section of a Tibia in which there is an ununited fracture of the bone at the junction of the upper with the middle third. The situation of the fracture is marked by a row of black bristles. A periosteal sarcoma springs from the bone at the point of fracture, and extends outwards into the surrounding tissue, and inwards along the medullary canal, absorbing in its growth one side of the wall of the bone. The lower fragment of the tibia is displaced inwards and slightly forwards.

From a man aged 37 years, whose tibia was fractured in the upper third by a kick eight months before amputation through the thigh was performed. The new growth was observed four months after the injury in the form of three small lumps, situated one below the other on the outer side of the tibia, at the level of the fracture. One uncle died of cancer of the lip, which was said to have followed on a blow.

See *Male Surgical Register*, vol. ii. (1889), No. 521.

912a. A Compound T Fracture of the Lower End of the Humerus, immediately above the condyles. The two condyles are separated by the shaft of the humerus, which has been forced down between them.

From a man aged 21, who fell a distance of 18 feet on to his elbow. He sustained, in addition, a dislocation of the shoulder without rupture of the capsule.

The shoulder-joint is preserved in Series ii. No. 1019b.

954a. A Fracture of the Neck of the Femur, with comminution of the great trochanter and impaction of the neck of the bone between the fragments. A considerable amount of repair has taken place, though with great displacement of the parts. (In Case H.)

From a man aged 66 years, who fell upon his hip three weeks before he died. There was well-marked eversion of the limb.

Presented by Stephen Paget, Esq.

981. A Portion of a Femur, exhibiting a separation of its shaft from the lower epiphysis, and a fracture extending between the condyles into the knee-joint. The violence of the injury also occasioned the stripping up of the periosteum, from the shaft of the femur to the extent of many inches; the shaft protruded through the muscles on the inner side of the thigh. Parts of the periosteum which were stripped from the shaft remained attached to the condyles. A line of new bone is formed on the anterior part of the shaft, along the torn edge of that part of the periosteum which remained attached to the shaft.

From a boy aged 18, who was going along with a laden truck, when one of the wheels came off. The truck rolled over, and one of the handles struck his thigh. The resulting injury was diagnosed as a simple oblique fracture of the left femur in its lower third. There was considerable bruising of the knee, with synovitis and effusion into the joint. The leg was put up in a Liston's long splint, with extension by means of a weight. During the night following the injury the leg swelled, and on the next day bullæ had formed, and the limb was becoming gangrenous. Nine days after the accident amputation through the thigh was performed. On making an examination of the leg, it was found that the lower epiphysis of the femur was separated, whilst the lower end of the shaft was driven outwards and backwards in such a manner as to press upon the artery, vein, and nerve in the popliteal space. The pressure on the vessels was sufficient to prevent the flow of blood in any direction, though it was not sufficient to cause any injury to their coats. The patient made a good recovery.

See *Kenton Ward Book*, vol. ii. pp. 246 and 267.

1012a. Portion of the Right Foot, showing a comminuted fracture of the os calcis. The fracture is more extensive on the inner than on the outer side of the bone; the injury has not extended to any of the other bones. (In Case H.)

From a man aged 58, who was knocked down by a horse, and sustained a compound fracture of the right leg in addition to the fracture of the os calcis.

See *Male Surgical Register*, vol. ii. (1888), No. 2581a.

SERIES IV.

INJURIES OF JOINTS (DISLOCATIONS).

1019b. A Dissection of a recently-dislocated Shoulder-Joint, which was reduced during life. The dislocation did not answer exactly to the description of either the subcoracoid or subclavicular varieties, the head of the bone being more prominent than is usually the case with the one, and less so than is usually the case with the other. Reduction was effected with ease. The patient died twelve days later from bronchopneumonia. At the autopsy the head of the humerus was found to be in its proper position and the capsule was quite intact. It was rather lax, and its attachment to the anterior border of the glenoid cavity was slightly raised, though it was continuous with the periosteum. The coracoid process is torn off the scapula. The muscles surrounding the joint were intact with the exception of the subscapularis, which was lacerated. On the posterior part of the articular surface is a groove, which on redislocation of the joint fitted the lower part of the anterior margin of the anatomical neck of the humerus. The capsular ligament showed signs of injury where the head of the bone had impinged against it at the moment of dislocation, and there was a small piece of the articular cartilage lying loose in the joint.

See *St. Bartholomew's Hospital Reports*, vol. xxiv. p. 163.

Transactions of the Pathological Society, vol. xl. p. 235.

CONGENITAL DISLOCATION OF THE KNEE.

1051b. The Femur and Tibia from a still-born child who had "back knee," and in whom hyper-extension of the joint was possible.

Presented by A. G. Francis, Esq.

1075a. Portion of an Occipital Bone with the three Upper Cervical Vertebrae, showing a lateral dislocation of long standing with subsequent ankylosis of the occipito-atlantoid articulation. There has been recent caries of the left atlanto-axoid joint and odontoid process. Death resulted from dislocation of the odontoid process. The firmness of the ankylosis leads to the conclusion that the patient had in early life suffered from caries of the upper cervical spine which terminated in a natural cure.

From a labourer aged 37, who fell headlong down a flight of steps whilst he was being ejected from a public-house. He subsequently experienced some pain with slight stiffness about the neck, but was able to continue his work for eight weeks, when he was admitted into St. Bartholomew's Hospital, Chatham. He died quite suddenly on the following day. At the time of his admission to the Hospital he was suffering from complete paralysis of both arms and legs; he spoke in a whisper, and deglutition was performed with difficulty.

See *British Medical Journal*, vol. ii. (1871), p. 437.

‡ Presented by A. G. R. Foulerton, F.R.S.

SERIES V.

DISEASES AND DEFORMITIES OF THE SPINE.

1103a. A Portion of the Cervico-Dorsal Spine, in which the bodies of the vertebræ, from the second to the fifth dorsal inclusive, are extensively affected by tubercular disease, and have fallen together in such a way as to form a single mass. A well-marked angular curvature of the spine has been a result of this fusion of the bodies. There is a large collection of thick cheesy pus at the front and sides of the diseased vertebræ, and a similar collection of pus projects backwards into the vertebral canal, though the cord, as is seen in the opposite half of the specimen, is not actually compressed by it. The vertebræ above the seat of injury appear to be healthy.

From a child aged 8 years, who was suffering from hip-joint disease, and who died of tubercular caries, tubercular peritonitis, and tuberculosis of the kidney. There were no symptoms of compression of the spinal cord during life.

The other half of the specimen is in the Museum of the Royal Free Hospital.

The hip-joint is preserved in Series ii. No. 627a.

Obtained in exchange from the Museum of the Royal Free Hospital.

1140a. Section of Five Vertebræ which have been fractured by indirect violence. The body of the sixth cervical vertebra is displaced forwards, so that it overlaps the seventh by about a quarter of an inch. The laminae and spinous processes of the sixth are fractured. The dura mater is torn, and the cord is crushed inside the meninges.

From a man aged 42, who was run over by a hansom cab. On admission to the Hospital, he had retention of urine and incontinence of fæces, with semipriapism. The reflexes were absent. He died five weeks after the accident, suffering from cystitis and suppurative nephritis.

See *Male Surgical Register*, vol. iv. (1887), No. 3221.

SERIES VI.

DISEASES AND INJURIES OF MUSCLES, TENDONS, AND BURSÆ.

1174c. A Tumour of the Buttock, which was removed from the substance of the gluteus maximus. The section shows that it consists of a solid

mass, which is penetrated in all directions by bundles of connective tissue. Microscopically the tumour is a fibro-sarcoma.

From a lady aged 68, from whom a tumour had been removed twice previously, thirteen years and nine years ago. The two previous growths were, after microscopical examination, pronounced to be sarcomatous. The tumour was attached to the tendon of the gluteus maximus close to the great trochanter. She had a mammary tumour of many years standing, which after removal was found to be a pure fibroma.

Presented by Alfred Willett, Esq.

1174d. A Small Tumour removed from the thigh of a woman aged 26 years. It had been growing for two years, and was situated in the substance of the right sartorius muscle, where it formed the boundary of Scarpa's triangle. Before removal it had been tapped and some clear fluid was drawn off, but it soon refilled with blood. On section, it is seen to consist of a white mass, in which is a cyst with a curiously reticular wall like that of an hypertrophied and fasciculated bladder. The wall is stained with blood. On microscopical examination the growth was found to be a mixed-celled sarcoma with a hyaline matrix. In some parts both cells and matrix have been replaced by a structureless material which does not stain, and is probably the result of mucoid degeneration.

Presented by A. A. Bowlby, Esq.

1216a. A Section through the Bursa overlying the Tuber Ischii, showing the condition which occurs in the so-called "weaver's bottom." The bursa has become entirely converted into fibrous tissue, so that it appears like an ordinary fibrous tumour.

From a dustman aged 53 years. Twenty-four years ago he had a fall on the nates, a week after which he noticed a lump. This lump slowly increased until three years before its removal, when it was said to have rapidly become larger.

See *Male Surgical Register*, vol. ii. (1888), No. 3908*.

SERIES VII.

DISEASES AND INJURIES OF THE PERICARDIUM AND HEART.

SPONTANEOUS RUPTURE.

1247a. A Heart showing a Rupture of the Left Ventricle. The rupture is a small circular orifice, just capable of receiving a No. 2 catheter. It is situated in the wall of the left ventricle, $1\frac{1}{8}$ inch below the auriculo-ventricular septum, and five-eighths of an inch to the left of the interventricular septum. A director passed through the aperture runs upwards and to the right along a narrow canal in the muscular wall of the ventricle, until it opens into the right ventricle immediately below the pulmonary valves. The cardiac muscle in this situation is extremely degenerate and soft. There is a large unilocular aneurysm

of the first part of the arch of the aorta, which has been partially cured by a deposit of laminated fibre. The aorta itself is extremely atheromatous, and the pericardium is attached by dense adhesions to the outer surface of the aneurysm.

From a man who died suddenly, after going upstairs, with all the signs of internal hæmorrhage. He had been treated for cardiac aneurysm.

See *Transactions of the Pathological Society*, vol. xl. p. 58.

Presented by W. H. White, Esq., M.D., and W. T. Strugnell, Esq., M.B.

SERIES VIII.

DISEASES AND INJURIES OF ARTERIES.

GUNSHOT WOUND OF THE AORTA.

1380a. The Heart with its Great Vessels, and the Right Lung, from a man aged 34 years, who was shot with a revolver. The bullet entered the chest about the third left rib, passed through the pericardium immediately below the point where it is reflected upon the aorta, pierced the aorta at the junction of the ascending with the transverse part of the arch, transfixed the superior vena cava, and after penetrating the whole thickness of the middle lobe of the lung, shattered the ninth right rib, and then fell back into the pleura. The track of the bullet through the aorta, superior vena cava, and lung is marked by a piece of catheter. The bullet itself is slung by the side of the lung; its apex is flattened.

From a man whose femoral artery was also lacerated by another shot. The assailant was not many feet off. Death ensued almost instantaneously.

Presented by John Adams, Esq.

1497a. A Heart with the Arch of the Aorta. An aneurysm of the extra-pericardial portion of the aortic arch has ruptured into the pericardium. The aneurysm is fusiform, with two large saccules, one occupying the greater portion of the arch, and involving the great vessels, whilst the second smaller saccule is deeply ulcerated, and is separated from the left bronchus by the thickened walls and matted surrounding tissues. The larger saccule is partly obliterated by a fibrinous clot. An ulcerated track leads from the smaller saccule by a perforation large enough to admit the little finger into the pericardium, immediately anterior to the pulmonary artery. A black rod has been passed along this track. The pericardium showed no signs of recent inflammation, except in the vicinity of the perforation. The cavity was distended with a pint and a half of dark fluid blood without clots.

From a man aged 34, who presented during life the signs of a small aneurysmal tumour pulsating in the second left intercostal space. He was suddenly seized with faintness and symptoms of collapse. When seen on the same evening, he was apparently dying, being pulseless, with cold extremities and clammy skin. No effusion was apparent into any of the cavities. On the next day the patient had rallied; but on this and the succeeding day effusion into the pericardium gradually manifested

itself, and was accompanied by a paroxysmal cough, with intense pain, presenting in some respects the character of angina pectoris. His highest temperature was 101° F. He lived fifty-six hours after the rupture had commenced. Six months before his death he had been treated by Tufnell's method, and it appears probable that the coagulum in the larger sacculi was laid down during this period.

See *Transactions of the Pathological Society*, vol. xl. p. 62.

Presented by Dr. S. H. Habershon.

1546a. A Small Sacculated Aneurysm of the Dorsal Artery of the Left Foot. Its walls are extremely thin, and it could readily be emptied by pressure. The aneurysm and the arterial wall have been divided to show the passive clot.

From a man aged 54 years, who had observed a pulsating tumour on the dorsum of his foot for three months.

See *Male Surgical Register*, vol. ii. (1889), No. 843.

SERIES IX.

DISEASES AND INJURIES OF VEINS.

1588a. The Heart with the Great Vessels attached to it. The aorta and the superior vena cava are normal, but the innominate veins, the internal jugulars, and the subclavians, as well as the anterior and external jugulars, are filled with clot which is adherent to the walls of the vessels. The thrombosis on the right side is rather firmer than that on the left. A small mass of coagulum projects into the superior vena cava, but it is not adherent to its wall. The internal jugular and subclavian veins where they are cut across are seen to be filled with a firm clot. In the heart there is much enlargement of the right auricle and ventricle. The mitral orifice is thickened, and is narrow and button-hole shaped. The left ventricle is enlarged, though not to so great an extent as the right ventricle, and its walls are somewhat thickened. The aortic valves are shortened, and are each provided with a fringe of soft new growths.

From a stevedore aged 18, who, in addition to the thrombosis and mitral stenosis, had a double pleural effusion with collapse of the lungs. The azygos and superior intercostal veins were large and patent. He had rheumatic fever one year previously.

See *Luke Ward Book* for 1889, No. 19.

See *Transactions of the Pathological Society*, vol. xl. p. 75.

1589a. A Portion of the Left Parietal and Occipital Bones with the lateral sinus *in situ*. The sinus is occupied in its whole extent by a thrombus.

From an old man whose body was brought to the Hospital for purposes of dissection. All the sinuses in his skull were filled with blood-clot, and his brain presented symptoms of long-standing meningitis.

NEW GROWTHS IN VEINS.

1606a. A Vena Cava Inferior which is almost entirely occupied by a sarcomatous growth. The tumour, which filled the right external and

internal iliac veins, has so far infiltrated the vein-wall at its lower part that it cannot be separated. In the upper two-thirds of its course, however, the growth lies quite freely within the vein, and terminates in a tapering extremity at a point which corresponded with the lower border of the liver. The right external iliac artery was compressed but not infiltrated by the growth, which was attached to each side of the right ilium, ischium, and pubes. The glands along the side of the vena cava are infiltrated with sarcoma. Microscopically the growth is a chondrifying sarcoma.

From an unmarried woman aged 22, who first complained of pain over the posterior part of the right iliac bone three months before her death. Six weeks after the pain was felt a swelling was noticed in the right iliac fossa. Her right leg was flexed, and she suffered the most intense agony, which was increased on defæcation. She had retention of urine, and three days before her death there was œdema of the right leg.

Sections of the growth are preserved in Series Iv. No. 66b.

See *Female Surgical Register*, vol. iii. (1888), No. 1900.

SERIES X.

DISEASES AND INJURIES OF THE LARYNX AND TRACHEA.

1614. The Larynx, from a case of œdematous laryngitis. The epiglottis is swollen, its edges meeting behind, excepting just at the upper part. The pharynx is inflamed and the posterior surface of the uvula is vesicated, whilst its junction with the left side of the pharynx is ulcerated. There is extreme œdema of the whole of the glottis, the swelling of the mucous membrane being so great as almost to occlude the superior opening of the glottis. The right tonsil is swollen and ulcerated, whilst the left is normal. A portion of the thyroid and cricoid cartilages has been removed to show the narrowing of the subglottic portion of the larynx.

From a man aged 60 years, who was first affected with painful and difficult deglutition on March 31, 1811. On the following morning he was unable to swallow, and in the evening of the same day his respiration suddenly became so difficult that it was considered advisable to bleed him to the extent of thirty-two ounces. At two o'clock in the morning of April 2 the symptoms were so urgent that Mr. Astley Cooper was called in to perform the operation of laryngotomy, after which the dyspnœa became less urgent. The patient died, however, on the same day. The autopsy was made by Mr. Astley Cooper.

See a paper on *Cynanche Laryngea*, by Dr. Farre, read before the Medico-Chirurgical Society on February 18, 1812, and reported in the *Medico-Chirurgical Transactions*, vol. iii. p. 86, and Plate iii.

Presented by J. R. Farre, Esq., M.D.

1641c. The Larynx of a boy aged 15, in which extensive necrosis of the cartilages has taken place after typhoid fever. The ventricular bands were swollen and the aperture of the glottis was closed. There was no ulceration of the mucous membrane within the trachea, but after the glottis was opened it was found that the whole of the cricoid cartilage

was necrosed and lying loose in the abscess, which extended for two inches upwards and downwards along the back and sides of the larynx. The right arytaenoid cartilage could not be identified, but the left appeared to be normal.

The patient died fourteen days after defervescence. He had suffered from noma on the inside of the right cheek, which was treated by scraping and nitric acid. He also had right parotitis. There was very slight tenderness over the larynx, and he was able to swallow solid food up to the day of his death. He died quite suddenly from laryngeal spasm.

A portion of the intestines is preserved in Series xviii. No. 2006a.

See *Medical Post-Mortem Register*, vol. xv. p. 172.

1653a. The Larynx with a Portion of the Tongue, showing a large epitheliomatous mass, which is situated immediately above the left arytaeno-epiglottidean fold. The mass has grown in such a manner as partially to occlude the superior opening of the glottis. The tumour has commenced to ulcerate over its whole surface. There has been considerable œdema of the mucous membrane in the immediate neighbourhood of the growth.

From a man aged 45, who was admitted to the Hospital with great enlargement of the cervical glands, which he said had only existed for two months. He died the day after his admission to the Hospital. Secondary epitheliomatous growths were found in the lungs and liver.

See *Male Surgical Register*, vol. i. (1886), No. 2612.

1653b. A Vertical Section through the Tongue and Larynx, to show an extensive epitheliomatous ulceration at the base of the tongue. The ulcer has excavated a large portion of the base of the tongue, and has entirely destroyed the pharynx and the glottis down to the level of the false vocal cords.

From a man aged 46, who first noticed a swelling at the angle of his jaw, upon the right side, four months before his death. He died suddenly from syncope very shortly after his admission to the Hospital.

See *Male Surgical Register*, vol. v. (1887), No. 3676.

SERIES XI.

DISEASES AND INJURIES OF THE PLEURA, BRONCHIAL TUBES, AND LUNGS.

1696a. A Section through the Left Lung of a child aged 11 months, who died from inanition. The base of the lung is collapsed, whilst the rest is solid with catarrhal pneumonia.

See *Medical Post-Mortem Register*, vol. xiv. p. 208.

1704c. A Section of a Lung which is in a condition of gangrene. The lower lobe is almost consolidated by the products of inflammation, and about its centre the pulmonary tissue has broken down into a pulpy, flocculent mass, which is circumscribed. Immediately above the large gangrenous patch is a smaller one which presents identical changes.

1704d. A Portion of the Right Lung, from a patient who had a pneumothorax. A piece of india-rubber tubing has been passed along a bronchus from the root of the lung to the opening, which is situated at the lower part of the superior lobe on its postero-lateral surface. The lung itself is much contracted, and is covered with inflamed and thickened pleura.

From a man aged 30, who had long suffered from a winter-cough. Three days before his death he suddenly became very ill, and on admission to the Hospital he was found to be almost pulseless and cyanosed, with hurried respirations. He was too ill to allow any detailed examination of his chest to be made.

See *Matthew Ward Book* for 1887, No. 281.

1707b. A Portion of the Lower Lobe of the Right Lung, which is of a bright red colour owing to the filling of its air-cells with coagulated blood. The branches of the pulmonary artery are plugged, and there is some coagulated blood in the larger bronchi.

From a woman aged 31, who died from the effects of mitral stenosis.

See *Medical Post-Mortem Register*, vol. xiv. p. 296.

1717a. A Section of Lung, showing a complete infiltration of the whole pulmonary tissue with miliary tubercle. The masses are better seen on that surface of the lung which was cut whilst the specimen was fresh, than on that which was made after hardening in spirit.

From a man aged 37. There was no caseation or breaking down of the pulmonary tissue.

See *Medical Post-Mortem Register*, vol. xv. p. 24.

1728b. A Section through a Left Lung infiltrated with a round-celled sarcoma. The lung-tissue proper is almost entirely replaced, except at its anterior surface, by the new growth, which has a yellow mottled appearance and is of a firm consistence. The growth is most dense along the parietal pleura. The pleural cavity was entirely obliterated. Microscopically the growth is a round-celled sarcoma.

From a waiter aged 18 years, who had symptoms of pulmonary phthisis at the left apex. An attack of hæmoptysis first drew attention to the disease, when the patient gave a history of two attacks of pleurisy on the left side. The signs of a cavity at the left apex developed, and subsequently disappeared, the only physical sign which remained being an absolutely dull note on percussing over the left side of the chest in front. A large new growth springing from the right iliac bone developed itself, and gave rise to acute pain in the right leg, which prevented the use of the limb. Many nodules of new growth subsequently developed in other parts of the body.

The right supra-renal capsule from the same case is preserved in Series xxvii. No. 2330b.

Presented by Arthur Davies, Esq., M.D.

OSSIFYING SARCOMA.

1728c. The Left Lung infiltrated with an ossifying sarcoma, which was secondary to a growth in the knee. The organ was so firmly bound down to the thoracic wall that it could only be removed by lacerating its structure. The convex surface is studded with numerous circular patches of osteo-sarcoma, the largest of which measures half an inch across, whilst the smallest measures no more than one-sixteenth of an

inch in diameter. The patches are lightish-brown in colour and appear to originate from the under surface of the pleura; they do not extend for any distance into the substance of the lung. On the concave surface the new growths are much more extensive, and a portion of the pericardium has become firmly adherent to the pleura. Microscopically the growth consists essentially of a sarcomatous tumour, the cell elements of which are for the most part round. The cells are enclosed by well-defined trabeculæ, which have the appearance of cancellous bone. No true bone corpuscles are present, however, nor is there any cartilage. The growth is permeated by large blood-vessels.

A drawing of the lung is preserved in Series lvii. No. 171a.

A microscopical preparation is preserved in Series lv. No. 71k.

The primary growth is preserved in Series i. No. 480a.

PARASITES IN THE LUNG.

1745a. A Section of Human Lung infested with the ova of *Bilharzia hæmatobia*.

From the same case as the genito-urinary organs preserved in Series xxviii. No. 2393c. The parent worms are preserved in the same Series, No. 2393d. A microscopical section of the lung is preserved in Series lv. No. 69j.

Presented by Dr. Mackie.

1759d. A Portion of the Left Lung of a patient exhibiting wounds made during aspiration of the pericardium. The lung is collapsed and was adherent to the chest-wall. In the lower lobe is a wound corresponding to an external opening measuring half an inch in length, which was situated in the eighth intercostal space. On a level with the sixth interspace are two punctures, which extend through the whole thickness of the lung-tissue and penetrate the substance of the heart. Two green glass rods have been inserted into the punctures and a red rod into the incision.

From a child aged $2\frac{1}{2}$ years, who had pericarditis with effusion. The chest was aspirated with a view to discover whether she had pleurisy, and a syringe-ful of sero-pus was withdrawn. The operation was repeated two days later with the same result, and the diagnosis of pleurisy with effusion was therefore supposed to have been confirmed. It was only at the autopsy, however, that the true source of the sero-pus became evident. The left lung was then found to be collapsed and adherent to the chest-wall and pericardium. The heart had a thick layer of lymph upon it. There was a little fluid in the pericardium, but hardly any in the pleura.

See *Mary Ward Book* for 1887, No. 7.

SERIES XII.

DISEASES AND INJURIES OF THE NOSE, MOUTH, TONGUE, PALATE, AND FAUCES.

SOFT FIBROMA OF THE TONGUE.

1785c. A Small Fibroma which was removed from the substance of the tongue of an old gentleman aged 70. It occupied the right half of the

tongue, and was shelled out with perfect ease from amongst the muscles. Microscopical examination showed the tumour to be a soft fibroma.

Presented by Stephen Paget, Esq.

LINGUAL ADENOMA.

1785d. A Cystic Tumour which was removed from the base of the tongue. The growth is irregular in shape, and measures three inches in length. It contains one large cyst lined with a shaggy membrane, and two smaller cysts. Microscopically it is an adenoma, closely resembling in appearance a serous salivary gland. The acini are circular; the epithelial cells are small and spheroidal. Many of the cells are distended by homogeneous globules, which are apparently colloid in nature, and the cavity of each acinus appears to be filled with a similar substance. The tumour was situated between the base of the tongue and the epiglottis. It was of about the size of a hen's egg, and was covered by the lingual mucous membrane.

From a married woman aged 33 years. The swelling had been noticed for twelve months, and was increasing in size. It caused pain radiating up the side of the neck, but there was neither dyspnoea nor dysphagia.

A microscopical preparation is preserved in Series lv. No. 76e.

See *Female Surgical Register*, vol. ii. (1889), No. 396.

1785e. A Solid Tumour which was removed from the base of the tongue. The growth is oblong, measuring an inch in its long axis. It has a well-defined capsule, and its section is seen to be lobulated like a salivary gland. Microscopically it is a compound tubular gland, of which the acini are lined by cubical epithelium, so that it is almost identical with the preceding specimen, except that it is not undergoing cystic degeneration.

From a woman aged 27, who had noticed a painless swelling in her tongue for about two years before it was removed.

A microscopical specimen is preserved in Series lv. No. 76f.

See *Female Surgical Register*, vol. ii. (1889), No. 1045.

1788j. A Portion of a Tongue, showing an epitheliomatous growth occurring as a well-marked papillary mass upon the side of the organ. The new growth is raised and oval, measuring an inch and a half in length.

From a man aged 50, who first noticed a pimple on the right side of his tongue three months before it was deemed advisable to remove it.

See *Male Surgical Register*, vol. ii. (1888), No. 339.

1796a. A Congenital Fibrous Epulis growing from the right side of the alveolar margin of the superior maxilla and occupying the position of the incisors. It extended a short distance backwards over the hard palate as well as downwards and forwards, causing some projection of the lip.

From a child aged one month.

See *Female Surgical Register*, vol. iii. (1889), No. 571.

SERIES XV.

DISEASES AND INJURIES OF THE PHARYNX
AND ŒSOPHAGUS.

1843a. A Larynx and Œsophagus, showing a stricture resulting from a malignant new growth. The wall of the œsophagus from the upper border of the cricoid cartilage is thickened and ulcerated by the new growth for a distance of two and a half inches. The lumen of the tube is encroached upon to such an extent that a thin rod can alone be passed along it. No suppuration appears to have taken place in the œsophagus, but a small abscess cavity was found lying beneath the left lobe of the thyroid gland and tracking upwards along the left ala of the thyroid cartilage. Microscopically the growth was an epithelioma.

From a woman aged 51, who had dysphagia for six months before her death. A No. 4 catheter could be passed through the stricture a month before the death of the patient.

See *Female Surgical Register*, vol. iv. (1888), No. 2744*.

1844b. A Larynx and Œsophagus affected with malignant disease. The new growth commenced in the œsophagus at a point somewhat below the level of the cricoid cartilage, and for a distance of an inch and a half it has narrowed the lumen to such an extent that a probe could only with the greatest difficulty be passed along it. The growth has softened anteriorly, and communicates with the trachea through the interval between the fourth and fifth rings by a large ragged opening. This opening, as may be seen by looking into the trachea, is surrounded by a raised edge of new growth. The mucous membrane is ulcerated for some distance. Microscopically the new growth was found to be an epithelioma.

From a man aged 57 years, who died shortly after his admission to the Hospital from broncho-pneumonia.

See *Male Surgical Register*, vol. iii. (1889), s.v. Thomas Paine.

1867b. The Œsophagus and Trachea with a Portion of the Stomach of a girl who swallowed a marble. The œsophagus is ulcerated for about an inch immediately above the cardiac orifice, and it was so much softened that its wall gave way as soon as it was removed from the body, leaving a large ragged opening, through which passed the small black marble seen in the preparation.

From a girl aged 4 years, who had swallowed a marble three days before death. Ineffectual efforts were made to dislodge it from the œsophagus.

See *Female Surgical Register*, vol. i. (1888), No. 1679.

SERIES XVI.

DISEASES OF THE PERITONEUM, OMENTUM,
AND MESENTERY.**SARCOMA OF THE OMENTUM.**

- 1886b. A Piece of the Great Omentum, attached at its upper border to part of the great curvature of the stomach. It is greatly thickened, and has been rendered nodular by infiltration with oval-celled sarcomatous tissue. The primary growth occurred in the testicle, which was removed four months before the death of the patient.

From a man aged 21, in whom the sarcoma of the peritoneum was secondary to sarcoma of the testis. The intestines were not distended, but their mesenteric and peritoneal attachments were closely studded with thousands of small nodules, varying in size from a pin's head to a hazel-nut. The appendices epiploicæ were also greatly enlarged, and the parietal layer of the peritoneum over the greater part of its extent was similarly affected. The left inguinal canal was filled with new growth, which protruded into the peritoneal cavity. All the viscera were healthy. The lymphatic glands in the abdomen were not enlarged.

The testis is preserved in Series xxxvi. No. 2797g.

See *Male Surgical Register*, vol. iv. (1889), No. 3264.

- 1886c. A Portion of the Under Surface of the Diaphragm with Part of the Liver. The parietal layer of the peritoneum is studded with nodules of sarcoma-tissue, which do not penetrate into the gland.

From the same case as the preceding.

WOUNDS OF THE PERITONEUM.

- 1894a. A Portion of the Peritoneum, which was accidentally cut during the operation of suprapubic cystotomy. The incision was immediately closed by pointed sutures of fine silk, and has healed by first intention. The patient died of syncope two days later. *Cf.* No. 2089a.

See Series xxix. No. 2417c.

SERIES XVII.

DISEASES AND INJURIES OF THE STOMACH.

- 1911a. The Stomach of a woman aged 52, who had chronic gastric ulcers. The omentum and stomach were adherent to the peritoneum in the neighbourhood of the tenth rib on the left side, but there was no general peritonitis. The stomach, which has been laid open, is seen to contain two ulcers, each measuring an inch across. One is situated on the upper and posterior part, and its floor is formed by the pancreas, whilst the other has perforated into the sac of the great omentum. The edges of both ulcers are rounded and thickened. The stomach contained

the twenty-eight plum-stones preserved in the next specimen; there was no history obtainable as to when they were swallowed.

From a woman aged 52, who was addicted to liquor. For twenty-five years she had symptoms of gastric ulcer.

See *Mary Ward Book* for 1888, No. 173.

1911b. Twenty-eight Plum-Stones removed after death from the stomach preserved in the preceding specimen.

1946c. A Section through the Stomach of a man who was poisoned with hydrochloric acid. The rugæ on the mucous membrane are well defined, and the whole surface of the stomach is blackened.

From a man aged 61, who drank an unknown quantity of "spirits of salts" from a jug. He died the same day. The mucous membrane of the œsophagus could be peeled off in strips. The tongue was greatly swollen. The duodenum and the first fifteen feet of the small intestines were of a greyish colour. The rest of the ileum and the large intestine were normal.

See *John Ward Book* for 1886, No. 190.

1946d. A Portion of a Stomach with the commencement of the Duodenum. The gastric mucous membrane presents two irregular ulcerated patches, the edges of which are undermined, and several smaller ulcers. It is stained a deep black colour in parts. The pylorus is also ulcerated, and its walls are greatly thickened by a whitish growth situated in its submucous and muscular coats. Microscopically, this new growth was found to be due to newly-formed fibrous tissue, which in one part bounded a small abscess situated deeply in the muscular coat of the intestine. The stomach is not enlarged; it was adherent at one spot to the liver.

From a man aged 32, who had poisoned himself with zinc chloride and hydrochloric acid five months before his death.

See *Medical Post-Mortem Register*, vol. xiv. p. 308.

SERIES XVIII.

DISEASES AND INJURIES OF THE INTESTINES.

ULCERATIVE COLITIS.

1987a. The Colon, showing a condition of colitis polyposa. The whole surface of the colon is covered with numerous small dark blue projections, which are irregular in shape, and some of which appear pedunculated. Between the projections the intestinal surface was whitish, thickened, and not quite smooth. Microscopically the mucous membrane covering the actual polypus was comparatively normal, showing numerous crypts of Lieberkühn, but from the neighbouring surface of the intestine it had disappeared, showing that the disease was the

result of antecedent ulceration leading to scarring, and leaving projections of healthy tissue.

From a domestic servant aged 20, who had a tubercular history. Twelve months before her death, she first noticed a little blood coming after her motions. She was never constipated, nor had she diarrhoea until two months before her death. She rapidly became emaciated and died from exhaustion. Cf. No. 2046a.

A microscopical preparation is preserved in Series lv. No. 85a.

See *Hope Ward Book* for 1888, No. 225.

1987b. A Specimen of Colitis Polyposa, from the same case as the preceding.

1987c. A Portion of the Transverse and Descending Colon, from a very advanced case of ulcerative colitis. The anterior wall of the transverse colon has completely disappeared for a distance of four inches, whilst for a farther distance of three inches the intestine presents a fenestrated appearance. The mucous membrane which remains is extensively ulcerated. The ulcers are sinuous in outline, and are separated from each other by islets of mucous membrane. The bases of the ulcer are formed by the transverse muscular coat of the intestine. The omentum was somewhat adherent to the intestines, as a result of chronic peritonitis. The mucous membrane of the rectum was also extensively ulcerated, but shreds of it stood out in the same manner as in the preceding specimen, to form islets of comparatively healthy tissue. The ulceration extended for a distance of five inches from the anus, and was succeeded by five inches of healthy gut. Above this point the ulceration recommences, and eventually leads to the destruction of the intestinal wall. The small intestine was healthy throughout, and the rest of the viscera were normal.

From an unmarried girl, aged 20, who for eighteen months had passed blood per rectum during defæcation. She had much pain, and a diagnosis was made of tubercular ulceration high up in the colon. Five days before her death she had an attack of subacute peritonitis.

A drawing is preserved in Series lvii. No. 233a.

See *Transactions of the Pathological Society*, vol. xl. p. 109.

See *Female Surgical Register*, vol. iii. (1889), No. 2536*.

2006a. The last eight inches of the Ileum, showing the condition of Peyer's patches in a boy who had a severe attack of typhoid fever. Fourteen days after defervescence had taken place, he died suddenly from dyspnœa, the result of necrosis of the cricoid cartilage. The Peyer's patches have evidently undergone extensive destruction, and in each there still remains a small circular ulcer of the mucous membrane which extends as deeply as the muscular coat. One or two solitary glands in the upper part of the preparation also appear to have undergone ulceration. All the ulcers are in the process of healing. They present even and shelving edges.

See *Medical Post-Mortem Register*, vol. xv. p. 172.

The larynx is preserved in Series x. No. 1641c.

2023a. A Portion of the Lower Part of the Colon, situated about two feet above the anus. The bowel is so tightly constricted, and its lumen has been so greatly contracted by a narrow ring of new growth, that a narrow glass rod can with difficulty be passed along it. The intestine above the constriction is dilated, but its walls are not thickened or infiltrated with the growth, which was found upon microscopical examination to be carcinomatous.

From a woman aged 73, who had always been constipated. She had a loose stool on the 15th of September after using an enema. When she was first seen, six days later, she was vomiting stercoraceous matter, and she died without any action of the bowels on October 24th.

Presented by Alfred Weakley, Esq.

2032c. A Vermiform Appendix, which was removed during life on account of its gangrenous condition. It measures in its shrunken condition nearly four inches in length. Its walls are thickened by inflammation, and are gangrenous at one spot situated about its middle. It contained the small mass of hardened fæces which is preserved in the next specimen, No. 2032d.

From a boy aged 16, who had been in his usual health until November 3rd, when he ate some sausage-meat. He vomited shortly after doing so, and suffered great pain in his abdomen; he had diarrhœa and experienced the greatest pain in his right iliac region. On opening the abdomen on November 9th, there was evidence of local peritonitis upon the right side, and on examining the large intestines a considerable quantity of pus welled up. The appendix vermiformis was found to be gangrenous, and it was therefore removed together with its contained fæcal concretion. Some days later a median laparotomy was performed in consequence of symptoms pointing to a fresh suppurative peritonitis on the left side. A collection of some ounces of pus was found in a large cavity bounded by agglutinated intestines. The abscess sac, which extended deeply into the pelvic cavity, was drained, and the patient made a complete though somewhat slow recovery.

See *Transactions of the Medico-Chirurgical Society*, vol. lxxii. p. 433.

See *Male Surgical Register*, vol. iv. (1889), s.v. A. Searle.

2032d. A Small Mass of Hardened Fæces, which was impacted in the upper part of the vermiform appendix, preserved in the previous specimen, No. 2032c. The mass weighs six grains.

2040c. A Portion of Jejunum, situated four feet from the end of the duodenum, which had been wounded opposite the attachment of the mesentery. The cut is transverse to the long axis of the intestine, and measures nearly an inch in length. The suture had been introduced during life; a small amount of fæcal matter could be squeezed out. The colon just above the sigmoid flexure had also been wounded.

From a man aged 40, who had received a stab in his abdomen ten hours before his admission to the Hospital. His abdomen was then swollen and tender, and he was in great pain. The wound was situated immediately below the ribs on the left side; it was three-fourths of an inch long, and a thin blood-stained fluid was oozing from it. The wound was enlarged and the wounded intestine was brought together with Lembert's sutures. The patient died with general peritonitis three days later.

See *Male Surgical Register*, vol. ii. (1888), No. 2841.

2040d. A Portion of the Descending Colon, showing a large rent in its long axis.

From a man aged 32, who died shortly after his admission to the Hospital. There was a rent in the middle of his mesentery which extended for a distance of 14 inches.

See *Male Surgical Register*, vol. iv. (1888), No. 2220; and *Surgical Post-Mortem Book* for 1888, p. 88.¹

SERIES XIX.

DISEASES OF THE RECTUM AND ANUS.

RECTO-PROSTATIC FISTULA.

2056a. A Portion of a Rectum with the Urinary Bladder and Prostate, showing a recto-prostatic fistula; the point of communication between the rectum and prostate is indicated by a piece of catheter. The rectum is ulcerated for a distance of two inches from the anus. The bladder is thickened, and its mucous membrane is everywhere ulcerated. The fistulous connection with the rectum opens into the prostatic portion of the urethra at a point situated immediately below the sphincter vesicæ on the left side of the caput gallinaginis. The glandular portion of the prostate has sloughed and is converted into an abscess cavity.

From a man aged 32 years, who had long suffered from general tuberculosis.

The testes are preserved in Series xxxvi. No. 2780 c and d.

See *Male Surgical Register*, vol. v. (1888), No. 714.

2062b. A very Large Polypus, which sprang from the inside of the rectum immediately above the anus. The greater portion of the tumour is a simple papilloma, but at one part of its base it is becoming cancerous. The cancerous portion is undergoing colloid degeneration. It is situated at the neck of the polypus, close to the skin of the anus. A small fistula connects the cancerous portion with the exterior; a glass rod has been passed along its track.

From a man aged 55, who had been troubled for six years with a mucous discharge from his rectum. The discharge was occasionally stained with blood. For some months before the removal of the growth he suffered from difficulty in passing his motions and from a small fistula. The polypus was in great part attached to the mucous membrane, but near the anus it had infiltrated the wall of the bowel and had extended to the skin.

Sections are preserved in Series lv. Nos. 87 m and n.

Presented by D. H. Goodsall, Esq.

2062c. A Large Papillomatous Growth removed from the Rectum. It is a soft lobular tumour, which was reddish-coloured when fresh. It was attached to the wall of the bowel by a pedicle of myxomatous tissue, measuring four inches in width. Microscopically it was found to consist

of numerous branching papillæ, covered with columnar epithelium, and formed of very delicate connective tissue.

From a woman aged 50, who had observed the growth for two years.
See *Female Surgical Register*, vol. iv. (1888), No. 1912.

POLYPUS OF THE RECTUM PRODUCED BY BILHARZIA.

2065c. A Small Papilloma of the Rectum, produced by the irritation of *Bilharzia hæmatobia*. There were other smaller tumours in the rectum. The polypus consists of numerous dense papillæ, and its substance is filled with the ova of the parasite.

From a native boy aged 14 years, who was admitted to the Hospital at Alexandria suffering from severe diarrhœa and hæmorrhage from the rectum, which had lasted for some time. Examination of the rectum showed that it was studded with small hard nodules, evidently of bilharzial origin. The tumour was prolapsed whilst straining at stool. It was ligatured and removed.

Presented by Dr. Mackie, of Alexandria.

SARCOMA OF THE ANUS.

2072b. A Section of a Sessile Tumour, which occupied the space between the ischial tuberosities and the coccyx in a man aged 64. The surface of the tumour was ulcerated, and gave rise to considerable discharge. A fistulous track passed through the anterior portion of the growth into the rectum. Microscopically the growth is an oval-celled sarcoma. The patient only had pain on sitting, there was none on defæcation, although the tumour entirely concealed the anus. The inguinal glands were enlarged and tender.

A section is preserved in Series lv. No. 87p.

Presented by F. Swinford Edwards, Esq.

2072a. A Pelvis with the Rectum *in situ*, to show the position of a carcinomatous ulceration. The ulceration commences five inches above the anus, and continues for a distance of three inches upwards. It involves the whole circumference of the gut, and extends as deeply as the muscular coat. The lumen of the intestine is not encroached upon or contracted. There was no other new growth in the intestine.

From a man aged 52, who had always been dyspeptic. He had been ailing for five years. He had diarrhœa, but had never noticed any pus in his stools.

See *Luke Ward Book* for 1886, No. 265.

SERIES XX.

HERNIÆ OR PROTRUSIONS AND OTHER DIS- PLACEMENTS OF THE INTESTINAL CANAL AND OMENTUM.

HERNIAL SAC CLOSED BY OPERATION.

2089a. A Portion of the Abdominal Wall, taken from the neighbourhood of the crural ring. The sac of a femoral hernia had been cut off and

the peritoneum sutured eight days before death. The peritoneum over the crural ring is slightly puckered, but it is quite closed, and there are no traces of the hernial sac.

The patient, a man aged 63, admitted to the Hospital on account of a strangulated femoral hernia, died of perforation of the gut six feet above the ileo-cæcal valve. The external wound was soundly healed.

See *Male Surgical Register*, vol. iii. (1887), No. 1775.

2095a. Right Inguinal Hernia. There is a long and narrow sac closely related to the constituents of the spermatic cord. A very long and slender strip of omentum is closely adherent to the hinder wall of the sac. The history is unknown, but it seems quite impossible for the omentum to have been the cause of the sac.

2105a. A Portion of Jejunum, of which a part of the circumference was strangulated in one of the crural canals, so constituting a Richter's hernia. That portion of the circumference which has been nipped is congested and dark coloured. Its wall has given way immediately above the seat of constriction.

From a woman aged 69 years, who had suffered for four or five years from a femoral hernia, for which she had never worn a truss. Nine days before her admission to the Hospital she was suddenly seized with violent abdominal pain and vomiting. There was complete obstruction without passage of flatus. An operation for relief of the strangulation was performed, but the patient died four days afterwards.

See *Female Surgical Register*, vol. iv. (1889), No. 206.

2115b. A Retro-Peritoneal Hernia of the Vermiform Appendix. The appendix lay in an isolated sac by the side of the pouch of an inguinal hernia. The hernial sac formed by the upper part of the processus vaginalis is very long, and it is throughout blended with the fibres of the internal cremaster muscle. A glass rod has been passed into the lumen of the vermiform appendix, which is situated immediately behind the sac.

From a child aged 10 weeks, who was admitted with symptoms of strangulated hernia. The anterior sac was opened, but no intestine was found in it. The child died, and at the autopsy an intussusception of the small intestines was found.

See *Male Surgical Register*, vol. iv. (1888), No. 2586.

2140f. Sac of a Congenital Inguinal Hernia, obtained from a female. The sac occupied the right inguinal canal, and protruded from the external ring. The mouth of the sac is very small, and leads into a long narrow canal which opens into the body of the sac. The end of the sac is pointed, and is united by a thick band of fibrous tissue to the labium.

2156b. A Portion of the Anterior Abdominal Wall, showing an umbilical hernia. The hernia consists of a mass of subperitoneal fat, which passes through a circular aperture in the linea alba. The peritoneum is not protruded, and there is no true hernia.

From a man aged 65, who died from peritonitis after the tumour had been explored.

See *Male Surgical Register*, vol. ii. (1886), No. 1100.

AN INTERSTITIAL, ASCENDING, OR INTERPARIETAL HERNIA.

2157a. A Portion of the Right Innominate Bone, with the various muscles and fasciæ attached to it, from a case of strangulated interstitial inguinal hernia with retained testis. The aponeurosis of the external oblique muscle terminates as usual in two pillars to form the external ring, but the ring itself has been enlarged to about four times its natural size. Behind the aponeurosis is a considerable interval, in which the remains of the hernial sac lay. During life and before the operation this space was occupied by the right testis and the sac. The space, which in the specimen is kept open by glass rods, is formed by a separation of the external oblique muscle from the conjoined tendon of the internal oblique and transversalis muscles, as well as by a splitting of the aponeurosis itself toward the linea semilunaris.

From a man aged 45, who for eighteen years had suffered from a hernia for which he had worn a truss. The hernia suddenly became strangulated twenty-four hours before his admission to the Hospital. When he was first seen, there was a swelling parallel to and above Poupart's ligament. The swelling was tense, resonant, and irreducible; there was no impulse on coughing. The skin over it was red and discoloured. The intestine could be felt lying above the retained testicle and external to it. On exposing the intestine, about 12 inches of it in three coils was found in the processus vaginalis and reflected between the abdominal muscles; it was congested and almost black. The testicle and a small piece of the omentum were removed. The patient died a few hours after the operation. At the autopsy the gut was found to have been strangulated in two places.

See *Male Surgical Register*, vol. iv. (1888), No. 362.

2157b. The Retained Testis with a Portion of Omentum, which were removed from the preceding case during the operation for the relief of the strangulated hernia. The testis was situated about half-way down the right inguinal canal.

2159b. A Portion of the Anterior Abdominal Wall, showing a hernia of the subperitoneal fat. A small rounded tumour, consisting of fat and subperitoneal connective tissue, is seen to have made its way through the linea alba at a spot situated about three inches above the umbilicus. The peritoneum is not protruded, however, nor is there any true hernia.

From a man aged 65, who was admitted to the Hospital on account of this tumour, which was supposed to be a hernia. The tumour was exposed, and was returned into the abdominal cavity through the aperture in the linea alba, which was sewn up. The patient died of peritonitis five days after the operation. At the autopsy it was found that the peritoneum was uninjured, but that the inflammation appeared to have extended to it from the superjacent wound.

See *Male Surgical Register*, vol. ii. (1886), No. 1100.

A VENTRAL HERNIA OF AN APPENDIX EPIPLOICA.

2159c. A Portion of the Abdominal Wall from the left side. A mass, which at first sight consists of subperitoneal fat, protrudes through the left linea semilunaris at a spot a little below the level of the umbilicus. On more careful examination, however, it is readily seen

that the protrusion consists of one of the appendices epiploicæ, which has passed through an opening in the peritoneum. It is invested by an extremely thin hernial sac, to which it is adherent. At the point where the sac pierces the linea semilunaris there is a distinct ring, like that seen at the umbilicus. The mode of formation of this protrusion is quite inexplicable. There is no sign of any previous wound, and the appendices appear so late in foetal life that it could hardly have been due to a developmental cause.

See *Transactions of the Pathological Society*, vol. xl. p. 15.

2185a. A Section through the Ileo-Cæcal Valve of a female child aged 7 months. The lower portion of the ileum has undergone intussusception into the colon. The invaginated portion of the gut is greatly thickened as a result of inflammation, and its terminal portion is becoming gangrenous.

See *Female Surgical Register*, vol. i. (1888), No. 2161.

SERIES XXI.

DISEASES AND INJURIES OF THE LIVER.

2196b. A Portion of a Liver containing a Large Abscess, situated in the right lobe near its convex surface. The walls of the abscess are irregular, and it has penetrated for some distance into the hepatic tissue, so that its floor is rough and spongy. The abscess communicated by a ragged aperture with a circumscribed portion of the peritoneal cavity.

From a man aged 45, whose transverse colon was adherent to the lower border of the liver. In this part of the intestines there were the pigmented cicatrices of three small ulcers. The left lobe of the liver was in a state of cloudy swelling. The patient had been employed in the gasworks. He drank freely, and had probably suffered from syphilis.

See *Matthew Ward Book* for 1887, No. 230.

NON-ALCOHOLIC CIRRHOSIS.

2198b. A Liver presenting all the characters of Cirrhosis. It weighs 29 ounces, and is indurated and pale from the increase of connective tissue. Its external surface is tuberculated and nodular, and a similar appearance is seen on section. Microscopically the liver is infiltrated with a very vascular small-celled growth, which in many places has completely destroyed the lobules by a simple process of pressure, since the growth of connective tissue is entirely interlobular. The cells of the liver are normal, and have not undergone any fatty change such as is common in cases of ordinary cirrhosis, nor does there appear to be any abnormal quantity of pigment.

From a professional man, 5 feet 9½ inches in height, 65 years of age, who was able to work until three weeks before his death. He then began to suffer from ascites accompanied by slight jaundice. Seven years previously he had suffered from an attack of

biliary colic, which subsequently recurred, but he had not experienced an attack during the eighteen months preceding his death. Four years previously he had suffered from angina pectoris. For thirty-five years he had been a teetotalter and had never at any time indulged in alcohol to excess. In every respect he was abstemious. He had never suffered from syphilis. At the autopsy the kidneys were found to be small, the heart cut crisply, and the coronary arteries were calcified.

A microscopical section is preserved in Series lv. No. 909q.
See *Transactions of the Pathological Society*, vol. xl. p. 137.

Presented by Evan Alban, Esq.

2198c. A Portion of Liver, the whole substance of which is indurated and pale from an increase of the interlobular prolongation of Glisson's capsule. Its external surface is distinctly nodular, the nodules varying in size and in distinctness.

From a woman aged 67 years. The whole organ only weighed thirty ounces.
See *Medical Post-Mortem Register*, vol. xiv. p. 191.

2204a. A Section of Liver, showing a cystic dilatation of many of the bile capillaries. The cysts are very numerous, and vary in size from a pin's point to a large pea.

From a child who was burnt to death.

Presented by Dr. Joseph Griffiths.

2209a. A Section of a Liver which has been enormously enlarged by the infiltration of a melanotic sarcoma. The entire liver weighed 16 pounds when it was removed from the body. The section shows large nodules of a black colour and circular in outline, which are separated from each other by strong white septa. In some parts the growth is diffuse and of a grey colour, but there is nowhere any trace of liver tissue

From a warehouseman aged 48, whose father had died from a tumour. Three years before his admission to the Hospital his right eye was removed on account of a melanotic tumour, which grew from the choroid. Four months before his death he had pain in the right side of the abdomen, accompanied by nausea and retching, and in three months he had lost a stone in weight. The liver dulness during life reached as high as the fifth rib. Melanotic growths were found in the mesenteric glands and in both kidneys. The peritoneum showed numerous minute specks, and there was one in the skin of the left axilla of the size of a pin's head. There was no new growth in the chest nor in the spleen.

A section of the kidney is preserved in Series xxviii. No. 2390d.

See *Luke Ward Book* for 1888, No. 192.

See *Transactions of the Pathological Society*, vol. xl. p. 138.

2237a. A Portion of Liver infested with the ova of *Bilharzia hæmatobia*. Cf. Nos. 1745a and 2306b.

From the same case as the genito-urinary organs preserved in Series xxviii. No. 2393c. The parent worms are preserved in the same Series, No. 2393d.

Presented by Dr. Mackie.

SERIES XXII.

DISEASES AND INJURIES OF THE GALL-BLADDER
AND BILIARY DUCTS.

2247b. The Gall-Bladder with a Portion of the Liver. The cystic duct is blocked by a small gall-stone which lies at the commencement of the duct. The walls of the gall-bladder are somewhat thickened and show traces of inflammation.

From a woman aged 52, who died with morbus cordis. The liver was chronically congested, and she had emphysema.

See *Medical Post-Mortem Register*, vol. xv. p. 8.

SERIES XXIII.

DISEASES OF THE PANCREAS.

2276a. A Section of the Pancreas with the Duodenum attached. The head of the pancreas is infiltrated with a mass of new growth, which extends into the intestinal wall and presses upon the common bile duct in such a way as to occlude it.

From an adult who was first seen two years before his death, when he complained of dyspeptic symptoms. Twelve months later he appeared to be suffering from pulmonary phthisis, and a fortnight before his death he became deeply jaundiced. At the autopsy his lungs were found to be riddled with cancer, and he had numerous round nodules in his kidneys.

The right suprarenal capsule with a part of the kidney attached is preserved in Series xxvii. No. 2330b.

Presented by Dr. S. H. Habershon.

SERIES XXIV.

DISEASES OF THE LYMPHATIC GLANDS AND
VESSELS.

2287a. Section of a Mass of Lymphatic Glands infiltrated with scirrhus cancer. They were removed from the axilla of the woman whose breast is preserved in Series xlvi. No. 3165b.

See *Female Surgical Register*, vol. ii. (1888), No. 1622.

SERIES XXV.

DISEASES AND INJURIES OF THE SPLEEN.

2306b. A Portion of a Spleen infested with the Ova of *Bilharzia hæmatobia*. Cf. Nos. 1745a and 2237a.

From the same case as the genito-urinary organs preserved in Series xxviii. No. 2393c. The parent worms are preserved in the same Series, No. 2393d. A microscopic section of the spleen is preserved in Series lv. No. 90hh.

Presented by Dr. Mackie.

SERIES XXVI.

DISEASES OF THE THYMUS AND THYROID GLANDS.

2310c. One Half of the Left Lobe of a Thyroid Gland, which was the seat of a cystic adenomatous goître. The tumour is invested with a well-marked capsule, under which the enlarged thyroid vessels, which have been injected, may be seen ramifying. The rough surface without any capsule, situated at the lower and inner part of the gland, marks the place where the tumour was attached by a narrow isthmus to the opposite lobe. The superior thyroid artery is seen as a large vessel at the upper and back part of the specimen. The cut surface shows two large adenomatous nodules, each provided with a definite capsule. Immediately below them are several cysts which contain more or less broken-down masses of colloid substance mixed with blood. Small blood-vessels ramify in the connective tissue between the cysts. After its removal the whole tumour weighed 18 ounces.

The patient was a young man who had had a large bilateral goître for many years. Of late it had given him so much trouble that he was unable to follow his occupation, that of a labourer.

The tumour was removed through an oblique incision over its long axis. All the main vessels were secured with double ligatures before being divided, so that the patient lost very little blood. The left half of the gland was removed completely, the right being left *in situ*. The wound was dressed after Kocher's method, and healed completely in about a week, no complications occurring. The right half of the goître underwent the usual diminution in size and subsequent re-enlargement a few weeks after the operation.

Four months after the operation the patient was still in good health, and enjoying immunity from the symptoms which had previously troubled him.

A cast of the neck of the patient from whom this tumour was taken is preserved in Series lvi. No. 138g.

See also *St. Bartholomew's Hospital Reports*, vol. xxv. (1889), p. 97.

Presented by Messrs. Edward Jessop and James Berry.

2314h. A Large Cystic Goître, which was removed after the death of the patient. The cyst is confined to the right lobe. It is globular in

shape and measures three inches in diameter; it has a thick and tough wall, and contains a considerable quantity of solid material, which has shrunk from the action of the spirit. The contents are the ordinary mucoid contents of a thyroid cyst with the remains of blood-clot.

From a middle-aged woman, who died after amputation of the thigh for a myeloid sarcoma of the knee.

See *Female Surgical Register*, vol. v. (1889), No. 958.

ATROPHY OF THE THYROID GLAND.

2317a. A Larynx with Part of a Thyroid Gland, showing the extreme amount of atrophy which has taken place in a woman aged 63, who had myxœdema. The two lateral lobes are reduced to mere bags of fibrous tissue. The patient had chronic peritonitis, with great thickening of the capsules of the spleen and liver.

See *Medical Post-Mortem Register*, vol. xv. p. 250.

SERIES XXVII.

DISEASES OF THE SUPRARENAL CAPSULES.

2322a. The Suprarenal Capsules from a woman who died with Addison's disease. The organs are large and firm, the right being larger than the left, and measuring $2\frac{1}{4}$ inches in length. On section, the right capsule is seen to contain numerous yellow patches, each of which is surrounded by a bluish-white tissue, cutting like cartilage, and closely resembling it in appearance. The yellow patches appear to consist of caseous material, but they are hard and firm, cutting like horn. There is no normal tissue remaining, so far as can be seen by the naked eye.

The left capsule is apparently affected in a similar manner, but the yellow material is not so marked, and is confined to the medullary portion.

Microscopically the degenerating portions of the gland were tubercular, and contained tubercle bacilli.

From a married woman aged 23 years, the mother of four children. She had been ailing since the birth of the first child, six years previously. On admission to the Victoria Park Hospital, she was found to be suffering from phthisis. Her complexion was sallow, but the skin of her face, neck, arms, and hands were tinted of a light brown. There were numerous bright brownish-black spots covering the tinted area. The spots did not disappear on pressure. They were especially well marked about the ears, cheek, and neck, and they appeared in crops. Two months after the admission of the patient she was seized with excessive vomiting, which lasted for four days, when she became comatose and died. At the autopsy a small consolidated patch was found at the apex of the right lung, but with this exception the lungs and all the other thoracic and abdominal organs were healthy.

See *Transactions of the Pathological Society*, vol. xl. p. 300.

‡ Presented by Dr. V. D. Harris.

ABSCESS IN THE SUPRARENAL CAPSULE.

2326b. A Section through a Kidney and Suprarenal Capsule. The suprarenal capsule has been converted into a globular mass, which measured three inches in circumference when it was fresh. The glandular substance has been completely destroyed, and its walls are thickened by a deposit of caseating material. The cavity was filled with thin sanious pus.

From a man aged 67 years, who died of diabetes. There was no evidence during life of any symptoms of Addison's disease. The opposite suprarenal was healthy. See *Surgical Post-Mortem Register* for 1888, p. 51.

2330c. A Section through the Right Kidney and Suprarenal Capsule. The suprarenal capsule is infiltrated with a round-celled sarcoma. It is oval in shape, and measures three inches in its long axis.

From a man aged 18 years. The primary growth occurred in the left lung. The lung is preserved in Series xi. No. 1728b.

Presented by Dr. Arthur Davies.

SERIES XXVIII.

DISEASES AND INJURIES OF THE KIDNEYS, THEIR
PELVES, AND THE URETERS.

2331d. A Section of a Kidney, stained with iodine to show the portions affected with amyloid degeneration.

2341d. The Bladder and Kidneys from a case of tuberculosis of the urinary tract. The kidneys are greatly enlarged. The right is converted into a series of cavities containing caseous matter, in one of which is a small piece of adherent calculous material. The left kidney is less diseased, but it contains numerous cavities, which are filled with caseous matter.

The ureters are greatly distended, and their walls are covered with tubercular and caseating material.

The bladder is only slightly hypertrophied, but its mucous coat behind the trigone is studded with recent grey tubercles, whilst the rest of its surface is coated with caseous material and ragged shreds of lymph.

From a man aged 24, who was admitted to the Hospital on account of tubercular disease. Neither testes nor prostate were affected.

A drawing of the kidneys and bladder is preserved in Series lvii. No. 331c. See *Male Surgical Register*, vol. ii. (1889), No. 547.

2369b. A Kidney, which is greatly enlarged, and is surrounded by a thick layer of dense fat. The glandular substance has been almost

destroyed by large abscess cavities, and the ureter is plugged with fibrin.

From a man aged 46, who had a long-standing stricture of the urethra.

The bladder and urethra are preserved in Series xl. No. 2872b.

See *Male Surgical Register*, vol. iv. (1888), No. 4012*.

2370a. The Bladder, Ureters, and Kidneys of a boy aged 17 years. The bladder is enlarged and greatly hypertrophied, and its mucous coat is ulcerated. The ureters are enormously distended and thickened, except at their entrance into the bladder, where they are of the normal size. The pelves and infundibula of the kidneys are widely dilated, thickened, and rough from a deposit of lymph upon their inner surfaces. The glandular substance has entirely disappeared.

From a railway porter, who had phimosis. The constriction was so considerable that the point of a hairpin could not be passed through it to the meatus urinarius. The patient died three days after he was circumcised. For twelve hours preceding his death he suffered from uræmic convulsions with suppression of urine. Until the operation was performed he was able to do his work.

Presented by J. H. Gilbertson, Esq.

2377a. A Section through the Left Kidney. The pelvis is enormously dilated, and was full of urine. In the anterior, superior, and posterior walls of the pelvis is a deposit of calcareous substance, like that found in an atheromatous aorta. The ureter appeared to be pervious.

From a man aged 45, who died from cerebral hæmorrhage.

See *Medical Post-Mortem Register*, vol. xiv. p. 133.

2390d. Section of a Kidney containing a small mass of melanotic sarcoma at its upper part.

From a man aged 47, who had melanotic sarcoma of the skin with secondary deposits in most of the abdominal viscera.

A section of the liver is preserved in Series xxi. No. 2209a.

CHLOROMA OR GREEN SARCOMA.

2390e. The Anterior Half of the Left Kidney, showing numerous patches of new growth, which during life were of a bright-green colour, and on microscopical section proved to be of a sarcomatous nature. The growths were soft, and when fresh they projected slightly above the surface of the glandular substance. They were situated for the most part deeply in the kidney substance, though some were at the periphery. The shape of one growth was suggestive of its having resulted from an infarct.

From a boy aged 10 years, who had multiple tumours of the orbits, internal ear, cerebral dura mater, and other parts. The growths were everywhere of the same greenish colour seen in the specimen. The tumours appeared to have been growing for about six months. The first symptoms were those of facial paralysis on the left side.

See *Mark Ward Book* for 1888, No. 45.

2390f. The Posterior Half of the Right Kidney, from the same case as the preceding, showing similar nodules of new growth.

2393b. The Urinary Organs from a case of *Bilharzia hæmatobia*. The bladder is contracted, and its mucous membrane is thickened by a number of papillomatous masses, which are found microscopically to contain enormous numbers of bilharzia ova. The ureters are dilated and thickened. Their mucous membrane is covered with a slate-coloured membrane, also containing large numbers of ova. The pelves of the kidneys are lined with the same membrane and ova.

From an old Arab, who came to the Hospital at Alexandria suffering from dreadful and continuous pain, and passing almost pure blood mixed with enormous quantities of débris containing the ova of bilharzia. Perineal urethrotomy was performed for relief of the pain, but the man died a week later from uræmia.

See *Transactions of the Pathological Society*, vol. xxxviii. p. 191.

Presented by Dr. Mackie, per Reginald Harrison, Esq.

2393c. The Kidneys, with the Bladder and Ureters, from a case of *Bilharzia hæmatobia*. The bladder is small and contracted, and its mucous membrane is raised into numerous soft swellings, which contain abundance of bilharzia ova. The ureters are dilated, and their mucous surface is studded with small soft projections, which are also full of ova. The kidneys are in a condition of pyonephrosis, and the mucous membrane of the pelves is covered with little granulations, each containing numberless ova.

From a country Arab, who was admitted into the Hospital at Alexandria. He was passing bloody urine mixed with débris, and was in a wretchedly emaciated condition, and suffering agony. By examination above the pubes and per rectum, the bladder was found to be reduced to a small tumour, and it was very painful on pressure, so that it gave the impression of cancer. The bloody matter and débris passed by the urethra swarmed with bilharzia ova. Perineal urethrotomy was performed to relieve the sufferings of the patient, after which he lived for a week or two in perfect ease, dying from chronic uræmic poisoning. At the autopsy many specimens of the parent worm were found in the portal vein.

Portions of the lungs, liver, and spleen are preserved in Nos. 1745a, 2237a, and 2306b.

Microscopic sections of the bladder and kidneys are preserved in Series lv. Nos. 92 f, g, and h.

The female worms are preserved in the next preparation.

Presented by Dr. Mackie.

2393d. Ten Specimens of the Adult Female Worm, *Bilharzia hæmatobia*, obtained from the portal vein of the patient from whom the preceding preparation was taken.

Presented by Dr. Mackie.

REPAIR OF A RUPTURED KIDNEY.

2394b. A Section of a Kidney which has a laceration extending from the hilum for a distance of one inch and a half into the cortex. The rupture is simple and linear in character. The edges at its upper part are united by altered blood-clot, whilst the whole is covered by a thick layer of condensed fat.

From a man aged 27, who fell from a scaffolding a distance of about 26 feet. On admission to the Hospital, he was found to have fractured his skull and several of his

ribs. He subsequently suffered from surgical emphysema and gangrene of the lungs. He survived the accident for eighteen days, during which time, although conscious, he made no complaint of abdominal pain. On admission to the Hospital, his urine contained a little blood, but three days after the accident it was found to be acid, with a specific gravity of 1020, containing neither sugar, albumin, nor blood.

See *Male Surgical Register*, vol. iv. (1888), No. 2710.

- 2394c. The Opposite Half of the same Kidney as the preceding, showing a large hæmatoma situated at the hilum.

SERIES XXIX.

DISEASES AND INJURIES OF THE URINARY
BLADDER.

- 2396a. An Enormously Dilated Bladder. The organ measures eight inches in height, and contained at the time of death five pints of urine. The walls are well developed, and there are no herniæ of the mucous membrane, although in many places the muscular bundles are becoming separated as a result of the distension which the bladder has undergone.

The bladder was taken from the body of an inmate of the Banstead Asylum. Ten pints of urine were drawn off the day before the patient died.

Presented by W. Gilmore Ellis, Esq.

- 2398a. A Bladder from a man aged 55, who had twice been operated upon for stone; on the first occasion for a calculus in the urethra, and a second time for a vesical concretion. At a third operation no calculus could be found. On opening the bladder after death, however, the calculus was found to be lying in a cyst which communicates with the bladder by a small aperture. The opening in the recent state would scarcely admit a probe. The calculus had almost ulcerated through the cyst-wall into the peritoneal cavity.

See *Transactions of the Pathological Society*, vol. xl. p. 179.

- 2398b. A Bladder containing a Calculus encysted behind the Prostate. The organ is much hypertrophied, and its mucous coat is ulcerated in places. Immediately behind the prostate is a small pouch in which lies a phosphatic calculus. The inter-uretal band of muscular fibres has been torn in such a way as to form a bridge across this part of the bladder. The calculus has been partially broken at one place.

From a man aged 55, who had twice been operated on for the removal of a calculus. On the first occasion the calculus lay immediately behind a stricture of the urethra. On his third admission to the Hospital he had numerous perineal fistulæ, and an abscess in the scrotum. Median cystotomy was performed three months before his death.

See *Male Surgical Register*, vol. v. (1886), No. 3854*, and vol. v. (1887), No. 1619.

2412e. A Urinary Bladder. The mucous membrane covering its floor is extensively and superficially ulcerated. At one spot, situated on the posterior wall midway between the apex and the trigone, is a warty mass of tissue rising a quarter of an inch above the surrounding mucous membrane.

From a man aged 25, who had suffered for two years from irritability of the bladder, and who for two months preceding his death had passed pus in his urine. The bladder was drained through an incision in the perineum with temporary relief, but the patient died of suppression of urine. At the post-mortem examination extensive tubercular disease of both kidneys was found, and there were vomicae in both lungs.

Presented by W. Bruce Clarke, Esq.

PAPILLOMA OF THE BLADDER.

2417b. A Bladder showing a new growth, which is situated on the left side of the organ, immediately above the orifice of the ureter. The greater portion of the growth was removed, before the death of the patient, by the operation of suprapubic cystotomy. The rest of the bladder appears to be healthy. Microscopical examination showed that the tumour consisted of branching processes of fibrous tissue covered by a single or by several layers of oval epithelial cells.

From a man aged 45, who was kicked over the pubes five years before his death. On the day following the injury he passed blood in his urine for the first time, and continued to do so until he died, two days after the performance of the operation. At the autopsy a considerable quantity of clotted blood was found in the bladder.

A section of the growth is preserved in Series lv. No. 95ss.

See *Male Surgical Register*, vol. v. (1887), No. 3276.

2417c. A Portion of a Bladder containing a Villous Papilloma. The right side of the organ is covered by a low sessile villous growth; there is no solid tumour, but a crop of delicate filamentous processes covers a patch about the size of a penny. Immediately above the growth, as the specimen is slung in the bottle, is the stump—covered by clot—of another part of the tumour, which had been removed shortly before the death of the patient. The mucous membrane of the bladder is blood-stained and pouched, whilst the vesical wall is hypertrophied.

From a man aged 60 years, who had been passing blood with his water for the last four years. For some time one, or even two, months intervened without hæmaturia, but during the three weeks preceding his death the bleeding was incessant. He died of syncope two days after the portions of growth preserved in the next specimen had been removed by a suprapubic incision into the bladder.

2417d. Portions of a Villous Tumour removed from the bladder preserved in the preceding specimen. The tumour was removed by suprapubic incision.

This, with the preceding specimen, was presented by Stephen Paget, Esq.

2418a. A Bladder in which there is a Villous Papilloma of about the size of a hazel-nut, attached by a flat ribband-like pedicle to its posterior wall, immediately to the outer side of the left ureter.

From a man aged 59, who died of hæmaturia.

See *Male Surgical Register*, vol. i. (1888), Nos. 2146 and 2550.

2419b. A Bladder which has been turned with its mucous membrane outwards, to show a very extensive papillomatous growth covering almost the whole of the fundus. Microscopically the growth consists of complex branching papillæ formed of connective tissue covered with vesical epithelium. The growth does not implicate the deeper portions of the bladder, and it is therefore not malignant.

From a man aged 55, who was quite healthy until a year before his death, when he began to suffer from hæmaturia. He had much pain on passing urine.

See *Male Surgical Register*, vol. ii. (1888), No. 1873.

2424a. A Urinary Bladder whose walls and trigone are infiltrated with a dense growth, which is quite smooth on the surface, and is white on section. Similar growths infiltrate the fundus of the organ above the level of the ureters, and one large mass is situated immediately above the left ureter. The tumours were not shreddy or villous, and there were no enlarged glands. The bladder-wall is hypertrophied. Microscopically the growth was found to be an alveolar carcinoma, nearly allied to scirrhus.

From a man aged 62, who for twelve years had difficulty in passing his water. Twelve months before death his urine became foul, and he subsequently had very great pain in the region of his bladder. There was no suspicion of a new growth until after the death of the patient.

See *Male Surgical Register*, vol. v. (1888), No. 376.

EPITHELIOMA OF THE BLADDER, REMOVED DURING LIFE.

2445b. A Portion of the entire thickness of the Wall of the Bladder, measuring three inches in length by two inches in breadth. Its vesical surface presents a large circular ulcer, which is somewhat cup-shaped. The ulcer extends deeply into the muscular coat of the bladder. Microscopically it was an epithelioma.

From a man aged 70, who had suffered from hæmaturia for eight months. The bladder was opened by a suprapubic incision, and the ulcer was then seen to be situated at the apex and slightly at the back wall of the organ. Before the operation could be completed, however, the patient became collapsed, and it was found necessary to close the wound after cauterising the bleeding surfaces of the ulcer. Four days later the bladder was again opened, and the portion of its wall with the adherent peritoneum was excised. The patient died nine days afterwards. The post-mortem examination showed that there was no peritonitis, that the peritoneal cavity was shut off from the bladder, and that partial union of the muscular coat had taken place.

Presented by W. Bruce Clarke, Esq.

SERIES XXX.

DISEASES AND INJURIES OF THE BRAIN AND ITS MEMBRANES.

2449a. A Portion of a Calvaria showing a Blood Cyst in the arachnoid. The cyst is situated a little below the right parietal eminence; its walls are thick, and are lined by organised blood-clot. It is evidently of long standing. When the cyst was laid open, it contained six ounces of blood-stained fluid.

From a man aged 68 years. No history of an injury to the head was obtainable. The bladder and urethra of this patient are preserved in Series xl. No. 2872a.

See *Surgical Post-Mortem Register* for 1888, p. 147, and *Male Surgical Register*, vol. ii. (1888), No. 2996.

2481a. Section through a Pons Varolii, into the left side of which there has been an extravasation of blood, extending from the level of the inferior corpora quadrigemina to the upper part of the medulla. The maximum hæmorrhage is near the upper part of the fourth ventricle, whose floor it has destroyed. At this level the hæmorrhage extended outwards on the left side into the middle crus cerebelli for nearly an inch. Within the nerve-substance the hæmorrhage is strictly limited to the left half. The origins of the fifth, seventh, and eighth nerves are involved; the sixth is not involved, but appears to be subjected to pressure. The motor track is not involved.

From a widow aged 38 years, who was admitted to the Hospital suffering from hemiplegia. There was incomplete palsy of the right leg and arm. The tongue pointed strongly to the right; all the muscles on the left side of the face were paralysed. There was no rigidity or aphasia. The deep reflexes were normal. The patient was a gin-drinker. She was suddenly attacked with giddiness and became unconscious; on recovery she was paralysed. After admission to the Hospital, she was found to have some anæsthesia of the right side, and she had a downward squint of the left eye.

See *Mary Ward Book* for 1888, s.v. M. Baxter.

2497a. A Cerebellum showing a glioma springing from the superior vermiform process, and indenting the inner borders of the lateral hemispheres.

From a young man aged 17, in whom the pressure of the tumour had given rise to hydrocephalus.

Presented by James Berry, Esq.

**SYMMETRICAL TUMOURS OF THE CEREBRAL HEMISPHERES,
WITH SOFTENING OF THE CORONÆ RADIATÆ.**

2499d. A Series of Sections of the Cerebral Hemispheres. The upper half of the brain has been removed by a horizontal section made about the level of the basal ganglia. Vertical sections of this portion have

then been made, and have been arranged in the following order, from above downwards:—

Left side.	Right side.
	Pediculo-frontal.
	Frontal.
	Parietal.
	Pediculo-parietal.
	Occipital.
	Occipital.

The healthy white matter is seen to be coloured light-green, whilst the grey matter of the convolutions is brownish-green. The tumour is represented by the granular brownish patch in the centre of the corona radiata. The softened white matter in the immediate neighbourhood of the tumour is of a waxy-yellow colour; it is best seen in the left parietal section, which is the third section from the top on the left-hand side of the specimen. The tumour is seen to extend throughout the sections as a long track of disease in the white matter of both hemispheres. It is roughly club-shaped, broadest opposite the motor convolutions, and tailing off into the occipital lobes.

From a man aged 31 years. His symptoms on admission to the Hospital were of two days' duration, and consisted of headache, fever (a temperature of 102° F.), and a tendency to sweats. There followed stiffness of the neck and back, terminating in rigidity and opisthotonus, optic neuritis, gradual coma, right hemiplegia, and death in about five weeks. Microscopically the tumour proved to be of a sarcomatous nature.

See *Transactions of the Pathological Society*, vol. xl. p. 19.

See *Luke Ward Book* for 1888, No. 107.

CASEATING TUBERCLE IN THE CEREBELLUM.

2502c. A Cerebellum which contains a caseating tubercular mass. The left cerebellar hemisphere is much larger than the right, the enlargement being even and uniform. The tumour is not apparent externally, except at a point situated three-quarters of an inch from the postero-internal angle of the hemisphere, where there is a small nodule. The pia mater over this nodule is granular and opaque, and the cerebellar markings are less distinct than in other parts.

A vertical section through the left hemisphere discloses a hard caseous mass, which occupies nearly the whole of the posterior two-thirds of the section. The tumour is irregularly oval in outline, and measures one inch and a quarter in its long diameter by an inch transversely. A zone of softened tissue, measuring nearly a quarter of an inch in thickness, surrounds the tumour, the softened area being of much greater extent in the neighbourhood of the anterior and upper border of the growth. The foramen of Magendie is patent. Microscopical examination showed the tumour to be a mass of caseating tubercle.

From a boy aged 13, who complained for four months of pain in his head, which was not, however, limited to any exact spot. The pain was continuous, but underwent paroxysmal exacerbations. His sight failed gradually, until, during the last

three days of his life, he was totally blind. He had occasional attacks of rigidity, during which he lost consciousness for periods of five or six minutes. From time to time he vomited. For several weeks before his admission to the Hospital he staggered whilst walking. The patient had strumous disease of the distal end of the metacarpal bone of the left thumb.

A section of the tumour is preserved in Series lv. No. 99c.

See *St. Bartholomew's Hospital Reports*, vol. xxiii. pp. 186-188.

Presented by E. Mansel Sympson, Esq., M.B.

2513a. A Section of a Brain affected with internal hydrocephalus. The lateral ventricle is so greatly distended as to form an arched cavity measuring nearly two inches across at its widest part. From a boy aged 18 years.

SERIES XXXI.

DISEASES AND INJURIES OF THE SPINAL CORD AND ITS MEMBRANES.

DEGENERATIONS OF THE SPINAL CORD.

2550a. Sections of a Spinal Cord preserved in celloidin, after hardening in bichromate of potassium. The areas of degeneration and the grey matter are of a lighter colour than the healthy white matter. One of the sections shows the tumour and the softened cord, whilst the other four are sections of the cord made at various levels in the cervical region above the seat of lesion. The highest section was carried through the cord at the level of the second pair of cervical nerves. The degenerate tracts are the posterior median, the direct cerebellar, and the ascending antero-lateral.

From a boy aged 18 years, who had a tumour of the spinal cord which extended from the eighth to the tenth dorsal vertebra.

Microscopical sections of the cord are preserved in Series lv. No. 107i.

2550b. Sections of a Cord and Pons which have been preserved in the same way as the preceding specimen. The posterior two-thirds of the right internal capsule were softened. The sections of the cord commence at the level of the first dorsal nerves. The left crossed pyramidal tract and the right direct cerebellar tract have degenerated.

Microscopical sections are preserved in Series lv. No. 107 o.

2550c. A Series of Sections of the Spinal Cord, preserved in the same way as the preceding, from a case of fracture of the vertebra prominens and compression of the cord. They show ascending and descending degenerations, which are explained in detail in Series lv. No. 107f.

From a man aged 54, who lived twenty weeks and four days after a fall which broke his back.

Microscopical sections are preserved in Series lv. No. 107f.

2550d. Sections through the Spinal Cord of a Monkey, preserved in the same way as the preceding specimens. A semi-section of the cord has been performed between the seventh and eighth cervical nerves upon the left side. The sections are arranged to show ascending and descending lesions on the left side. The direct cerebellar tract, the antero-lateral tract, and a small part of the posterior median tract are affected above the lesion. The crossed pyramidal tract is the part chiefly affected below the seat of injury.

2550e. Sections through the Spinal Cord of a Monkey, preserved in the same way as the preceding specimens. The left posterior roots of the last dorsal and the first three pairs of lumbar nerves were divided about four weeks before death. The resulting degeneration is situated in the posterior region, on the same side as the section. The degeneration is at first diffuse, but it becomes limited to the posterior median column as it ascends.

The five preceding specimens were prepared and presented by Dr. Howard Tooth.

SERIES XXXII.

DISEASES AND INJURIES OF THE NERVES.

2555a. A Portion of a Median Nerve in which there is a circumscribed oval tumour composed of firm fibrous tissue. The tumour is situated in the substance of the nerve, and is covered by its investing sheath.

From a subject brought for dissection.

2560a. A Portion of a Fibro-Neuroma removed from the peroneal nerve. The tumour was oval in outline; it is possessed of a firm capsule, and consists microscopically of fibrous tissue with numerous spindle cells. A few nerve-fibres were entangled in one part of the growth.

From a man aged 43 years, who for nine years had noticed a painful swelling on the outer side of his left leg. The tumour was situated two inches below the head of the fibula, in the line of the external popliteal nerve. It did not increase in size after the time when it was first noticed.

See *Male Surgical Register*, vol. iii. (1889), No. 354.

SERIES XXXIII.

DISEASES AND INJURIES OF THE EYE AND ITS APPENDAGES.

2593a. A Right Globe excised on account of an injury. The wound extends across the centre of the cornea, involving the ciliary region on either side, and dividing the sclerotic for some distance.

From a man aged 23 years, who was working at a circular saw when he was struck by a long splinter of wood, which entered the orbit an inch behind the external canthus. The wound was V-shaped, and the canthus was torn up; the lower lid was divided, and the globe was horizontally lacerated.

Presented by F. O'Kinealy, Esq.

TOTAL POSTERIOR SYNECHIA.

2605b. Section through the Globe of an Eye, showing a total posterior synechia, the results of chronic iritis, due to a traumatic cataract. The anterior chamber is so shallow as to be practically absent. The retina is completely detached, and forms a cone, of which the apex is the entrance of the optic nerve. The vitreous has shrivelled, and is seen as a yellowish mass immediately behind the lens.

From a woman aged 26, who received an injury to her right eye when she was five years old. The injury resulted in the formation of a cataract.

See *Alexandra Ward Book* for 1886, Nos. 341 and 502.

2642a. A Transverse Section through the Eye of a Dog, to show the lens in an advanced condition of cataract. It is densely opaque and nacreous. The opposite eye was equally affected, and the animal had been blind for some time before his death.

Presented by Sir Dyce Duckworth, M.D.

2651c. A Section through an Eye, showing a wound in the cornea and a piece of metal embedded in the vitreous humour. The vitreous round the fragment has suppurated.

From a wheelwright aged 28. The metal was cold when it entered the eye. It had remained for nineteen days, giving rise to great pain and congestion.

Presented by Henry Power, Esq.

SERIES XXXV.

DISEASES AND INJURIES OF THE SKIN AND ITS APPENDAGES.

2708a. A Small Papilloma which was removed from the chest-wall. The growth consists of a number of separate masses, forming a cauliflower-like tumour, which was attached by a short peduncle to the skin.

ANTHRAX.

2734c. A Malignant Pustule removed from the neck of a man suffering from woolsorter's disease. Numerous anthrax bacilli were found in the clear fluid of the pustule.

From a young man aged 17 years, who was a dresser of horse-hair. He had noticed a pimple on the left side of his neck ten days before his admission to the Hospital. The pustule was excised freely and the patient made a good recovery.

See *Male Surgical Register*, vol. iv. (1888), No. 1479.

SERIES XXXVI.

DISEASES OF THE TESTICLE, ITS COVERINGS,
AND OF THE SPERMATIC CORD.

2764a. A Section through a Fungating Tubercular Testis, in which the tunica vaginalis is distended by a hæmatocele. The shrunken body of the testis is in direct connection with the fungating mass, which is closely adherent to the skin. The sinus which communicated with the testis was situated on the lower and inner side of the scrotum. The epididymis is separated from the testis by the whole width of the hæmatocele, a fact which can only be explained by supposing that there has been an unusual distension of the digital fossa of the tunica vaginalis. The hæmatocele is evidently of very long duration, for its walls are greatly thickened, and in some places are calcified.

From a man aged 20, who had been kicked on the left testicle four and a half years previously. He had symptoms of pulmonary phthisis.

See *Male Surgical Register*, vol. i. (1888), No. 2349.

2780c. A Section through a Tubercular Testis, showing the epididymis filled with caseous material, which extends into a part of the testis itself.

From a man aged 32 years, who had long suffered from general tuberculosis.

The rectum and bladder with the urethra are preserved in Series xix. No. 2056a.

See *Male Surgical Register*, vol. v. (1888), No. 714.

2780d. A Tubercular Testis, showing the whole epididymis infiltrated with caseous material which is just beginning to degenerate. The substance of the testicle is also the seat of a tubercular deposit.

From the same case as the preceding.

2795a. A Section through the Left Testis. The testis as well as the epididymis is greatly enlarged; on cutting through the gland, it was found to be tough, fibrous, and œdematous. Numerous irregular white masses are seen to be embedded in the gland substance. The tunica vaginalis is irregularly adherent to the testis, and portions of it are distended by fluid forming small hydroceles. Microscopically the growth is composed of round connective tissue cells, of equal size throughout. In many places masses of these cells are undergoing caseation, but it is uncertain whether the growth is a gumma or a round-celled sarcoma.

From a man aged 34, who denied that he ever had syphilis. The swelling commenced six months before the gland was removed. The testicle was painless; it was uniformly enlarged; there was no testicular sensation. The cord was much thickened, but there were no enlarged glands. Five days before the testicle was removed a hydrocele was tapped.

A section of the tumour is preserved in Series lv. No. 120a.

See *Male Surgical Register*, vol. iii. (1888), No. 3033.

2797f. A Testicle with the Epididymis and a Portion of the Spermatic Cord. The epididymis is greatly thickened and enlarged by a new growth, which appears to have spread by continuity into the body of the testis. The new growth has not infiltrated the vessels, which are numerous. Microscopically it is a round-celled sarcoma.

From a gentleman aged 58, who noticed a swelling in his left testicle for three months before it was removed. The enlargement gave him no pain, but there was a feeling of discomfort owing to the weight of the organ. The tumour was hard, and was accompanied by a hydrocele.

Presented by G. Lowe, Esq.

2797g. A Section of a Testicle and Epididymis which was removed four months before the death of the patient on account of a sarcomatous growth which infiltrated it. The testicle itself is comparatively little affected, but the epididymis is very greatly enlarged, and is converted into a solid mass of new growth. Microscopically the tumour is a typical sarcoma, the cells being oval and short spindle-shaped.

From a patient aged 21 years, who had noticed a swelling for five months. Four months after the testis was removed the patient died from sarcoma of the omentum. The new growth appeared to have spread upward along the spermatic cord and to have become diffused over the mesentery and omentum. There were no enlarged lymphatic glands.

A portion of the omentum is preserved in Series xvi. Nos. 1886b and 1886c.

See *Male Surgical Register*, vol. iv. (1888), No. 1294.

SARCOMA AFFECTING A RETAINED TESTIS.

2797h. Section of a Tumour which involved a retained testis. The tumour is oval in shape, measuring three inches and a half in length by two and a half in breadth. It is of a white colour—grey when fresh—firm, bulging, and of one character throughout. It does not contain any cartilage. A septum of fibrous tissue appears to mark off what has been epididymis from what was the body of the testis. Microscopically the growth is a mixed-celled sarcoma.

From a married gentleman aged 45. His right testis never came properly into the scrotum; he had worn a truss for many years, and appeared to have an interstitial hernia. A swelling had been suspected for two years, but its increase became obvious during the four months preceding the operation. On examination, a tumour was found in the right iliac and inguinal regions, having its centre above the internal ring, and a little lower than the umbilicus. The patient died five days after the operation.

Presented by Thomas Smith, Esq., per Stephen Paget, Esq.

2797i. A Section through a Sarcoma which has infiltrated an undescended testis. The new growth has a firm white appearance, and has completely surrounded and infiltrated the testis, whose outline as an oval spongy mass is visible at the upper part and right-hand side of the preparation. Microscopical examination showed it to be a round-celled sarcoma.

The tumour was removed from the right ilio-lumbar region of a man aged 49. The right testicle had never fully descended, but until eight months before its removal it could be distinctly felt in the canal. Shortly after this time its presence was

masked by the growth of the tumour. The tumour was smooth and unattached in front, but it was adherent to a coil of small intestine and mesentery upon the inner side, and had infiltrated the pelvic fascia behind. Below it was a cord running down into the pelvis, which on section contained a structure resembling the vas deferens.

Presented by W. L. Woolcombe, Esq.

2810b. A Section through a Tumour involving the body of the right testicle. The tumour is large and oval, measuring five inches in length by three in breadth. In size it is about as large as a turkey's egg. It appears to be an old dermoid cyst, with its cheesy contents enclosed in a calcified wall.

From a West Indian aged 46, who had been employed for twelve years in England as a clerk. The enlarged testis had been observed for at least sixteen years.

See *Male Surgical Register*, vol. iv. (1887), No. 2009.

SERIES XXXIX.

DISEASES OF THE PROSTATE GLAND.

2844b. A Section through a Bladder and Prostate Gland, from a case of acute prostatic abscess. The right lobe of the prostate is spongy, and contains a small abscess cavity; it is in a state of diffuse suppuration. The recto-vesical pouch has been completely obliterated by a smooth-walled abscess, which extends backwards from the floor of the urethra almost to the rectum. This abscess is in communication anteriorly with the urethra, and with an abscess cavity between the symphysis pubis and the wall of the bladder, and above with the floor of the bladder by a sinus through which a glass rod has been passed. The mucous membrane of the bladder is superficially ulcerated. The right kidney was normal, whilst the left kidney was entirely absent. The urethra is normal, except at the point where the abscess opens. There was no stricture.

From a man aged 42 years, who for many years had a fistula in ano.

See *Male Surgical Register*, vol. ii. (1889), No. 2015.

2854b. A Section through the Bladder, Prostate, and Rectum, showing a primary cancer of the prostate which has invaded the bladder and rectum. The trigone of the bladder is ulcerated in its whole extent, and the ulceration has extended along the rectum as low as the anus. By the growth of the prostatic tumour in front and by a large mass of new growth behind, the rectum is so narrowed as to be almost imper-vious. Microscopically the growth in the prostate is a typical scirrhous carcinoma; some of the cells are columnar, and resemble those of Lieberkühn's follicles.

From a gentleman aged 70, who first consulted a surgeon about two years before his death on account of a large quantity of blood and pus which he passed in his urine.

Presented by F. S. Arnold, Esq.

SERIES XL.

DISEASES AND INJURIES OF THE URETHRA
AND PENIS.

2872a. A Portion of the Bladder and Urethra, laid open from behind. The mucous membrane of the bladder and urethra is thickened in its whole extent, whilst the muscular coat of the bladder is much hypertrophied. The lumen of the urethra is narrowed by a long stricture situated in its membranous portion, and extending forwards into the bulbous and backwards into the prostatic portions of the tube. Immediately behind the stricture the upper wall of the urethra is irregularly ulcerated. The ulcers form two deep depressions lying on the long axis of the canal, whose sides and anterior borders are covered with a white deposit of phosphates. No urinary abscess has yet been formed.

From a man aged 68, who was admitted to the Hospital with retention of urine. Fifty years previously he had an attack of gonorrhœa, and he had suffered from stricture for five years.

The calvaria containing a cyst of the arachnoid is preserved in Series xxx. No. 2449a.

See *Male Surgical Register*, vol. ii. (1888), No. 2996.

2872b. A Portion of the Bladder and Urethra, showing the results of a long-standing stricture. The urethra is much dilated behind the seat of constriction, which extends from the prostatic urethra through the membranous into the bulbous portion. The mucous membrane of the prostatic urethra is torn in various directions by false passages, through the largest of which a black bristle has been passed. The bladder is thickened by hypertrophy of its muscular coat.

From a man aged 46, who had long suffered from stricture of the urethra. Six months before his death, Wheelhouse's operation of external urethrotomy was successfully performed. The patient returned to the Hospital with suppression of urine and died.

The right kidney is preserved in Series xxviii. No. 2369b.

See *Male Surgical Register*, vol. iv. (1888), No. 4012*.

2872c. A Portion of the Bladder and Urethra. The mucous membrane of the bladder is thickened and corrugated, while its muscular wall is greatly hypertrophied. The lumen of the urethra is almost obliterated at the junction of the membranous with the bulbous portion by a stricture which extends for about half an inch. Behind the stricture the urethra is greatly dilated, and its mucous membrane is ulcerated and ploughed up in all directions. A glass rod has been placed in the opening of a urinary abscess which is situated in the upper wall of the urethra close to the commencement of the bulb; this abscess communicated by a fistulous track with the exterior. Posteriorly in the pros

tatic portion of the urethra are the openings of several other urinary abscesses.

From a man aged 57, who had suffered for some years from a stricture of the urethra.

See *Male Surgical Register*, vol. ii. (1888), No. 3785.

SERIES XLI.

DISEASES OF THE OVARIES.

2904e. An Ovary showing a Unilocular Cyst at its outer extremity.

2908d. A Right Ovary and Fallopian Tube removed from a woman aged 35. The ovary is considerably enlarged and is much indurated. It contains in its substance a good-sized clot of blood. There are traces of old and tough adhesions upon the greater part of its surface. The Fallopian tube is adherent to the ovary, and its walls are much thickened by chronic inflammation.

The patient had been married for fifteen years, but had never been pregnant. A year after her marriage, whilst carrying a sick child upstairs, she felt a sensation of something giving way in her body; this was followed by intense pain in the abdomen, constant vomiting, and extreme prostration of strength, which laid her up for six weeks. These symptoms constantly recurred afterwards whenever she underwent a very small amount of exertion. She also suffered from dysmenorrhœa and dyspareunia.

Oophorectomy was performed on October 22, 1888, when the right ovary was found to be fixed very firmly in Douglas' pouch by dense adhesions. The wound healed in a week, but convalescence was delayed by suppuration along the track of the sutures. She eventually made an excellent recovery, and when she was last seen, at the end of April 1889, was able to perform her household duties with comfort. The dyspareunia had entirely disappeared.

Presented by Thomas Sympson, Esq.

2915a. A Small Dermoid Cyst situated in the position of the right ovary. It contains hairs matted together by a white caseous material. The Fallopian tube is normal.

2916a. The Pelvic Organs of a woman aged 33 years, who died from retention of urine, resulting from the impaction of a dermoid ovarian cyst in the pelvis. A sagittal section of the whole mass shows a small contracted bladder; the uterus is drawn upwards, and is displaced to the left of the median line by a cystic tumour, which is closely adherent to its posterior surface. A secondary cyst in the upper part of its anterior wall is filled with fat and hair. From the position of the tumour, it was presumably developed from the right ovary. The left Fallopian tube is greatly distended. The uterus measures five inches from the external os to the fundus.

From an unmarried domestic servant, who woke up one morning to find that she was unable to pass her water. Three days later the retention was followed by incontinence of urine. The abdomen, when the patient was first seen, had the appearance of a seven months pregnancy. A catheter was passed, and after the urine had been drawn off, a soft rounded swelling was found to occupy the whole of the hypogastric region.

Per vaginam the posterior vaginal wall was found to be bulged forwards by an elastic swelling which fully distended Douglas' pouch. The incontinence was followed by polyuria, the patient passing from seventy to ninety ounces of urine daily. Cystitis set in, and the mucous membrane of the bladder sloughed and was discharged. The patient eventually died of asthenia a month after the occurrence of the retention.

Presented by Dr. C. St. John Wright and Mr. H. E. Whitehead.

SERIES XLII.

DISEASES OF THE UTERINE APPENDAGES.

2934b. The Uterus and Appendages from a Virgin who died after a severe uterine hæmorrhage. The specimen presents the same characters as those which are described in the preceding specimen, No. 2934a. A small triangular clot occupies the cavity of the uterus and extends into both Fallopian tubes.

From a domestic servant aged 20, who had not suffered from any illness. The catamenia commenced at 14, and were normal until six months before her death, when they stopped. Eleven days before her death flooding commenced, and continued until the day before she died, when the discharge of blood was replaced by a clear discharge which smelt badly. The girl was not a bleeder, nor, as far as could be made out, were any of her relations.

Presented by W. C. Everley Taylor, Esq.

SERIES XLIII.

DISEASES OF THE UTERUS.

3093a. A Sagittal Section through a Uterus, showing a piece of placenta adherent to its wall. The uterus is greatly thickened, the os is dilated and somewhat torn. The right ovary contains a corpus luteum.

From a woman aged 32, who died with vomiting three days after delivery. At the autopsy she was found to have fatty disease of the heart, liver, and kidneys.

See *Martha Ward Book* for 1887, No. 215.

SERIES XLVIII.

DISEASES OF THE MAMMARY GLAND.

HYPERTROPHY.

3142a. A Section through a very greatly Hypertrophied Mammary Gland. The hypertrophy is due to an infiltration of the gland with fibro-cellular tissue. The section measures ten inches in length by four inches in depth.

From an unmarried lady aged 21 years, in whom the hypertrophy had been proceeding for a period of three years. Both breasts were amputated, and after removal the right was found to weigh forty-eight ounces, whilst the left, from which the above section was taken, weighed no less than eighty ounces.

Presented by Thomas Smith, Esq.

3152b. A Section through a Large Lobulated Sero-cystic Tumour of the Breast. The cysts are very large, and are filled with a firm growth. Microscopically the tumour is a true sero-cystic growth, the intra-cystic tissue being fibro-adenomatous in character.

From a married woman aged 52, who first noticed a small lump in her breast ten years before the amputation was performed. Eight years previously it began to grow, but during the last three years its increase in size was very rapid.

See *Female Surgical Register*, vol. i. (1888), No. 1020.

3164a. One Half of a Breast removed by operation. It contains a large rounded tumour, which is not encapsuled, and which has numerous extravasations of blood in its substance. The growth is situated in the lower segment of the breast, and has fungated; the upper part of the breast and the nipple appear to be healthy. Microscopically the tumour was of a sarcomatous nature.

From a woman aged 54, who received a blow upon the left breast seven years previously. A swelling appeared shortly after the injury, but it was said to have disappeared under treatment. The present swelling had been observed for four months previous to the operation, and the patient had been losing flesh for two months. After the removal of the tumour she made a good recovery.

Obtained in exchange from the Museum of the Royal Free Hospital.

3165b. A Breast showing a scirrhous growing coincidently with a fibro-adenoma. The upper part of the tumour presents the appearance of a normal scirrhous carcinoma, whilst the lower part has the nodular shape of an adenoma. Microscopically the growth is papillomatous in structure, the papillæ being composed of a fibrous stroma containing oval, round, and branched connective-tissue corpuscles. The surface of each papilla is covered with a layer of spherical or short columnar epithelium. Epithelial cells enclosing cavities and simulating glandular tissue are also embedded in the stroma.

From a woman aged 48, who had knocked her breast four years before it was removed. On admission she had a tumour about the size of a walnut situated in the right mammary gland. It was firm and lobulated, feeling like an indurated piece of breast tissue or a fibro-adenoma. The skin was not adherent, nor was the nipple retracted. The patient made a good recovery.

See *Female Surgical Register*, vol. v. (1888), No. 2638.

3165c. A Section of a Breast infiltrated with a scirrhous carcinoma. The nipple is retracted, and at one point in the substance of the gland the carcinoma appears to be undergoing degeneration.

From a woman aged 45 years, in whom the cancer had been growing for eighteen months. Eczema of the nipple had existed for three months before she first noticed the tumour.

A section of an axillary lymphatic gland is preserved in Series xxiv. No. 2287a.

See *Female Surgical Register*, vol. ii. (1888), No. 1622.

3185d. A Section of a Breast containing a small mass of a recurrent colloid cancer. The mass is circular in outline, and measures three-quarters of an inch in diameter. It is situated about a quarter of an inch below the nipple. It has a well-defined outline, and contains a

considerable quantity of new growth, which has not yet undergone any colloid change.

From a woman aged 39, in whom the primary growth of colloid cancer was first noticed nine years previously. The recurrent growth was observed a year after the first operation.

See *Female Surgical Register*, vol. v. (1888), No. 1668.

DUCT, CANCER.

3186b. Section of a Breast with two recurrent nodules of duct cancer, one of which is situated in the fat outside the breast tissue. The masses are circular and measure a third of an inch in diameter; they are situated in a dense stroma of fibrous tissue. Each mass is dark-red in colour, and consists of soft and very friable new growth. Microscopically the growth presented all the characters of a duct cancer.

From a single woman aged 43, who had noticed lumps in her breast for four or five months. There were no enlarged glands. The tumours were removed through incisions made into the breast. Three years later the patient returned to the Hospital, saying that a year previously the swellings had reappeared. The breast was at this time occupied by an irregular lobulated tumour, with a bossy outline and a sense of elasticity, or almost of fluctuation, in parts. There was no glandular affection, and the skin was not implicated. The whole breast was amputated. The patient made a good recovery, but ten months after the operation a small nodule had reappeared at the inner end of the scar. This was also removed, but there was still no implication of the glands.

A section of the growth from the first recurrence is preserved in Series Iv. No. 153b. See *Female Surgical Register*, vol. v. (1887), No. 902.

See also *St. Bartholomew's Hospital Reports*, vol. xxiv. (1888), p. 266, Case 5.

3186c. A Cystic Tumour removed from the breast. The cyst is formed by the dilatation of one of the milk-ducts; a small pedunculated papillomatous growth sprouts into its cavity. This growth, when it was fresh, resembled a ripe raspberry, being bright-red in colour. On the surface of the cyst are ten or twelve smaller growths, none larger than a pin's head, and all sessile. The wall of the cyst was quite thin and membranous. Microscopically the growth presented all the appearances of a duct cancer.

From a woman aged 39, mother of five children. Sixteen months before her admission into the Hospital she had a miscarriage. For seven months, she stated, she had noticed a small lump in her right breast, and for six months there had been a discharge from her nipple. On examination of the right breast, a tumour as large as a hazel-nut was found to exist just beneath the nipple. It was globular in shape and elastic. Whilst it was being examined to detect fluctuation, about half a drachm of slightly blood-stained serous fluid escaped, and the tumour at once diminished in size.

A microscopical section of the growth is preserved in Series Iv. No. 153d.

This specimen was formerly described as 3159b.

See *Female Surgical Register*, vol. iv. (1886), No. 1342.

See also *St. Bartholomew's Hospital Reports*, vol. xxiv. (1888), p. 263, Case 1.

3186d. A Portion of the Left Mammary Gland, containing a cyst with thickened walls. A papillated growth springs from the inner side

of one wall of the cyst. Microscopically the growth has the characters of a duct papilloma.

From a married lady aged 55. Three months before removal she had sudden swelling of both breasts, with heat and pain after exposure to cold. Two very hard nodular lumps were noticed in the left breast. The breasts were large and well developed.

Presented by G. Lowe, Esq., per Sir James Paget, Bart., F.R.S.

SERIES XLIX.

ANATOMY OF STUMPS AFTER AMPUTATION OF LIMBS.

3199a. A Section through the Stump of a Leg which had to be reamputated after Syme's operation. The original operation was performed nine years previously for a fracture. The stump remained sound for four or five years, and then discharging sinuses were formed. The ends of the bones are carious. From a man aged 53 years.

See *Male Surgical Register*, vol. i. (1888), No. 1182.

SERIES L.

GENERAL PATHOLOGY.

3266a. A Congenital Tumour removed from the pinna of the ear of a boy aged 14 years. The tumour measures $3\frac{1}{2}$ inches in length by 2 inches in diameter. It is shining, and is of a dense and uniform consistency, smooth externally, but growing into large processes internally. Microscopically the tumour is a pure fibroma.

A drawing of the patient from whom the growth was removed is preserved in the collection of drawings of congenital malformations, Series xxxviii. No. 40.

See *Male Surgical Register*, vol. iii. (1887), No. 3264.

3278a. A Pendulous Growth attached to the inner side of the thigh. The tumour is nodular and is covered with normal skin; it is attached to the skin by a narrow pedicle. On section, it is seen to consist of a homogeneous tissue, which on microscopical examination is a soft fibroma.

From a woman aged 55, in whom the tumour had been growing for ten years.

See *Female Surgical Register*, vol. iv. (1887), No. 2702*.

3294b. A Circular Growth which was situated over the left malar bone. The tumour measures two inches in diameter. It presented a reddish, smooth, flattened, and somewhat shiny appearance, except at its centre, where there is a small patch of ulceration. The skin is implicated and

discoloured on the surface, but not around the edge of the swelling. Microscopically it is a mixed-celled sarcoma.

From a married woman aged 23, in whom the swelling had been growing for eight months. It was said to have originated in a gnat-bite. The growth was freely movable on the subjacent tissue.

A microscopical section is preserved in Series Iv. No. 113h.

A drawing is preserved in Series lvii. No. 556d.

See *Female Surgical Register*, vol. v. (1888), No. 2512.

3325b. The Lower Third of the Leg and the Posterior Part of the Foot of a patient who had an epithelioma growing on the site of a long-standing syphilitic sore. The cancerous growth is situated in the skin covering the right side of the tendo achillis immediately above its insertion into the os calcis. It measures three inches in diameter, and has the papillated appearance which is characteristic of epithelioma.

From a gentleman aged 58 years, who had suffered for thirty years from tertiary syphilitic eruptions. The sore on his leg first appeared about thirty years before amputation, and frequently recurred, being at times healed. He had had as many as seventy sores on his body. Four years ago the sore on his leg was pronounced to be cancerous.

Presented by Thomas Smith, Esq.

3325c. A Section through the Phalanges of a Toe, showing a large fungating mass of new growth which springs from the skin covering the plantar surface of the second phalanx. The growth has invaded the deeper tissues, and is beginning to attack the bone.

From a man aged 49, who first noticed a small spot on the under surface of the last phalanx of his second toe two years before its removal. Six months later the glands in his groin began to be enlarged.

See *Male Surgical Register*, vol. iii. (1888), No. 1173.

3364c. A Sebaceous Cyst which was removed from the scalp over the occipital region. It formed a fluctuating swelling as large as an orange, and it had a short pedicle.

From a woman aged 44, in whom it had been growing for twenty years.

See *Female Surgical Register*, vol. iii. (1888), No. 795.

3371d. A Small Dermoid Cyst, with well-defined walls, which was removed from the hyoid region. The cyst has been turned inside out to show that it is lined by skin consisting of epithelium and corium.

From a man aged 32, in whom the tumour was first noticed eighteen months before its removal.

See *Male Surgical Register*, vol. v. (1888), No. 3141.

3371e. A Small Dermoid Cyst removed from the hyoid region. The cyst has been turned inside out, and shows several long hairs attached to its inner cutaneous lining.

From a man aged 19 years, in whom the tumour was congenital.

See *Male Surgical Register*, vol. v. (1889), No. 1358.

3373a. A Portion of the Spinal Cord with the Pelvis and Genito-Urinary organs of a newly-born female child. A cyst measuring five inches in its transverse diameter is attached to the lower part of the sacrum. The skin covering the tumour was normal, and was easily separated from the subjacent tissues. The pedicle of the cyst is broad and fibrous; it is attached to the lateral margins of the coccygeal and the three lowest sacral vertebrae, and it extends into the pelvis, where it is attached to the anterior surface of the bodies of the vertebrae. It passes behind the rectum, from which it has been partially separated by dissection. The cyst contained blood-stained fluid; the walls around the pedicle are thickly covered with a growth of soft myxomatous masses resembling mucous polypi.

Photographs of the case are preserved in Series xxviii. No. 41.

Presented by Dr. Godson.

SERIES LI.

VARIOUS INSTRUMENTS AND SUBSTANCES PRODUCING INJURIES.

3384c. A Piece of Slate-Pencil removed from the calf of the leg of a girl aged 18. Seven years previously the patient ran the piece of slate-pencil into her leg, and it was not extracted. Three months before she came under observation a small abscess formed over the point of entrance, but it subsequently healed.

3391e. A Bullet which had remained in the back of a man for fourteen years.

From a seaman aged 40, who was shot in the left side of his back at Ammapoul, during the Ashanti expedition. For seven or eight years he had pain in the front and upper part of his abdomen. Four days before he was seen a raw surface appeared at the place where he felt the pain, and the surface of the bullet then presented itself. It was removed without difficulty.

3391f. A Fragment of a Bullet, weighing $8\frac{1}{2}$ grains, extracted from an eye in which it had lodged for more than three years.

From a seaman aged 22 years, who was struck in the left eye by the fragment whilst acting as marker at the rifle butts on August 14, 1885. The injured eye was painful for some time, but eventually quieted down. In January 1888 the right eye became red and painful, and in the following March the patient first noticed the piece of metal in front of his left eye. In October of the same year the globe was found to be shrunken, hard, and painful, and the end of the piece of lead was seen to be projecting through the cornea. The right eye showed signs of sympathetic ophthalmia. The patient refused to have enucleation performed, and the foreign body was therefore seized with a pair of forceps and withdrawn through the cornea. The patient was not seen again.

Presented by A. G. R. Foulerton, Esq.

SERIES LII.

URINARY CALCULI.

- 5c. A Section of a Uric Acid Calculus, which weighed, when complete, 1090 grains, its length was $2\frac{3}{8}$ inches, its width one inch and five-eighths, its thickness one inch and a quarter, and its girth $4\frac{5}{8}$ inches.

It was removed by lateral lithotomy from a man aged 63, who had symptoms of vesical irritation for about five years. Before he had the pain in his bladder he used to suffer from attacks of pain in his lumbar region, which extended to his groin and down his thigh on the right side. He does not remember to have passed any calculus, though his urine frequently contained "gravel." He had not suffered any lumbar pain for the last five years, that is to say, since his bladder troubles began. The patient made a good recovery.

Presented by W. Wood Cuthbert, Esq.

- 140a. A Mass of Calculous Material removed by lithotripsy and subsequent washing out from the bladder of a lady. The mass consists of a large number of small round calculi, which vary in size from a small pea to the finest shot. The total weight is 1500 grains, and the calculi consist of uric acid with a little oxalate of lime.

Presented by Thomas Smith, Esq.

- 169a. One Half of a Cystic Oxide Calculus removed from a boy aged 4 years. The calculus is oval in shape, and measures one inch and an eighth in length by an inch in breadth; it weighed 159 grains. The surface of the stone is crystalline, and has a remarkable translucent and waxy appearance, but it has not the green colour which characterises the other specimens of cystin preserved in the Museum. It is of the colour of light honey.

The patient had symptoms of urinary trouble for nine months. He made a good recovery after the operation.

- 169b. The Opposite Half of the preceding specimen.

Presented by A. A. Bowlby, Esq.

- 219b. A Large Number of Small Calculi which were removed from the bladder at a single sitting by means of a Bigelow's evacuator. The calculi vary in size from a small shot to mere sand grains. They are all rounded, and in some cases are distinctly faceted. Chemical examination shows that they consist of calcium phosphate, magnesia, and a trace of uric acid. The entire mass weighs 60 grains.

From a healthy man aged 70 years. The patient was of a gouty diathesis, and for nine months had been under medical treatment on account of slight vesical symptoms, resulting from an inability to completely empty his bladder. Small calculi suddenly began to be passed in large numbers.

Presented by Alfred Willett, Esq.

SERIES LIII.

CALCULI AND OTHER CONCRETIONS FOUND
IN VARIOUS ORGANS.

245e. A Small Salivary Calculus, weighing nine grains, and enclosed in a portion of Wharton's duct.

From a woman aged 26 years, who had a throbbing pain under her tongue for six months.

See *Female Surgical Register*, vol. ii. (1889), No. 109.

296b. Section of a very Large Spherical Calculus from the intestines of a horse. 37. 47.

296c. A Similar Specimen. 37. 48.

296d. A Large Polyhedral Calculus from the intestines of a horse. 37. 49.

Presented by Dr. Jenner.

296e. Section of a Calculus from the intestines of a horse. It is composed of phosphates with much animal matter. Its nucleus is a brass pin. 37. 30.

296f. A Large Calculus of a cubic form from the intestine of a horse. Composition : phosphates with much animal matter ; fusible. 37. 31.

296g. Section of a Large Thin Disc-Shaped Calculus of similar composition with the preceding. 37. 32.

296h. A Similar Specimen, but of polyhedral form. 37. 35.

296i. A Specimen exactly similar to the preceding. 37. 36.

296j. A Large Calculus with a very rough surface, which was taken from the intestines of a horse. At its centre is a piece of flint, around which is a quantity of hair. 37. 38.

Presented by Thomas Ilott, Esq.

296k. A Spherical Hair Ball with a very smooth hard surface, from a cow. 37. 51.

296l. A Numerous Collection of Small Calculi from the intestines of a horse. 37. 53.

Presented by the Council of the Royal College of Surgeons of England.

- 299b. Section of a Hair Ball coated by earthy matter, from the stomach of a goat. 37. 45.

Presented by the Council of the Royal College of Surgeons.

UMBILICAL CALCULI.

- 299c. A Small Concretion which was removed from the navel of a woman aged 24 years. It had caused irritation and suppuration in the umbilicus.

Presented by Charles J. Heath, Esq.

SERIES LIV.

CONCRETIONS FROM THE CIRCULATORY AND OTHER ORGANS.

- 303b. A Piece of Rag removed from the nostril of a child aged 6 years. The fragment had been *in situ* for about eighteen months, during which time the child constantly suffered from a fœtid discharge through its nose. It is coated with a deposit of earthy salts, and would no doubt in time have become a rhinolith.

SERIES LV.

PATHOLOGICAL MICROSCOPICAL SPECIMENS.

- 31a. Section of a Tumour which infiltrated the pelvis, and afterwards grew into the vena cava inferior. It is a round-celled sarcoma, with much hyaline matrix. Many of the cells resemble those of cartilage, and the largest are multinucleated. In parts of the section there is an amorphous material which is probably colloid. *Cf.* No. 66b.

A portion of the growth is preserved in Series . No. .

- 36a. Section through an Ossifying Sarcoma of the Femur. The growth consists of large round sarcoma cells embedded in a matrix of cancellous bone. The cancellous matrix is best seen in the portions of the tissue which have been decalcified.

The specimen is preserved in Series i. No. 480a. *Cf.* 71k.

- 66b. Section of a Tumour which involved the inferior vena cava. It presents the same characters as No. 31a.

The vein showing the growth in its interior is preserved in Series ix. No. 1606a.

- 69j. Sections of a Lung infested with the ova of *Bilharzia hæmatobia*.
Cf. Nos. 88a, 90hh, 92 f, g, and h, and 118b.

A portion of the lung is preserved in Series xi. No. 1745a.

- 70i. A Section through a Lung, taken from a patient who died with acute miliary tuberculosis. The specimen is stained to show the tubercle bacilli, which are present in unusually large numbers.

Presented by Dr. V. D. Harris.

- 71k. Sections through a Nodule of Ossifying Sarcoma in the Lung, which was secondary to sarcomatous disease of the knee-joint. The growth consists essentially of a sarcomatous tumour, the cell elements of which are for the most part round. The cells are enclosed by well-defined trabeculæ, which have the general appearance of cancellous bone. No true bone corpuscles are present, however, nor is there any cartilage. The lung tissue has entirely disappeared. *Cf.* 36a.

The original specimen is preserved in Series xi. No. 1728b.

TUMOUR OF THE TONGUE—ADENOMA.

- 76e. Section of a Cystic Adenoma of the Tongue, which closely resembles in appearance a serous salivary gland. The acini are circular, the epithelial cells are small and spheroidal. Many of the cells are distended by homogeneous globules, which are apparently colloid in nature, and the cavity of each acinus appears to be filled with a similar substance.

The tumour is preserved in Series xii. No. 1785d. †

- 76f. A Section through a Lingual Adenoma. The growth is a compound tubular gland, of which the acini are lined with cubical epithelium. It has all the characters of a serous salivary gland.

The tumour is preserved in Series xii. No. 1785f.

TUBERCLE OF THE TONGUE.

- 76g. Section of a Tongue showing a small tubercular nodule in the submucous tissue.

From a man who died suddenly of œdema of the glottis.

- 78c. Sections of a Tongue showing the various stages of an epitheliomatous ingrowth in connection with leucoma.

From a patient aged 37, of whose tongue a drawing was made three years previously. This drawing is preserved amongst the drawings presented to the Museum by Mr. Butlin, and is numbered vi. 1. At the period when the drawing was made, the tongue presented a leucoma, which commenced nineteen years before, after a burn on its surface. The sections show that at the time of removal there was a well-marked ingrowth of a squamous epithelioma.

Presented by W. G. Spencer, Esq.

- 82e. A Section of a Chondro-Cystic Tumour of the Parotid Gland. The growth consists in part of fibro-cartilage, but much of it is epithelial. The epithelial cells form irregular tubes and acini, but in some places they are aggregated into dense masses of cells which are not arranged into any regular formation.
- 82f. A Section of a Parotid Tumour, in which the connective tissue elements have undergone a considerable amount of degeneration. There are numerous cysts; the epithelial cells are not very numerous.
- 84d. A Section of a Spheroidal-Celled Carcinoma of the Stomach.
- 85a. A Section through the Ascending Colon of a patient who was suffering from extensive ulceration of the large intestine. The mucous membrane and submucous tissue has in great measure disappeared, but there still remain islets of healthy tissue.
From Series xviii. No. 1987a.
- 86i. A Section through the Small Intestine, from a patient who died with acute miliary tuberculosis. The specimen is stained to show the tubercle bacilli, which are present in unusually large numbers.
Presented by Dr. V. D. Harris.
- 87m. Section of a Rectal Papilloma. The growth is composed of branching processes of delicate connective tissue covered by columnar epithelium.
- 87n. Section of the same Growth taken from the part where it appeared to be undergoing colloid degeneration. The base of the growth has infiltrated the bowel, and there is a large ingrowth of epithelial cells which is undergoing colloid degeneration. The epithelial growth nearly reaches the surface of the bowel.
The papilloma is preserved in Series xix. No. 2062a.
- 87o. Section of a Rectal Papilloma. The growth is composed of branching processes of delicate connective tissue which are covered by columnar epithelial cells. There is a considerable growth in connection with the tubular glands, which has the characteristics of an adenoid carcinoma.
- 87p. A Section through an Oval-Celled Sarcoma of the Anus.
See Series xix. No. 2066b.
- 88a. A Section of a Rectum showing the ova of the *Bilharzia hæmatobia* in the submucous tissue. Cf. No. 69j, 90hh, 92 f, g, and h, and 118b.
- 90hh. A Section of Spleen infested with the ova of *Bilharzia hæmatobia*. Cf. Nos. 69j, 88a, 92 f, g, and h, and 118b.
See Series xxv. No. 2306b.

- 90ii. Sections of a Lymphatic Gland affected with lymphadenoma. The new growth consists essentially of small round cells, which are in parts caseating.
- 90jj. Sections of a Lymphatic Gland showing caseating tubercular deposits.
- 90kk. Sections of a Lymphatic Gland infiltrated with a mixed-celled sarcoma.
- 90ll. Sections of a Lymphatic Gland infiltrated with an epitheliomatous growth. The primary growth was in the tongue.
- 90mm. Section of a Lymphatic Gland infiltrated with an encephaloid cancer. A section of the primary growth in the breast is preserved in 152b.
- 90nn. A Section of a Thyroid Gland, from a case of acute bronchocele occurring in a child aged eight years.
Presented by W. G. Spencer, Esq.
- 90oo. Section of a Goitre. The glandular portions are increased, and there are cysts developed in its substance, so that the tumour is a cysto-adenoma. Many of the acini are filled with colloidal material, and many new cells have been developed between them.
- 90pp. Section of a Cystic Goitre, in which the cells lining the cyst-walls are proliferating. The acini are increased in size, and are blocked with the small cells thus produced.
- 90qq. Section of a Liver infiltrated with a small-celled new growth which has a tendency to become converted into fibrous tissue. The growth is interlobular.
From Series xxi. No. 2198b.
- 90rr. A Section of a Liver undergoing amyloid and fatty degeneration.
- 90ss. Sections of a Human Liver in which the actinomyces is growing.
Presented by F. S. Eve, Esq.
- 90tt. Sections of a Human Liver in which the actinomyces or ray fungus is growing. The preparation is stained with eosin and methyl violet to show the clubs and conidia-spores.
The liver is preserved in Series xxi.
Prepared and presented by E. T. Wynne, Esq.
- 90uu. Sections of the Wall of an Hydatid Cyst growing in the convex portion of the right lobe of the liver.

- 92f. Sections of the Wall of a Bladder showing numerous bilharzia ova.
- 92g. Sections of the Ureter showing numerous bilharzia ova.
- 92h. Sections of the Kidney showing numerous bilharzia ova. *Cf.* Nos. 69j, 88a, 90hh, and 118b.
From Series xxviii. No. 2393c.
- 93h. Section of a Kidney showing the results of acute miliary sup-
puration.
- 94b. Sections of the Kidneys of an aged Pony affected with advanced
cystic disease.
The animal had been ill for two days, and had suffered from colic.
Presented by W. G. Spencer, Esq.
- 95ss. A Section through a Papillomatous Tumour of the Bladder. The
tumour consists of branching processes of fibrous tissue which are covered
by a single or by several layers of oval epithelial cells.
The bladder containing the growth is preserved in Series xxix. No. 2417a.
- 109l. Sections of a Tibial Nerve, from a case in which the sciatic had
been divided three days previously. The changes which take place at
the commencement of degeneration are well seen.
Presented by W. G. Spencer, Esq.
- 112f. Section through a Small Tarsal Cyst. It consists entirely of
young fibrous tissue.
Prepared and presented by F. O'Kinealy, Esq.
- 112g. Sections of a Lens affected with Senile Cataract.
Prepared and presented by F. O'Kinealy, Esq.
- 113h. A Section of a Sarcoma of the Face. The cells are mostly small,
and in shape are oval or long spindles. The matrix is fibrillated, and in
some parts there is fairly-well formed fibrous tissue.
The tumour is preserved in Series l. No. 3294b.
A drawing is preserved in Series lvii. No. 556d.
- 113i. A Section through one of the Lineæ Gravidarum or White Lines
found in skin covering the abdomen during the later stages of pregnancy.
The papillæ are widely separated.
- 118b. An Adult Female Bilharzia hæmatobia.
- 120a. A Section through a Testis infiltrated with a Tumour. The growth
is composed of round connective-tissue cells, which are throughout
of equal size. In many places masses of the cells are undergoing caseation,
but it is uncertain whether the growth is a gumma or a round-celled
sarcoma.
The testis is preserved in Series xxxvi. No. 2795a.

127e. Section of an Encephaloid Cancer of the Ovary, which is undergoing colloid degeneration.

130q. A Section of an Early Decidual Membrane.

From the Anatomical and Physiological Series, xxxii. No. 1207a.

130r. A Section through the Wall of the Uterus, which is infiltrated with a small round-celled sarcoma.

152b. A Section of an Encephaloid Cancer of the Breast. A section from the axillary lymphatic glands, showing their infiltration by the new growth, is preserved in No. 90mm.

DUCT CANCER OF THE BREAST.

153b. A Section through a Duct Papilloma of the Breast. The growth is papillary in nature, and appears to grow directly from the epithelial lining of the cyst-wall. The papillæ are of the arborescent or foliaceous type; the base of each is formed of very delicate connective tissue, which in some parts is almost myxomatous in character. Several layers of short columnar epithelial cells grow upon this basis. The branching processes of the papillæ coalesce to form a network, the meshes of which are irregular. In all parts of the section more or less infiltration of blood has taken place, and red blood-cells in various stages of disintegration are present in sufficient quantity to account for the pigmented appearance seen in the tumour from which the specimen was obtained. Up the centre of each papilla runs a large and very thin-walled blood-vessel, whose branches follow the ramifications of the growth.

From Series xlvi. No. 3186b.

153c. A Section through a Duct Cancer of the Breast, presenting almost identical characters with the preceding section.

From a married woman aged 38, whose mother had died of cancer of the breast. She had noticed a lump in her right breast for nearly a year, and said that it had grown slowly. Three months before her admission to the Hospital a blood-stained discharge began to escape from her nipple. She suffered no pain. On the inner side of the nipple was a firm swelling about the size of a small walnut, movable in the gland, irregularly rounded in outline and slightly lobulated. Although situated close to the nipple, it was not retracted. The axillary glands were normal.

See *St. Bartholomew's Hospital Reports*, vol. xxiv. (1888), No. 267, Case v.

153d. A Section of a Duct Cancer of the Breast. It presents almost identical characters with the two preceding specimens.

From Series xlvi. No. 3186c.

153e. Sections of a Colloid Cancer of the Breast in an advanced condition of degeneration. In some parts of the section the undegenerated cells can still be seen.

155e. Section of the Cornea of a Guinea-Pig, showing the earlier stages of inflammation. The inflammatory condition was produced by the application of the actual cautery twenty-four hours before the animal was killed.

Presented by W. G. Spencer, Esq.

155f. Sections through the Ear of a Rabbit, showing the pathology of suppuration. Small abscesses were produced by the local application of croton-oil, and in different parts of the sections the various stages in their formation can readily be traced.

Presented by W. G. Spencer, Esq.

157b. A Section of a Bone Peg from a case of old excision of the knee. The peg is surrounded by fibrous tissue. Its margin is broken and indented by processes of fibrous tissue, which extend from the surrounding capsule, and appear to grow on the line of the canaliculi of the peg.

From a specimen preserved in Series ii.

GUMMA.

157c. Section of a Gumma which was removed from the thigh. The arteries are in a condition of endarteritis. Some parts of the section are undergoing caseation, whilst other parts show the normal small-celled growth.

163j. A Section through a Round-Celled Melanotic Sarcoma.

177c. Section through a Cavernous Nævus, which after death was found in the liver.

177d. Section through a Cavernous Nævus which recurred after removal. It contains a large number of sarcomatous elements. The general structure is that of a nævus. There are irregularly branching columns of tissue, which coalesce to form a meshwork, the spaces of which are lined by flattened endothelium and contain blood. These processes are composed of sarcoma tissue, the cells of which are chiefly oval and spindle-shaped, whilst the matrix is slightly fibrillated.

From a woman aged 58, who first noticed a small swelling in her left thigh twenty years previously. The tumour was removed, and was found to be an oval-celled sarcoma with a fibrillated matrix. Seven months later the growth had recurred, and it was deemed advisable to remove it.

See *Female Surgical Register*, vol. ii. (1889), No. 235.

SERIES LVI.

CASTS AND MODELS OF DISEASED AND INJURED PARTS.

4b. Cast of the Right Leg of a man who had a large osseous growth springing from the seat of a fracture of the tibia.

From a man aged 29. The tumour had been observed for eight years.
See *Male Surgical Register*, vol. iii. (1889), No. 2967.

6b. A Cast of the Arm of a patient who had a large sarcoma involving his right elbow. The swelling is large and irregular, and is situated at the back of the joint. The movements of the joint were free, and were unattended by pain.

From a man aged 66, who had noticed a swelling for four years.
See *Male Surgical Register*, vol. v. (1889), No. 196.

11a. Cast of a Knee showing an endosteal sarcoma of the femur. The tumour was first noticed after a fall five years previously.

See *Female Surgical Register*, vol. v. (1889), No. 958.

19c. Cast of the Right Knee of a chimney-sweep aged 24 years. He had well-marked genu valgum, and as a result apparently the patella was completely dislocated to the outer side of the leg. The internal condyle is seen as a large projecting mass.

See *Male Surgical Register*, vol. iii. (1889), No. 3614*.

20k. Casts of the Elbows of a patient with rheumatic nodules. The nodules are situated upon the outer side of the joints and a little above the external condyles.

From a boy aged 14 years old, who had double mitral disease of the heart. The nodules developed with only slight pain in the joint. He had rheumatic fever some months previously.

20l. Casts of the Knees of a patient who had Charcot's disease. The right knee was enlarged, and there was some fluctuation in it. The right leg was œdematous. The left knee was also enlarged and bowed. It was nodular in all directions as if from osteophytes. The movement of flexion was greatly limited.

From a man aged 47, who had well-marked symptoms of locomotor ataxy for five years. He stated that his knee gave way laterally when he walked.
See *Male Surgical Register*, vol. iv. (1888), No. 3411.

23g. Casts of the Hands of a man aged 63, showing extreme deformity resulting from gout. The skin was glossy, and the patient had in his possession several large chalk-stones which had been formed at different times. He was first attacked by gout in the ankles and knees at the age of twenty-three.

From an out-patient.

- 23h. Casts of the Hands of a patient who had well-marked Heberden's nodes.

From a woman aged 63, who was admitted to the Hospital suffering from pains in her back and limbs, due to an obscure cause. She had never had gout.

See *Female Surgical Register*, vol. ii. (1889), No. 1191.

- 23i. Casts of the Hands of a patient whose left wrist had been excised five years previously. The wrist had slightly dropped forward, but the patient had good use in the joint, except that there was slight difficulty in making extension of the hand.

From an out-patient.

- 37a. Cast of the Bust of a feeble man aged 68 years, who had a double dislocation of his shoulders. The heads of the humeri lay beneath the coracoid processes. The dislocations were of twenty-six weeks duration, and were produced by a man taking his arms from behind and suddenly wrenching them inwards.

A photograph of this patient is preserved in Series lvii. No. 59b.

See *Male Surgical Register*, vol. i. (1889), No. 1348.

- 47b. Cast of the Body of a woman who had congenital dislocation of both femora, with resulting lateral curvature of the spine. The cast shows the characteristic "saddle-back" which is due to the deformity.

- 69bi. Cast of a Synovial Cyst, situated upon the outer side of the left knee, immediately above the condyles of the femur. The cast was taken two years and eight months after No. 69b was taken. The knee was affected with osteo-arthritis.

From a man aged 50, who had a severe injury to his left knee thirty-five years previously. Three years ago the cyst first appeared, but was cured by pressure. The present swelling was of three months duration.

See *Male Surgical Register*, vol. ii. (1889), No. 1288.

- 85h. Cast of the Left Foot of a girl aged eight years, who had congenital talipes varus. Tenotomy had been performed soon after birth, but the foot relapsed into its former condition in spite of the persistent use of instruments.

See *Female Surgical Register*, vol. iii. (1889), No. 280.

- 85i. Cast of the Left Foot of the girl from whom the preceding cast was taken, four months after the operation of tarsotomy had been performed.

- 87d. Casts of the Feet of a girl who had congenital talipes equino-varus. The foot is flexed, and the deformity appears to be in front of the ankle-joint. The astragalus is easily felt. The foot is so curved in front of this bone that the great toe points downwards and inwards, and the arch of the foot is increased. The weight of the body was borne, when the patient stood, chiefly on the outer side of the sole, but the heads of the meta-

carpal bones and the os calcis did not come into contact with the ground.

From a girl aged 9 years, who had been under treatment all her life. The movements of the ankle and knee were greatly impaired.

See *Sitwell Ward Book*, vol. vi. p. 350, and vol. vii. p. 41.

See also *Female Surgical Register*, vol. iii. (1889), No. 292.

- 93b. Cast of the Right Foot of a milkman aged 18 years, who had talipes valgus of eighteen months duration. The foot is turned outwards, making an angle of forty degrees with the median line. The foot is flat, the arch collapsing as the patient walks. The foot was wrenched under an anæsthetic, and was subsequently put up in a plaster of Paris case.

See *Male Surgical Register*, vol. iii. (1889), No. 2688.

- 98c. A Series of Six Casts, taken at intervals to show the gradual increase in size of an aortic aneurysm. The tumour was situated on the right side of the thorax, and at first extended from the second to the fifth rib. The swelling was composed of two parts, of which the upper was the smaller and softer.

From a man aged 44 years, who had suffered from syphilis, and had always been a drunkard.

See *Matthew Ward Book* for 1889, No. 125.

- 101b. Cast of the Abdomen of a man aged 30, who had the lateral subcutaneous veins very greatly enlarged. The distension was probably the result of thrombosis of the inferior vena cava.

A drawing of the abdomen is also preserved in Series lvii. No. 110a.

DEFORMITIES OF THE CHEST RESULTING FROM PULMONARY DISEASE.

- 101c. Cast of an Alar or Pterygoid Chest. The thorax is narrow and shallow, its antero-posterior diameter is reduced, and its length is increased. The shoulders fall, and the scapulæ project like wings.

From a boy aged 16, who had all the physical signs of advanced pulmonary phthisis.

See *Dr. Brunton's Out-Patient Register* for 1888, No. 1402.

- 101d. Cast of the Thorax of a man who had chronic bronchitis and emphysema. The thorax is large and barrel-shaped, whilst the ribs and sternum are raised, as is usual in advanced cases of emphysema. In the transverse section the increased space occupied by the lungs is well seen.

From a man aged 31, who for three months had been confined to his bed with cough and shortness of breath. He had been ill for the three preceding winters, though he was able to work in summer. Physical examination showed that the cardiac dulness was absent. There was well-marked epigastric pulsation.

See *Matthew Ward Book* for 1889, s.v. A. J. Topolski.

101e. Cast of the Chest of a boy aged 11 years, whose ribs on the left side had been resected for the cure of an empyema. The operation had been performed sixteen months previously.

101f. Cast of the Chest of a girl aged 11 years, whose ribs had been resected on the right side for the cure of an empyema. The operation had been performed four years previously.

The two preceding casts were taken from out-patients attending the Royal Hospital for Diseases of the Chest, City Road.

123b. Cast of the Lower Part of the Abdomen of a man aged 57 years, who had double scrotal hernia of forty-one years duration. The scrotum measured 25 inches in its greatest diameter, and reached nearly down to the knees when the patient was standing. On the left side there was a hydrocele in addition to the hernia.

See *Male Surgical Register*, vol. iii. (1889), No. 2720.

138a i. Cast of the Liver from a woman aged 46, showing the indentations in the curve and surface of the right lobe made by the ribs as a result of tight-lacing.

See *Surgical Post-Mortem Register* for 1889, No. 90.

138d. Cast of a Tumour of the Thyroid Gland, probably a cyst.

From an elderly woman.

See *Sitwell Ward Book*, s.v. Eliza Warnett, May 1887.

138e. Cast of a Cystic Goitre involving the left lobe of the thyroid gland, and causing some deviation of the trachea and flattening of its left side. The latter was plainly seen during life with the laryngoscope.

See *Mary Ward Book* for 1887, s.v. Caroline Wedlock.

138f. Cast of a Large Cyst of the Thyroid Gland, situated exactly in the middle line of the neck, an unusual situation for such cysts.

From an out-patient aged 54. The tumour had existed seventeen years, but had never caused any dyspnoea.

138g. Cast of the Neck of a patient from whom a large cystic adenomatous goitre was removed. The cast was taken previous to the removal of the bronchocele.

One half of the tumour is preserved in Series xxvi. No. 2310c.

138h. Cast of a Cystic Bronchocele. The cyst originated in the middle line of the neck four months before the cast was taken. The scar of a former operation is seen in the skin covering the tumour.

From a stableman aged 28. Some years previously the cyst was drained, and after discharging a yellow matter for three months it healed soundly.

From an out-patient.

138i. Cast of the Neck of a patient who had a cystic enlargement of the left lobe of the thyroid gland. The growth had been observed for eight years.

From a man aged 25, who had lived the first seventeen years of his life at Stow-on-the-Wold in Gloucestershire. He knew of three women with goitre who lived in his native town.

See *Male Surgical Register*, vol. i. (1889), No. 350.

142a. Cast of the Cerebral Hemispheres of a patient who died with effusion of blood, resulting from rupture of the middle meningeal artery accompanying a fracture of the base of the skull. The frontal lobe on the left side is very considerably flattened, the flattening being best marked upon its superior surface.

See *Male Surgical Register*, vol. iii. (1889), No. 124.

143b. Cast of a Portion of the Right Side of the Face of a man aged 24, showing the situation of a hernia cerebri.

Seven years before the cast was taken the patient fell down and cut his head just above the external angle of the orbital plate of the right frontal bone. The injury was followed by epileptic attacks, for the relief of which he was trephined. A hernia cerebri subsequently appeared at the seat of operation. Ten months after the operation the cast preserved in Series lvi. No. 143a was taken. The patient was readmitted to the Hospital seven years afterwards for epilepsy.

See *Male Surgical Register*, vol. iii. (1889), No. 3826*.

143c. Cast of the Face of same patient from whom the preceding cast was taken. This, the third cast, was made after an interval of eleven months. It shows that the distance from the centre of the bridge of the nose to the tip of the lobule of the ear is half an inch less on the affected than on the sound side.

144i. Cast of the Left Hand of a patient who had a destructive ulceration of the index finger with contraction of the phalanges as a result of neuritis.

A drawing is preserved in Series lvii. No. 388h.

144j. Casts of the Hands of a female patient aged 25, who had cut her left median nerve three years previously. She was the subject of pulmonary phthisis. The right hand has long tapering fingers, the nails are curved, and the thumb is slightly bulbous. In the left hand there is a scar between the tendons of the flexor carpi ulnaris and flexor sublimis digitorum, situated just above the annular ligament, and marking the site of the division of the median nerve. It is situated on the long axis of the forearm. The abductor and part of the flexor brevis pollicis muscles are wasted. The little finger is contracted and flexed at the joint of the first and second phalanges, but this was congenital. The index and middle fingers are wasted and their movement is impaired. The fingers themselves are glossy, and their nails are all too much curved. Sensation was unimpaired.

See *Faith Ward Book* for 1889, s.v. M. Dayman.

Drawings of the hands are preserved in Series lvii. No. 388g.

147a. Cast of the Right Leg of a patient aged 21 years, who had an advanced condition of ichthyosis. The skin of the thigh presents a remarkably papillated appearance. At the line of flexion of the knee and ankle the papillæ are replaced by smooth integument. The knee was capable of considerable hyper-extension, so that it could be brought into the condition known as "back-knee."

From an unmarried woman whose hip had been excised eight and a half years previously. The ichthyotic condition had been gradually increasing for five years. The opposite limb was healthy, and there was no evidence of xeroderma in other parts of her body.

A drawing is preserved in Series lvii. No. 400a.

See *Female Surgical Register*, vol. iii. (1889), s.v. Ada Chown.

159b. Cast of the Left Foot of a child who had lupus of the sole. The diseased part is rough and tuberculated; it is somewhat raised above the level of the skin and was covered by a dry exudation. There are a few outlying patches of disease which looked red and inflamed.

From a girl aged 13 years, who had suffered for eight years from a bad foot.

See *Female Surgical Register*, vol. iii. (1889), No. 402.

SERIES LVII.

DRAWINGS AND PHOTOGRAPHS OF DISEASED OR INJURED PARTS.

4a. Drawing of a Section through the Femur of a girl who had central necrosis. The lower part of the femur has undergone atrophy of the cancellous tissue, leading to the formation of a large quantity of a soft and blood-stained granulation tissue. (L. Mark, Esq.)

See Series i. No. 138b and c.

See *Female Surgical Register*, vol. ii. (1888), No. 367.

34k. A Photograph of a lady from whom the left half of the lower jaw had been removed three years previously on account of an endosteal fibro-sarcoma. The patient had no recurrence of the disease up to the time when the photograph was taken, and there seems to have been no deformity as a result of the operation.

A section of the jaw is preserved in Series i. No. 482a.

Presented by Sir William S. Savory, Esq., F.R.S.

36a. Drawing of the Foot and Leg of a boy who had acute inflammation of the upper epiphysis of his tibia. (L. Mark, Esq.)

The joint is preserved in Series i. No. 621c.

44a. Drawing of the Left Hand of a woman aged 47, who was a canvas-sewer. The synovial membranes of the interphalangeal joints of the fingers are enlarged and pulpy.

- 59b. A Photograph of a feeble old man, who had a double subcoracoid dislocation of his shoulders. The dislocation was traumatic, and of twenty-six weeks duration. It was not considered advisable to attempt reduction.

A cast is preserved in Series lvi. No. 37a.

See *Male Surgical Register*, vol. i. (1889), No. 37a.

- 73b. A Photograph of the Skeleton of a man aged 39, which has numerous osseous growths, of various dimensions and extent. Some of these project from the bones like osseous tumours; others, passing from one part of the skeleton to another, have produced ankylosis of many of the joints. The growths, like tumours, are present on the os frontis, mastoid process, and occiput, as well as on other parts of the skeleton where muscles are inserted, as near the angle of the lower jaw, where the masseter is inserted; at the extremities of the spines of the vertebræ; at the coronoid processes of the ulnæ, in the femur at the part where the glutæus maximus is inserted, &c. The second and more extended kinds of ossification have in general followed the course of the larger muscles, and may be seen on the right side in the course of the deltoid, joining the clavicle and the acromion of the scapula to the humerus; in the situation of the supra-spinatus, and passing from the inferior angle of the scapula to the humerus, in the situation of the teres major and latissimus dorsi. On the back more extensive ossifications of the muscles appear which affix the scapulæ on both sides to the sacrum and ilium, and to the spines of the lumbar and dorsal vertebræ. On the left scapula the ossification of the teres major has not extended quite to the humerus, but the dorsum presents a singular process or ossification, with smooth sides and a flattened overhanging margin like an auxiliary or second spine. From the pelvis, ossifications extend from the sacrum and ilium in the direction of the glutæus maximus, and from the tuber ischii and os pubis, in the course of the biceps and triceps abductor muscles. These extend to the right femur. Ossifications of the tendinous and ligamentous parts appear to be still more common, producing ankylosis of the vertebræ, of the left elbow-joint, of the tibia and fibula to each other on both sides, of the ankle-joints, and general consolidation of the bones of the tarsi.

From the Hunterian specimen in the Museum of the Royal College of Surgeons, No. 1616a.

Presented by S. G. Shattock, Esq.

- 101c. Drawing of the Face of a girl, showing a marked blush on the cheeks due to dilated capillaries. The blush occurred in the course of dilatation of the heart, resulting from mitral and tricuspid disease. The lips are of a livid colour, also the result of venous obstruction. (L. Mark, Esq.)

From a girl aged 11 years, who had acute rheumatism three months previously.

See *Mary Ward Book* for 1889, s.v. Ellen Poole.

- 110a. Drawing of the Abdomen of a man who had the lateral subcutaneous veins very greatly enlarged. The blood in the veins was passing

upwards. There was no "caput medusæ," as the venules in the neighbourhood of the umbilicus were not dilated. The cause of the enlargement appeared to be thrombosis of the inferior vena cava.

From a man aged 30, a hard drinker, whose left leg swelled two years before he came under observation. Six months after the left leg became enlarged, he noticed a swelling of the right limb.

See *John Ward Book* for 1889, s.v. W. Windsor.

A cast of the abdomen is preserved in Series lvi. No. 101b.

133a. Drawing of a Lung showing dilatation of all the main bronchi.

The lung is preserved in Series xi.

171a. Drawing of the Left Lung, showing numerous deposits of ossifying sarcoma secondary to a primary growth in the knee. (L. Mark, Esq.)

The right lung from the same case is preserved in Series xi. No. 1728c.

178g. Drawing of the Tongue of a man, showing an ichthyotic condition. There was no evidence of any epithelioma. (L. Mark, Esq.)

See *Male Surgical Register*, vol. i. (1889), No. 3823*.

178h. Drawing of the Tongue of a man who had a leucomatous condition of the dorsum, with an epitheliomatous patch upon the left side. (L. Mark, Esq.)

From a man aged 48, who had never had syphilis, and who never smoked. The leukoplakia had lasted twenty years, but the epithelioma had only been noticed for a month.

See *Male Surgical Register*, vol. i. (1889), No. 1329.

185a. Drawing of a Tongue which is swollen on the left side. The swelling extends from the tip backwards as far as the end of the teeth. There is a deep fissure along the outer side of the tumour. The submaxillary lymphatic glands were enlarged and tender. The swelling diminished under the use of iodide of potash. (L. Mark, Esq.)

From a man aged 45, who had observed the swelling for two months.

See *Male Surgical Register*, vol. iv. (1888), No. 3574.

189h. Drawing of the Tongue of an out-patient aged 52, showing a nævus situated upon the tip. It had never bled or given him any trouble. (L. Mark, Esq.) (*Cf.* 189g, Mr. Butlin's Case of Tongue Drawings, Plate xiii. Nos. 3 and 4, and Plate xiv. Nos. 1, 2, 3, and 4.)

218c. Drawing of the Stomach and Oesophagus, showing the effects of poisoning by oxalic acid. (Joseph Perry.)

233a. Drawings of a Portion of the Colon from a very advanced case of ulcerative colitis. The intestinal coats are completely wanting in some parts, whilst in others they present a fenestrated appearance. (L. Mark, Esq.)

See Series xviii. No. 1987c.

260o. Drawing of a Case of Volvulus. The obstruction has led to great congestion, so that the intestine is almost gangrenous. (Joseph Perry.)

274a. Drawing of a Liver from a case of pylephlebitis. There is acute inflammation and suppuration of the vena portæ and its branches. (L. Mark, Esq.)

See *Transactions of the Royal Medico-Chirurgical Society* for 1890.

283d. Drawing of the Under Surface of a Liver, showing a small accessory lobule which was attached by a pedicle to the under surface of the right lobe. (L. Mark, Esq.)

298ww. Photograph of a patient who had a large cystic goitre, which had been growing for five years. The tumour was almost entirely confined to the right lobe of the gland.

From a girl aged 15.

See *Female Surgical Register*, vol. ii. (1889), No. 1172.

298xx. A Series of Photographs of a married woman aged 23, who had exophthalmic goitre.

See *Dr. Hensley's Out-Patient Register* for 1889, No. 869.

331c. Drawings of the Kidneys and Bladder from a case of tuberculosis of the urinary tract. The kidneys are greatly enlarged, and the cortex is filled with abscesses containing caseating substance. The bladder is small and thickened, its mucous membrane being covered with small masses of tubercle. (L. Mark, Esq.)

See Series xxviii. No. 2341d.

339b. Drawing of an Angioma of the Cerebral Membranes. The tumour consists of a close plexus of blood-vessels, which have an average diameter of an eighth of an inch. The vessels appear to be derived from the vein upon which they lie, reinforced by branches from the neighbouring veins. (L. Mark, Esq.)

From Series xxx. No. 2466c.

See *St. Bartholomew's Hospital Reports*, vol. xxiii. pp. 179-181, and *Transactions of the Pathological Society*, vol. xxxix. p. 4, and Plate i. fig. 1.

356a. Drawing of a patient who had a cerebral abscess following upon fracture of the skull. (Joseph Perry.)

386a. A Photograph of a boy aged 11 years, who had congenital spastic paraplegia. He did not begin to walk until after he had attained the age of two years; he then walked for a year, but after an attack of whooping-cough he gradually lost all power of locomotion. For the last three years he has gone about on crutches.

See *Luke Ward Book* for 1889, s. v. M. Gale.

386b. A Photograph of a girl, sister of the patient from whom the preceding photograph was taken. She was aged 12 years, and also

suffered from congenital spastic paraplegia. She did not begin to walk until she was $2\frac{1}{2}$ years, and her legs used to cross over before she learnt to walk. She had used crutches for five years.

See *May Ward Book* for 1889, s.v. Hilca Gale.

387a. Photographs of the Right Hand of a married woman aged 32 years, who suffered from alcoholic paralysis. The fingers are in the interosseous position. There is marked degeneration and atrophy of the extensors of the fingers, with the exception of the wrist and thumb.

See *May Ward Book* for 1889, s.v. M. A. Johnson.

388f. Drawing of the Left Hand, showing the changes which have resulted in the integuments of the index finger after section of the median nerve at the wrist three months previously. (L. Mark, Esq.)

See *Female Surgical Register*, vol. iv. (1888), No. 254c.

388g. Drawings of the Hands of a female patient aged 25 years, whose left median nerve had been accidentally divided three years previously. The patient was the subject of phthisis. The right hand has long tapering fingers, the nails are curved, and the thumb is slightly bulbous. The left hand has glossy fingers, with nails which are too greatly curved. The index and middle fingers are wasted and their movement is impaired, the abductor and part of the flexor brevis pollicis muscles are wasted. (L. Mark, Esq.)

See *Faith Ward Book* for 1889, s.v. M. Dayman.

Casts of the hands are also preserved in Series lvi. No. 144j.

388h. Drawing of the Hand of a man, showing a destructive ulceration of the index finger, with bullæ upon the palm, resulting from a chronic neuritis. (L. Mark, Esq.)

From a man aged 54, who first had numbness in his left hand eight years before his admission to the Hospital. One year previous to his admission his right hand became affected, and ten months later the terminal phalanx of the left index finger began to ulcerate. The middle and ring fingers of the left hand were also contracted. On the radial side of the left middle finger, at the base of the first phalanx, was a small ulcerated surface, covered with a scab.

A cast of the hand is preserved in Series lvi. No. 144i.

See *Male Surgical Register*, vol. ii. (1889), No. 191i.

388i. Drawings of the Left Hand of a patient who had neuritis of the upper extremities. The left index finger has ulcerated. (L. Mark, Esq.)

From a man aged 54, who had symptoms of neuritis for eight years. The ulceration of the finger began two months before the drawing was made.

See *Male Surgical Register*, vol. iii. (1889), No. 191i.

389a. Drawing of the Left Eye of a patient who had an irregular mass of granulations occupying the palpebral conjunctiva and the angle

between it and the ocular conjunctiva. The ulceration was clearly lupoid in character. (L. Mark, Esq.)

From a girl aged 21 years, in whom the lupus first appeared seven years previously.

See *Alexandra Ward Book* for 1889, No. 599.

400a. Drawings of the Right Leg of an unmarried woman aged 21 years, who had an advanced ichthyotic condition of the skin of the thigh and leg. The skin of the thigh, as is seen in the upper drawing, has a remarkably papillated appearance. The papillæ appear to be due to hypertrophy of the epidermis, for they could be readily picked off, leaving the Malpighian layer exposed. At the line of flexion of the joints the skin was smooth, being devoid of papillæ. The lower drawing shows the amount of hyper-extension present at the knee-joint. (L. Mark, Esq.)

The patient's hip had been excised 8½ years previously, and the ichthyotic condition had been gradually increasing for five years. The opposite limb was healthy, and there was no evidence of xeroderma in other parts of the body.

A cast of the limb is preserved in Series lvi. No. 147a.

402c. Drawing of the Face of a girl aged 19, showing a keloid on the chin. The growth commenced after a slight blow on the chin, and had been growing for a month. (L. Mark, Esq.)

See *Female Surgical Register*, vol. iii. (1888), No. 2517.

407e. Drawing of the Right Hand of a man aged 28, showing marked pigmentation of the skin and clubbing of the fingers. (L. Mark, Esq.)

See *John Ward Book* for 1889, s.v. Thomas Bridge.

409c. Photograph of a case of Myxœdema in an early stage.

From a married woman aged 45 years, the mother of six children. She stated that she had been ill for six years with swelling and pain in the kidneys. She speaks more slowly than she used to do, and feels as if she was in a dream. She is growing much fatter, and her hands are larger; for although she used to wear gloves size 7½, she now requires size 8.

See *Dr. Hensley's Out-Patient Register* for 1889, No. 231.

412b. Drawing of a Leg showing a condition of erythema marginatum. The eruption is copious and annular; it appeared all over the trunk and limbs two days before the drawing was made. The outlines of the rings are marked by hæmorrhage. (L. Mark, Esq.)

From a woman aged 39, who had suffered from four attacks of rheumatic fever. She had pains in many of her joints when she was first seen, and rheumatic changes in her hands. There was a loud cardiac systolic apex-murmur, which was heard behind. The patient had previously had an eruption of the same kind as that here depicted.

From an out-patient.

419f. Drawing of the Arm of a man showing an unusual form of lichen. (T. Godart.)

420b. Drawing of a Portion of the Thorax of a man aged 25 years, who had a scaly eruption which was of the nature of psoriasis. There was no history of syphilis. (L. Mark, Esq.)

See *Male Surgical Register*, vol. i. (1889), No. 2538.

424f. Drawing of the Face of a girl who had a tertiary syphilitic eruption. The spots were small, papular, and copper-coloured at first, but they soon scabbed and formed circular ulcers with sharply defined edges. (L. Mark, Esq.)

See *Elizabeth Ward Book* for 1889, s.v. E. Bishop.

429c. Drawing of the Right Thigh of a woman aged 32 years, who had a large gangrenous patch originating in an attack of pemphigus. (L. Mark, Esq.)

See *May Ward Book* for 1889, s.v. Emmeline Durnton.

429d. Drawing of the Hands of a patient who had pemphigus. The fingers of both hands and the palm of the right hand were affected. The eruption commenced as small purulent spots. (L. Mark, Esq.)

See *John Ward Book* for 1889, s.v. J. H. Haynes.

431e. Drawing of the Right Foot, showing a pemphigus eruption. (T. Godart.)

445c. Drawing of the Face of a man who had an iodide rash. The eruption was best marked upon the side of the face and neck, as well as upon the alæ of the nose. When it was first seen it was discrete, and each spot had an indurated base, but the eruption rapidly became confluent, and there was much discharge of a purulent nature. (L. Mark, Esq.)

From a man aged 37, who had aortic regurgitation and hemiplegia. The eruption appeared seven days after the patient had taken a drachm of the mixed iodide and bromides of potassium and ammonium in twenty-grain doses thrice daily.

See *Matthew Ward Book* for 1889, s.v. J. W. Slaney.

448b. Drawing of the Head and Face of a child who had varicella gangrenosa. (T. Godart.)

448c. Drawing of the Back of the same child. (T. Godart.)

463c. Drawing of the External Genital Organs of a man aged 57, showing numerous chalk-stones on the scrotum. (L. Mark, Esq.)

From an out-patient.

473a. Drawings of the Hands of a Girl who had onychia mycosis. From a girl aged 24, who had tinea circinata of the scalp for four years. Her nails had been affected during the whole time, but not continuously. The parasitic growth is seen spreading beneath the nails and leading to their destruction. (L. Mark, Esq.)

From an out-patient.

- 473b. A Photograph taken on the 8th February 1888, of the left little finger and right thumb of Mr. Lawrence, showing marks on the nails caused by sea-sickness, August 28-31, and October 18-21, 1887.

See *Transactions of the Pathological Society*, vol. xxxix. p. 370.

Presented by Dr. Wilks, F.R.S., per Thomas Smith, Esq.

- 531h. Photograph of a patient who had a recurrent cancer of the right breast. The gland had been removed about a year previously.

From a married woman aged 40 years, who came to the Hospital as an out-patient.

- 531i. Photograph of a man who had a large periosteal sarcoma springing from his shoulder. It was considered inadvisable to perform any operation.

- 531j. Drawing of the Breast of a widow aged 32, who had chronic eczema of the nipples. In the right breast the disease had lasted for eight months, and in the left for five months. In the left breast the affection was associated with a mammary abscess.

See *Female Surgical Register*, vol. iii. (1889), No. 1813.

- 543h. Drawing of the External Genital Organs of a girl aged 2 years, who had noma vulvæ after an attack of measles. (L. Mark, Esq.)

See *Female Surgical Register*, vol. i. (1889), s.v. M. A. Read.

- 545i. Drawing of a Hand, showing the characteristics of a suppurating poisoned wound. There has been extensive lymphangitis, which has been treated by incisions. (L. Mark, Esq.)

See *Male Surgical Register*, vol. v. (1888), No. 587.

- 545j. Drawing of the Face of a man who had necrosis of the left side of his lower jaw, with sloughing phagedæna. (L. Mark, Esq.)

Four months before the admission of the patient to the Hospital he caught a cold, which was followed by necrosis of a portion of the left ramus of his lower jaw. After the removal of a sequestrum gangrene set in.

See *Male Surgical Register*, vol. v. (1889), No. 578.

- 545k. Drawing of the Stump of a Leg amputated on account of a compound dislocation of the ankle, showing a sloughing condition of the flaps. (L. Mark, Esq.)

See *Male Surgical Register*, vol. v. (1889), No. 1784.

- 556c. Drawing of the Face of a woman who had an epithelioma growing on the left temple. (L. Mark, Esq.)

From a woman aged 62. The tumour had been growing for five years.
See *Female Surgical Register*, vol. iv. (1888), No. 2730*.

556d. Drawing of the Face of a woman aged 23 years, showing an unusual form of sarcoma of the left cheek. (L. Mark, Esq.)

The tumour had been growing for eight months. It commenced as a small pimple. Microscopical examination showed that it consisted of spindle cells.

See *Female Surgical Register*, vol. v. (1888), No. 2512.

The specimen is preserved in Series I. No. 3294b.

556e. Drawings of the Arms of the patient whose face is represented in the preceding sketch. There are numerous secondary sarcomatous tumours of the same character as the primary growth. The secondary tumours were observed six weeks after the removal of the sarcoma on the face, and the drawing was made ten months after the previous one.

See *Female Surgical Register*, vol. v. (1889), No. 2005.

598e. Drawing of the Chest of a child aged 2 years, who had a congenital cystic hygroma of the size of an egg situated over the sternum. (L. Mark, Esq.)

See *Male Surgical Register*, vol. iv. (1889), No. 1847.

TERATOLOGICAL CATALOGUE.

SERIES I.—ABNORMAL CONDITIONS OF THE AXIS.

CLASS II.—DUPLICITY.

3402a. The Articulated Skeleton of a Two-headed Calf with lateral curvature of the lumbar spine, and a spina bifida of the lumbo-sacral and caudal regions.

Presented by Ernest Noad, Esq.

CLASS V.—ARREST OF DEVELOPMENT.

SUB-CLASS I.—CRANIAL ARREST.

ACEPHALOUS AND ACARDIAC MONSTER.

3435a. The monster measures eleven inches in length, and is one of female twins. It was born with much hæmorrhage at the seventh month. The skin as low as the knees is remarkably corrugated, and has beneath it a very thick layer of gelatinous connective tissue, which forms a firm pad above the thorax. The monster is phocamelous, the left hand, consisting of the thumb and two fingers, protrudes through the integument; it has no bony connection with the thorax. The right hand is chiefly subcutaneous, and only part of two fingers protrude; a rudimentary clavicle exists beneath the skin, and is in contact with the anterior surface of the scapula. Immediately

below the right hand are two small and red masses of tissue, which protrude from a short wide canal leading downwards towards the thorax.

The thorax is rudimentary and is occupied by cellular tissue, in which no traces of lung or heart are found. The diaphragm is rudimentary. The intestine begins with a blind extremity, which is situated to the right of the middle line, and apparently corresponds to a part of the duodenum.

The cæcum and vermiform appendix are found in a corresponding position on the left side. The alimentary canal terminates in a large cloaca, which occupies the whole space between the sacrum and the ischial tuberosities, but it is separated from the posterior orifice of the vulva and the symphysis pubis by a fold of skin, which represents the perineum. There is no stomach, spleen, liver, or uterus.

The kidney is single, and is situated on the right side; two ureters are derived from it, and pass into a well-developed bladder. The left ovary is alone visible; it is well developed, and is situated in the left iliac fossa.

The spinal column is fairly developed; it terminates by a rounded extremity immediately above the thorax, and it contains a rudimentary cord surrounded by well-developed membranes.

The axis of the whole of the upper part of the body appears to have undergone considerable rotation. The intestines are filled with a substance resembling meconium, except in colour; it is yellowish brown, and contained cholesterolin and other fatty crystals, with much granular débris and epithelium.

The orifice of the urethra is visible in the bladder, and there is also an opening below the clitoris, but no connection can be traced between the two.

Presented by Dr. Griffith.

3435b. An Acephalous Acardiac Monster, measuring seven inches in length. It was one of male twins born at the sixth month. The skin over the whole body was smooth when it was first born, though it has become corrugated owing to the action of the spirit. Beneath the skin is a layer of gelatinous tissue half an inch in thickness. The connective tissue forms a thick pad above the thorax. The monster has well-developed legs and feet, except that the toes are only four in number on the left side, and two on the right. The upper limbs are entirely absent, and do not seem to be represented by even a cartilaginous rudiment. The umbilicus is well formed, and has projecting from it the remains of a normal umbilical cord. An inch above the umbilicus are two apertures, situated symmetrically on either side of the linea alba, and about half an inch from it. The aperture on the right side is small, and appears to end blindly, as a bristle can only be passed along it for about one-tenth of an inch. On the left side the aperture is larger, and contains a foliaceous mass of tissue, which projects from it.

On reflecting the skin and subcutaneous tissue, the thorax is found to consist of six ribs on either side, but the sternum is absent, and

there are no thoracic organs *in situ*. The heart is situated in the gelatinous tissue forming the body-wall on the right side. It lies in a cavity which is hollowed out of the tissues surrounding the organ, and consists of a solid mass rudely fashioned into the semblance of two rudimentary auricles and a single ventricle. A small and bent canal leads from the upper part of the pericardial cavity into the surrounding tissues. This channel has no connection with the heart. A delicate band of fibrous tissue passes across the pericardial sac.

The diaphragm is absent. The abdominal cavity is of considerable size, and contains many of the normal organs. The intestine begins blindly, the extremity being attached by a ligament to the long axis of the foetus. It appears to commence at the duodenum. There is a normal mesentery. The small intestine is well developed; there is a vermiform appendix and a caecum, which are, as usual, situated on the right side. The large intestine is of the ordinary length, and terminates in an anus. The intestines are filled with epithelial cells, fat, and a large number of kreatin crystals. A single fixed kidney, with two ureters placed laterally, occupies the upper and back part of the abdominal cavity. The testes are situated in the abdomen, immediately above the internal abdominal ring. The bladder is present, and is prolonged upwards into the urachus. There is a well-developed penis and scrotum. The spleen is extremely small, and lies above and to the left side of the kidney. The suprarenal bodies, the stomach, the liver, and the pancreas are absent. Lying in a cleft in the median line of the kidney is an elongated and apparently solid gland, which does not seem to have any duct. This gland is one inch in length, and lies in the long axis of the abdominal cavity.

The spinal column is well developed, and terminates in a rounded extremity, situated at the upper limit of the thorax. Its cavity encloses a spinal cord enveloped in membranes.

From a Jewess aged 33 years. The third pregnancy, the preceding children being healthy and well formed. The monster was first expelled; it presented by the breech. The cord was remarkably short. A quarter of an hour later the other twin was born, also with a breech presentation. It was hydrocephalic, but was otherwise well formed. It was born dead. There was a single placenta, to which both cords were separately attached.

See *Transactions of the Obstetrical Society* for 1890.

Presented by Woodley Slyman, Esq.

SUB-CLASS IV.—DEFECTIVE CLOSURE OF THE THORACIC AND ABDOMINAL CAVITIES.

A FETUS WITH ADHERENCE OF THE MEMBRANES TO THE SKULL AND MANY OTHER ABNORMALITIES.

3451a. A Male Foetus in which the placenta and membranes have become adherent to the skull. The foetus is well developed and was born at term. The placenta is of the ordinary size, but the umbilical cord is short. Microscopical examination of the cord did not show any

change in its structure or in the arrangement of its vessels. The fœtus is anencephalic, and has a large meningocele in the right side of the lambdoidal suture. It has also a double hare-lip and cleft palate with macrostomia; both eyes are defective, and the eye-slits are very small. A portion of the amnion with the umbilical cord at the point where it is inserted into the placenta is attached to the upper aspect of the base of the skull by a broad and firm band of membrane, the line of attachment running along the upper part of the hard palate. There is well-marked lateral curvature of the spine. The heart is partly ectopic and it is tricœlian; it consists of a large left auricle, a rudimentary right auricle, and a common ventricle. The apex is prolonged upwards through a fissure in the sternum, to be attached to the base of the skull immediately to the right of the common nostril. The portion of the heart thus prolonged is hollow and contains columnæ carneæ; it is completely covered by skin derived from the thoracic walls, and formed a pulsating rod lying in front of and parallel with the sternum, attached by its two ends and free in the middle. On the inner side of the right arm is a small fleshy papilla situated half an inch above the bend of the elbow; from the apex of this papilla a thin membranous band passes upwards to be inserted into the right gum of the upper jaw.

The abdominal viscera and the remaining thoracic organs appear to be normal. There is a conus arteriosus, but the aorta gives off the usual number of branches in the proper order.

The mother had previously borne a healthy living child. The second pregnancy, resulting in the birth of this monster, was normal; the labour lasted six hours.

Presented by Dr. C. R. Walker.

SUB-CLASS V.—DEFECTIVE CLOSURE OF THE AXIAL CANAL OF THE CEREBRO-SPINAL SYSTEM.

3472a. A Section through the Head of a newly-born child who has an occipital encephalocele. The sac of the tumour is formed by the scalp and pericranium externally, and by the cerebral membranes internally, and a thin layer of brain substance. The swelling is situated in the middle line between the occipital protuberance and the foramen magnum. It is connected by a narrow neck, which passes above the transverse fissure in the brain, with the greatly expanded lateral ventricle. The child also had a cleft palate.

Presented by Stephen Paget, Esq.

3479b. The Dorsal, Lumbar, and Sacral Regions with the Pelvis and Femora of a child who had a meningo-myelocele. The sac, which was of the size of a small Tangerine orange, has been cut away upon either side to show the spinal cord. The wall of the sac is very thin. It contained some serous fluid and much recent lymph. The spinal cord enters the sac and passes over its posterior part in the middle line, and terminates by again entering the spinal canal. The filum terminale can be traced into the lowest part of the sacrum. Several of the nerves originating from

that part of the cord which lay within the sac passed across the cavity. A glass rod has been passed into the central canal of the spinal cord.

From a male child aged 2 weeks, in whom the spina bifida had been injected with Morton's fluid two days before death. During life the femora could not be extended beyond a right angle, and this condition is seen in the specimen to persist even after removal of all the muscles and division of the ligaments. The heads of the femora point almost directly forwards instead of inwards, and by locking against the acetabula, extension is prevented.

See *Male Surgical Register*, vol. iii. (1888), No. 2684.

SERIES II.

ABNORMAL CONDITIONS OF THE LIMBS.

CLASS V.—ARREST OF DEVELOPMENT.

(b.) *Talipes.*

3509e. The Left Foot and Leg of a child affected with congenital talipes varus. When the body is placed in the erect position, the inner side of the foot is drawn up, so that the outer border of the fifth metatarsal bone along its whole extent is in contact with the ground. The muscles appear to be well developed and of normal size. The tendon of the tibialis anticus is unduly prominent, and is shorter than natural; it raises the anterior annular ligament into a ridge at the point where it passes beneath it. The tendons of the peronei muscles are displaced slightly backwards from their natural groove on the outer surface of the os calcis. The tendon of the extensor proprius pollicis is somewhat more prominent than usual, as it passes over the dorsum of the foot, but the extensor longus is natural.

From a child aged 4 weeks, who had congenital talipes calcaneus of the right foot and a spina bifida.

3509f. The Right Foot and Leg of a child affected with congenital talipes calcaneus. The foot forms an acute angle with the leg, and in the fullest extension cannot be carried beyond a right angle. When the body is placed in a standing position, the heel alone comes into contact with the ground, the toes being raised, and the sole pointed somewhat forwards. There is, however, no flattening of the back of the os calcis, owing, no doubt, to the fact that the child had never learnt to walk. All the toes are flexed upon themselves at their metatarsophalangeal joints. On extending the foot, the tendons of the tibialis anticus and extensor proprius pollicis become more tense than the tendon of the extensor longus digitorum. The tendo achillis is well developed, but the gastrocnemius and soleus muscles are so small that the back of the leg has a flattened or almost concave appearance. The peronei muscles and tendons are large.

From the same patient as the preceding.

CLASS VI.—MALFORMATION FROM DISEASE (NOT
CONGENITAL).

- 3514b. Portion of a Foot in which the fourth toe is in a condition of "hammer-toe." The muscles and tendons have all been dissected away, to show that the deformity is dependent upon alterations in the glenoid ligament, and in the fibres of the lateral ligaments which approach the glenoid.

SERIES IV.

ABNORMAL CONDITIONS OF THE VASCULAR
SYSTEM.

CLASS II.—OF THE HEART.

(A.)—IN THE VALVES OF THE HEART.

SUB-CLASS II.—ABNORMAL NUMBER OF THE VALVES.

ACCESSORY AORTIC CUSP.

- 3585a. A Portion of the Heart and Aorta of a woman aged 62. The aortic valves are thickened but competent. There are four cusps, the additional one being very small, but perfect, as it possesses a lunule and its own corpus Arantii.

See *Medical Post-Mortem Register*, vol. xiv, p. 330.

- 3586b. A Similar Specimen, in which the cusps are of nearly equal size, each being somewhat smaller than usual. The lunule of the third cusp is fenestrated on one side. The coronary arteries are given off at the back of two contiguous cusps.

Presented by W. H. B. Brook, Esq., M.B., of Lincoln.

SERIES VI.

ABNORMAL CONDITION OF THE DIGESTIVE
ORGANS.

CLASS V.—ARREST OF DEVELOPMENT.

(b.) *Imperforate Anus.*

- 3639a. The Rectum and Bladder of a male child with imperforate anus. The rectum terminates about a quarter of an inch above the anus, and is dilated into a sac of considerable size.

From a child aged 5 days, upon whom the operation of Littre's colotomy had been performed.

See *Surgical Post-Mortem Book* for 1888, p. 41.

SERIES VII.

ABNORMAL CONDITIONS OF THE URINARY
ORGANS.

CLASS I.—VARIATION.

*(a.) Of the Kidney.***FLOATING KIDNEY.**

3649a. The Kidney and Suprarenal Capsule connected by a very long and wide mesentery, the position of the abdominal aorta shows the extent of its attachment.

From a man aged 68, who was admitted to the Hospital with a strangulated femoral hernia.

See *Male Surgical Register*, vol. v. (1887), No. 3858*.

3651b. Kidneys united at their lower ends by a broad band of renal substance, so as to form a continuous mass shaped like a horseshoe. Each lateral half has a pelvis; the median portion has none. There are two ureters, which empty themselves into an unusually small bladder. The aorta gives off three renal arteries, two of which supply the left side of the renal mass, whilst one enters the right; there are two renal veins.

From a man aged 19 years, who died of phthisis.

See *Medical Post-Mortem Register*, vol. xiv. p. 105.

SERIES IX.

ABNORMAL CONDITIONS OF THE ORGANS OF
SPECIAL SENSE.

CLASS I.—VARIATION.

(a.) The Ear.

3682a. Supernumerary Auricles removed from a male child aged 6 months. The auricles appear to be developed round the mandibular and hyomandibular clefts. They were arranged as follows:—In a line from the angle of the mouth to the external auditory meatus is (A), a small nodule of the size of a pea; it had a narrow peduncle and was soft, and so far as could be ascertained, without making a microscopical examination, it did not contain any cartilage. (B) A firmer and rather larger growth, globular in shape and with a longer peduncle than (A). These growths appeared to be mandibular in origin.

The other three growths were hyomandibular, and were situated in the neighbourhood of the tragus. (i.) The first was in the position of a normal tragus; it had a long rounded cartilaginous and ridge-like stalk. It extended along the anterior wall of, and projected into, the

external auditory meatus. Its extremity was globular, freely projecting, smooth, rounded, and cartilage-containing. (ii.) and (iii.) These two auricles were confluent, the upper globular and the more prominent, the lower ridge-like, very prominent, and extending towards (i.). Both these growths are a little above the level of the tragus; both contain cartilage, and possess in common a laterally flattened ridge-like base.

The rest of the right pinna was well formed. There were no deformities of the left pinna, and no fistulæ through either. There were no branchial clefts, and no deformities were found.

From a first-born child aged 6 months. No deformities were known to occur congenitally in the family on either side. He made a good recovery after the removal of the supernumerary auricles.

A photograph is preserved in Series xxxviii. No. 38.

See *Male Surgical Register*, vol. v. (1889), No. 1008.

ANATOMICAL AND PHYSIOLOGICAL CATALOGUE.

SERIES II.

THE BLOOD AND OTHER FLUIDS.

- 18a. A Clot of Blood, in the formation of which the red corpuscles sank below the surface before the fibrin coagulated. A layer of fibrin has thus coagulated on the surface of the clot without any admixture of red corpuscles, forming a white or "buffy" coat on the top of the dark clot. The contraction of this portion of the coagulated fibrin not being hindered, as that in the dark part of the clot was, by red corpuscles embedded in it, its margins are drawn towards its centre, puckered, and incurved, giving a "cupped" appearance to the clot.

SERIES VIII.

THE OSSEOUS SYSTEM.

(b.) *Human Osteology.*

- 155a. The Skull of an Adult European woman, upon whose surface is marked out the position of the various convolutions and fissures of the cerebral hemispheres.

Prepared by Edgar W. Willett, Esq.

II.—SKULLS.

GROUP II.—SAUROPSIDA.

CLASS II.—AVES.

- 451a. Head of an Australian Loriet (*Platycercus scapulatus*), showing the moveable upper jaw.

Presented by D'Arcy Power, Esq.

SUB-KINGDOM VII.—THE VERTEBRATA.

GROUP I.—ICHTHYOPSIDA.

CLASS I.—PISCES.

- 625d. A Transverse Section through the Tail of *Petromyzon*, prepared for microscopical examination.
- 625e. A Transverse Section through the Abdominal Region of *Petromyzon*, prepared for microscopical examination.

The two preceding sections were prepared and presented by
Dr. T. W. Shore.

SERIES XIII.

THE STOMACH.

- 701a. The Stomach of a full-grown *Macropus paryii*, one of the smaller species of kangaroo. It shows the organ complicated by sacculi, which is characteristic of the poephagous marsupials, and which closely resembles the human colon both in its longitudinal extent, structure, and disposition in the abdomen.

Obtained by purchase.

SERIES XXXII.

ORGANS OF GENERATION IN THE FEMALE DURING PREGNANCY, WITH SPECIMENS ILLUSTRATING THE DEVELOPMENT OF THE OVUM.

- 1196a. An Early Human Ovum, probably of the first month, mounted in glycerine jelly. It consists externally of a thin translucent chorion having villi upon its external surface. They are nearly evenly distributed, the largest measuring about three-sixteenths of an inch in length. A portion of the chorion has been removed, exhibiting a thin translucent membrane within it, which is very much smaller, and is separated from the inner surface of the chorion by a space which was filled with thin fluid. Within the amnion is a small opaque spot, which is less than one-sixteenth of an inch in length, and is presumably the embryo.

Presented by Clement Godson, Esq., M.D.

- 1196b. Two Small Human Ova of the first month. The layer consists of a villous chorion; the smaller one is also covered by chorion, but the villi are extremely minute. The smaller ovum has been laid open.

Presented by Clement Godson, Esq., M.D.

SERIES XXXIV.

DISSECTIONS.

- 1350a. A Dissection of the Human Face, to show the various muscles.
Prepared and presented by E. W. Willett, Esq.
-

SERIES XXXVI.

CATALOGUE OF THE INVERTEBRATA.

SUB-KINGDOM CŒLEENTERATA.

- 1440a. A Microscopic Specimen of *Campanularia angulata*.
1440b. A Microscopic Specimen of *Plumularia*.
The two preceding specimens were prepared and presented by Dr. T. W. Shore.
1445a. Sections through *Actinia*, a sea-anemone, prepared for microscopical examination.
Presented by Dr. T. W. Shore.

SUB-KINGDOM ECHINODERMATA. (E.) ECHINIDEA.

- 1466a. A Specimen of *Spatangus*. The mouth and anus are both eccentric. The ambulacral regions are not very obvious in the ventral region, but are continued into a well-marked star on the dorsal region.
Presented by Dr. T. W. Shore.

HOLOTHUROIDEA.

- 1468a. An Adult *Synapta*. The animal has a vermiform body, a row of tentacles about the mouth, and five ambulacral lines without pedicels.
1468b. Skin of *Synapta*, showing the skeletal elements, consisting of anchor-like bodies attached to perforated plates.
Presented by Dr. T. W. Shore.

SUB-KINGDOM VERMES.

- 1469a. Sections of *Distoma hepaticum*, showing the intestinal cæca and the generative glands embedded in the general parenchyma, surrounded by the muscular and ectodermic layers.
Presented by Dr. T. W. Shore.
1473a. The Head and a Portion of the Strobila of a *Tænia medicanellata*. The portion of the worm here preserved measures eight feet in length. It was obtained from the body of a man who died of *volvulus*, and in

whose intestine were found the *Ascaris lumbricoides*, 1488a, and the *Trichocephalus dispar* preserved in 1491a.

1487a. A Series of Transverse Sections through the anterior, middle, and posterior regions of the body of *Tetrastemma*, a Nemertean worm.

Presented by Dr. T. W. Shore.

1488a. An Adult Female *Ascaris lumbricoides*. It was obtained from the body of a man who died of volvulus, and in whose intestines were found the *Tænia mediocanellata* preserved in 1473a, and the *Trichocephalus dispar* 1491a.

1488b. Specimens of *Oxyuris vermicularis*, the common seat or thread worm which infests the rectum in children.

1490c. Transverse Sections of *Ascaris megalocephala*, stained to show the thickened epidermis and other histological details. The cœlom or body-cavity is full of ova.

Presented by Dr. T. W. Shore.

1491a. The *Trichocephalus dispar*. From the cæcum of a man who died of volvulus. The specimen of *Tænia mediocanellata* preserved in No. 1473a, and a fully developed female *Ascaris lumbricoides*, 1488a, were found in the intestine of the same patient. (In the Microscopical Cabinet.)

1495c. Transverse Sections through the middle region of a *Sipunculus*, prepared for microscopic examination. Numerous ova are seen in the cœlom or body-cavity.

1495d. Transverse Sections through the posterior region of *Sipunculus*, prepared for microscopic examination.

Presented by Dr. T. W. Shore.

1501a. Section through the Posterior Portion of *Serpula*, prepared for microscopic examination.

Presented by Dr. T. W. Shore.

SUB-KINGDOM ARTHROPODA. CLASS I.—CRUSTACEA.

1519a. *Nebalia*, mounted as a transparent microscopical object.

Presented by Dr. T. W. Shore.

1528a. A Specimen of *Cancer pagurus* and its *Exuvia*, showing the manner in which the exuvial skeleton opens, and the amount of growth at an ecdysis. The ectoderm covering the gills is shed with the whole exoskeleton.

Presented by Dr. T. W. Shore.

SUB-KINGDOM ARTHROPODA. CLASS III.—MYRIAPODA.

1537a. *Julus* mounted as a transparent microscopical object.

Presented by Dr. T. W. Shore.

SUB-KINGDOM ARTHROPODA. CLASS IV.—INSECTA.

1553b. A Microscopical Preparation of the stinging apparatus of *Bombus*.

Presented by Dr. T. W. Shore.

1561a. The Vegetable Caterpillar, *Sphæria robertsiana*. After passing through its chrysalis state, it becomes one of the night-moths of New Zealand. Its Maori name is *Pepeawato*. The plant is the *Hepiolus virescens*. The spore is parasitic, and becomes fixed between the head and the first ring of the body. More rarely the spore takes up its position between the last and the penultimate segment of the caterpillar. The caterpillar buries itself for the chrysalis stage, and the spore grows, utilising the tissues and absorbing all the interior of the insect until it dies. The caterpillars thus affected were charred, and used by the Maoris as the pigment with which they tattooed their faces. (*Cf.* Botanical Catalogue, p. 255.)

Presented by C. A. Parker, Esq.

SUB-KINGDOM MOLLUSCA. CLASS I.—LAMELLIBRANCHIATA.

1592a. *Mya Arenaria*, with one valve removed to show the animal.

Presented by Dr. T. W. Shore.

(A.) MOLLUSCOIDEA. CLASS I.—POLYZOA.

1563b. *Flustra foliacea*, prepared for microscopic examination.

Presented by Dr. T. W. Shore.

SERIES XXXVII.

CATALOGUE OF CASTS AND MODELS.

CLASS II.—MALFORMATIONS.

107. Cast of an Unusual Deformity of the Clavicles, occurring in a boy aged 11 years. The sternal portion of the clavicles are natural, but their acromial ends are wanting, the bones terminating in pointed extremities, which appear to rest on the coracoid processes. The movements of the arms were quite natural. The patient was admitted to the Hospital for lateral curvature of the spine.

See *Male Surgical Register*, vol. iii. (1888), No. 2964.

108. Cast of the Head of a boy aged 11 years, who had a well-marked rickety skull. The head is large, and tapers from the occipital towards

the frontal region. The forehead does not overhang the face, as is the case in hydrocephalus.

From the same patient who had deformed clavicles.
See Series xxxvii. No. 107.
See *Male Surgical Register*, vol. iii. (1888), No. 2964.

109. A Cast of the External Genital Organs of a man aged 37. The penis and scrotum are undeveloped and the testes have not descended. There is no hair on the pubes.

The patient was a very large and fat man with a perfectly smooth face; he was married, but had no children by his wife. His voice was high pitched. Examination per rectum showed that only the floor of the prostate had been developed.

See *Male Surgical Register*, vol. iii. (1889), No. 3464*.

110. Cast of the Left Arm of a patient aged 38, who had a congenital defect of the ulna. The left hand was bent towards the ulnar side, and could not be straightened; it was smaller than the right. The ulna terminated in a point about two inches above the carpal bones, but it was continued onwards by a band of ligament. The patient also had multiple exostoses.

See *Matthew Ward Book* for 1889, s.v. Edwin Duckham.

111. Cast of the Face of a man who had a congenital meningocele. The tumour was soft and pulsating; it was situated at the root of the nose in the middle line, and had separated the nasal bones. Firm pressure caused the tumour to become smaller, and it only refilled slowly. It grew until the patient was eighteen years of age; at the time the cast was taken he was thirty.

A photograph is preserved in Series xxxviii. No. 43.
See *Male Surgical Register*, vol. iii. (1889), No. 1431.

112. Cast of the Hands and Feet of an out-patient. There is congenital absence of the phalanges of all the fingers and toes, with the exception of the fifth in each case. In the feet it appears as if the metatarsals were also wanting in some cases. The left foot has a well-developed great toe, which is absent on the right side.

SERIES XXXVIII.

DRAWINGS AND PHOTOGRAPHS OF CONGENITAL MALFORMATIONS OF NORMAL STRUCTURES.

38. Photograph of a child who had five supernumerary auricles.

The auricles with a full description are preserved as No. 3682a.
See *Male Surgical Register*, vol. v. (1889), No. 1008.

43. Photograph of a man who had a large congenital meningocele.
A cast of the patient is preserved in Series xxxvii. No. 111.
Presented by C. H. Cosens, Esq.
44. Drawing of the Right Hand of a gouty man aged 63, to show a congenital enlargement of the second finger, which was deformed by being bent to the ulnar side.
See *Coborn Ward Book* for 1889, s.v. Joseph Pain.

SERIES XXXIXA.

HISTORICAL MEDICAL AND SURGICAL INSTRUMENTS.

13. A Lancet which formerly belonged to John Hunter.
The lancet came into the possession of the late Mr. Clift, and subsequently of Sir Richard Owen, K.C.B., by whom it was sent to Mr. Langshaw, who gave it to Sir James Paget, Bart.
Presented by Stephen Paget, Esq.
14. An Arab Truss, made by a native blacksmith. The pad is kept in position by the application of a wheel and ratchet.
Presented by Dr. Mackie of Alexandria.

BOTANICAL CATALOGUE.

The Lecturer on Botany, the Rev. George Henslow, M.A., has added the following Specimens to the Botanical Collection during the current year :—

Honey, Black and White, from the Eucalyptus of Australia.

Oriental Drug Pot made from the stem of a Bamboo.

Fruit of *Citharexylum lætum*.

Seeds of *Eugenia jambolana*.

Bulbils formed on the leaf-sheath of *Scilla sibirica*.

Seeds, grown and prepared for "Guarana," of *Paullinia sorbilis*.

Tragacanth-like Gum of *Cochlospermum gossypium*.

Hypoxylon concentricum (fungus).

Curare, strychnos species (?).

Bearberry Leaves, Arctostaphylos uva ursi.

Pellitory Root, Anacyclus Pyrethrum.

Snake Root, Polygala senega.

Green Hellebore Root, Veratrum viride.

Proliferous Rose.

Pears with leaf-petioles fleshy.

A Leaf of the *Opuntia cochinealifera*, showing the female cochineal insects
in situ.

Presented by D. L. E. Bolton, Esq.

BOOKS PRESENTED TO THE LIBRARY.

- Presented by*
- | | | |
|--|---|-------------------------------------|
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| A Practical Treatise on Diseases of
Women, by Professor Thornburn,
M.D. | } | T. MATTHEWS DUNCAN,
M.D., F.R.S. |
| The Year-Book of Treatment . . . | | Messrs. CASSELL & Co. |
| The Causation of Disease, by Harry
Campbell, M.D. | } | The AUTHOR. |
| Transactions of the Royal Academy of
Medicine in Ireland, vol. vi. 1888 . . . | } | W. THOMSON, M.A.,
F.R.C.S. |
| Chloride of Calcium as a Therapeutic
Agent, 2 copies (Pamphlets), by
Arthur Davies, M.D. | } | The AUTHOR. |
| Journal of the Chemical Society, 18
vols. | } | J. A. ORMEROD, M.D. |
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says on Therapeutics (Pamphlets),
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of Glasgow, by James Christie, M.D. . . . | } | The AUTHOR. |
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Practice of Medicine, by the late
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| A System of Obstetric Medicine and
Surgery, by Robert Barnes, M.D. | } | The AUTHOR. |
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Jeaffreson Exhibition	20 0 0
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Junior Scholarship in Chemistry and Chemical Physics (Second)	10 0 0
Treasurer's Prize	5 0 0

AT END OF SECOND YEAR :—

Senior Scholarship	50 0 0
Foster Prize	6 0 0
Harvey Prize	6 6 0
Wix Prize	5 0 0
Hichens Prize	7 5 0

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Brackenbury Medical Scholarship	30 0 0
Brackenbury Surgical Scholarship	30 0 0
Lawrence Scholarship	42 0 0
Bentley Prize	6 6 0
Skynner Prize	15 0 0
Burrows Prize	10 10 0

EXAMINATIONS, 1887-88.

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G. HEATON.

Brackenbury Medical Scholarship—
B. PIERCE.

Brackenbury Surgical Scholarship—
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Senior Scholarship in Anatomy, Physiology, and Chemistry—
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Kirkes Gold Medal—
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Bentley Prize (Medical)—

Bentley Prize (Surgical)—
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EXAMINATIONS, 1888-89.

Lawrence Scholarship and Gold Medal—
B. PIERCE.

Brackenbury Medical Scholarship—
J. A. HAYWARD.

Brackenbury Surgical Scholarship—
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Senior Scholarship in Anatomy, Physiology, and Chemistry—
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Kirkes Scholarship and Gold Medal—
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Bentley Prize (Medical)—
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R. F. STANDAGE.

Hichens Prize—
W. B. JONES.

Wix Prize—
A. B. BOYD.

Shuter Scholarship—
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Harvey Prize—

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 { A. S. BLACKWELL } } Æq.
3. H. O. DAVIES.
4. W. B. JONES.

5. N. WILSON.
6. C. E. WHEELER.
7. A. N. WEIR.
8. H. J. WALTON.

Skynner Prize.
E. P. PATON.

Burrows Prize.
C. R. STEVENS.

PRACTICAL ANATOMY.

SENIOR.

*Foster Prize—*N. O. WILSON.
2. W. B. JONES.
3. H. W. ARMSTEAD.
4. O. HOLST.
5. A. N. WEIR.
6. { H. O. DAVIES }
 { W. E. MILES } } Æq.
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OCTOBER

1889.

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H. PATERSON.

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Students can reside within the Hospital walls, subject to the College regulations.

Fifteen Scholarships, varying in value from £10 to £130, are awarded annually.

Further information respecting Scholarships, Pupils' Appointments, and other details, may be obtained from Dr. Norman Moore, and at the Museum and Library.

ST. BARTHOLOMEW'S HOSPITAL REPORTS.

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STATISTICAL TABLES

OF THE

Patients under Treatment

IN THE WARDS OF

ST. BARTHOLOMEW'S HOSPITAL

DURING 1888.

BY

THE MEDICAL REGISTRAR,

J. A. ORMEROD, M.D. (OXON.)—F.R.C.P. ;

AND

THE SURGICAL REGISTRAR,

ANTHONY A. BOWLBY, F.R.C.S.



London :

PRINTED BY JAS. TRUSCOTT AND SON,
SUFFOLK LANE, CITY.

1889.

P R E F A C E.

The Classification of Diseases in the Medical Tables is that adopted by the College of Physicians in their Nomenclature of Diseases.

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OCCUPATIONS OF MALE PATIENTS (*continued*).

Machinists 4	Printers 37	Tanners 2
Mattress maker ... 1		Tailors 22
Mason... .. 1		Telegraph workers ... 4
Messengers 13		Ticket writers... .. 2
Metal workers... .. 24		Timekeeper 1
Millers 2		Tobacco moulders ... 3
Milkmen 3	Rag sorters 2	Tobacco-pipe maker ... 1
Mirror maker 1	Railway servants ... 44	Travellers 20
Missionary 1	Refreshment vendor ... 1	Typefounders 9
Musicians 3	Rug maker 1	
	Ruler 1	
Navvies 10	Sack dealer 1	Umbrella maker 1
Necktie cutter 1	Saddlers 2	Upholsterers 12
News vendors 3	Sailors 18	
	Salesman 1	
	Sashline maker 1	
	Sawyers 3	
	Scale makers 2	
	Scavengers 4	
	Schoolmasters... .. 4	
Optician 1	Schoolboys 216	Van boys 37
Organ-pipe maker ... 1	Servants 41	
	Shoemakers 22	
	Shoebblack 1	
	Shopmen 44	
	Sign writer 1	
	Skin dresser 1	
	Soldiers 7	
Packers 4	Spectacle maker 1	Waiters 4
Painters and decorators 20	Stablemen 17	Warehousemen 20
Paviours 2	Stick makers 3	Washer-up 1
Perfumers 2	Stevedores 4	Watch maker 1
Picture-frame maker... 1	Stokers... .. 8	Wheelwright 1
Pipe-layers 2	Steward 1	Wh tewasher 1
Platelayer 1	Students 9	Wood choppers 2
Plumbers 5	Surgical instrument makers 2	Wood carvers 3
Policemen 8		
Porters... .. 151		
Postmen 3		
Potmen 18		
Poulterer 1		

OCCUPATIONS OF FEMALE PATIENTS.

Artificial florists ...	13	Factory girls ...	31	Paper colourer ...	1
Bag maker ...	1	Feather workers ...	4	Paper glazer ...	1
Baker ...	1	Fishwife ...	1	Paper bag maker ...	1
Barmaids ...	9	Flower girls ...	14	Parasol maker... ..	1
Basket seller ...	1	French polishers ...	16	Perfumer ...	1
Bathing woman ...	1	Fur workers ...	16	Plush workers... ..	4
Blind maker ...	1			Publican ...	1
Bonnet makers ...	4	Governesses ...	4	Rope spinner ...	1
Bonnet shape maker ...	1	Greengrocers ...	4		
Bookmakers ...	3	Gunpowder worker ...	1	School girls ...	192
Bookfolders ...	10			School teachers ...	3
Bookbinders ...	4	Hawker ...	1	Screen maker ...	1
Bookkeepers ...	2	Housekeepers ...	11	Sempstresses ...	14
Boot fitters ...	2	Housewives ...	610	Servants ...	213
Box makers ...	18			Shirt makers ...	3
Brace makers ...	2	Ink maker ...	1	Shop assistants ...	35
Brush dressers... ..	4	Ironers ...	8	Silkwinders ...	3
Button makers ...	2			Stationers ...	4
				Still-room maid ...	1
				Surgical instrument coverer ...	1
Capsule maker ...	1	Laundresses ...	35	Tailoresses ...	14
Card cutter ...	1	Lead worker ...	1	Tennis-ball maker ...	1
Caretaker ...	1			Tin cutters ...	3
Charwomen ...	33	Machinists ...	27	Tie makers ...	2
Chocolate cream maker	1	Mantle makers ...	2	Tobacco stopper ...	1
Cigar maker ...	1	Match maker ...	1	Umbrella makers ...	2
Clerks ...	3	Medical glass graduator	1	Upholsteresses ...	3
Cloth sorters ...	2	Messengers ...	4		
Collar dressers ...	2	Milliners ...	17	Veneer maker... ..	1
Cocoa worker ...	1	Monthly nurses ...	4		
Cooks ...	33	Music teachers ...	2	Waitresses ...	5
				Ward maids ...	4
Dressmakers ...	13	Nurses ...	28	Waste-paper dealer ...	1
Dyer's finisher ...	1	Needlewomen ...	11	Waterproofers ...	1
				Weaver... ..	1
Electric wire worker ...	1	Overseer ...	1	Wood chopper ...	1
Envelope folders ...	5			Worsted carder ...	1

MEDICAL REPORT.

TABLE I.

DISEASE.	Total.		Under 5.		— 10.		— 15.		— 20.		— 30.		— 40.		— 50.		— 60.		Over 60.	
	M.	F.	Discharged.	Died.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
GENERAL DISEASES,																				
A.																				
Fever	14	8	1	2	1	2	2	2	2	2	7	3	1	1	1	1	1	1	1	1
Varicella	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mumps	5	2	3	2	3	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1
Whooping Cough	15	5	3	3	3	3	1	1	1	1	2	2	1	1	1	1	1	1	1	1
Rubeola	3	3	7	4	7	4	2	2	2	2	2	2	1	1	1	1	1	1	1	1
Measles	16	9	7	4	7	4	2	2	2	2	2	2	1	1	1	1	1	1	1	1
Scarlet Fever	13	3	1	1	1	1	3	3	1	1	2	2	1	1	1	1	1	1	1	1
Small Pox	1	1	4	3	4	3	3	3	2	2	3	7	1	1	1	1	1	1	1	1
Diphtheria	82	19	18	32	4	3	13	20	5	3	8	3	1	1	1	1	1	1	1	1
Typhoid	123	58	49	11	5	1	13	13	12	15	12	12	12	8	4	5	1	1	1	2
Dysentery	7	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Ague...	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Pæmia	5	2	1	3	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Total	294	120	99	333	42	2	14	18	41	55	13	33	31	44	41	33	31	33	31	33

APPENDIX TO MEDICAL TABLES.

ABBREVIATIONS.

(1) The letters M or F with an Arabic numeral following indicate the sex and age of the patient.

(2) References to the clinical reports are made as follows:—the name of a ward indicates the ward-book for the year (1888), while the Arabic numeral following indicates the index number therein of the report in question.

(3) References to the post-mortem reports are marked P.M. The Roman number following indicates the volume of the post-mortem register, and the Arabic number the page therein where the case in question is entered.

EXAMPLES.—M. 32, Mark 186, P.M. xiv. 32, means Male, age 32 years, clinical reports in Mark Ward-book for year 1888, number 186 in that book: post-mortem report in volume xiv. of post-mortem register (medical), at page 32.

The ward-books (bound volumes of clinical reports) are kept in the Library; the completed post-mortem registers in the room belonging to the Curator of the Museum.

It is hoped that the Appendix may thus serve as an index for those who wish to study in detail the most important cases that have been under treatment during the year.

APPENDIX TO GENERAL DISEASES A.

Mumps.—Metastatic orchitis in all the three male cases.

Whooping Cough.—Of the five fatal cases, three died with broncho-pneumonia, or collapse of the lungs; one with general tuberculosis; one with symptoms of meningitis.

Rubeola.—All three cases in nurses of the hospital, in the months of March and February.

Measles.—One case (M 2) fatal with bronchitis.

Diphtheria.—Tracheotomy (for which see Surgical Tables) in 27 instances, of which only one case, F 4 (Faith 33), permanently recovered. Gangrene of fauces in five cases; in one of these, F 10 (Faith 51, P.M. xiv.), there were hæmorrhages into the pulmonary alveoli. Nasal diphtheria three times; in one of these, F 3 (Hope 7, P.M. xiv. 212), there had been diphtheria of the fauces, nares, right ear, and of an excoriation on the face; frequent pulse; somewhat sudden death after the membrane had quite cleared. Post-mortem: there were cervical abscesses, in one of which the left vagus was involved. F 7 (Elizabeth 157, P.M. xv.): Had

faucial and nasal diphtheria, and passed membranes per rectum. F 9 (Mary 129, P.M. xv. 57): Died with incessant vomiting, possibly nervous in origin, after the membrane had all cleared off.

Typhoid Fever.—Relapses in at least seven instances, of which two died. F 13 (Elizabeth 191): During a relapse had perforation and died; her father, aged 40 (Mark 268), had a severe relapse, with delirium and many spots, but recovered. F 14 (Faith 271): Had two relapses, with mania and severe hysterical attacks; afterwards was morose and obstinate. F 14 (Mary 211): Had parotid and submaxillary bubo, and alveolar abscess.

Ten post-mortems were made, with the following results:—M. 32 (P.M. xiv. 280): Died of pneumonia before sloughing had begun. M. 36 (P.M. xiv. 275): Died about 18th day; sloughs were in course of separation. F. 15 (P.M. xv. 7): showed the disease in all stages, the process reaching quite 10 feet upwards from the valve. M 15 (P.M. xv. 172): Died from necrosis of the cricoid cartilage, the ulcers having quite healed; he had also noma of the cheek, and a parotid abscess. M 8 (P.M. xv.): Had peritonitis without perforation. Perforation occurred in the five remaining cases, as follows:—F 13 (P.M. xiv. 112): During a relapse, see above. M 39 (P.M. xiv. 328): Extensive ulceration of both small and large intestine. M 21 (P.M. xv. 152): Ulceration of large and small intestine and of sigmoid flexure; an ulcer in the cæcum had actually perforated, but was sealed with blood clot; death from intestinal hæmorrhage. M 21 (P.M. xv. 150): A large perforation and peritonitis; the remaining Peyer's patches exhibited all stages of the disease. The remaining case is detailed in the Hospital Reports, xxiv. p. 154; perforation had here occurred under very unusual conditions.

Pyæmia.—F 25 (Mary 106): Had been suckling 14 months; no cause could be found either ante or post-mortem. F 19 (P.M. xiv. 276): Had abscesses in liver, spleen, and between liver and stomach; pylephlebitis, and pneumonia of left base.

APPENDIX TO GENERAL DISEASES B.

Rheumatic Fever.—Of the two fatal cases, the one, M 9 (Mark 237), had pericarditis; died a month after admission apparently from pulmonary complication; no post-mortem; the other, M 13 (John 44, P.M. xiv. 44), had mitral and aortic disease; died suddenly from the cardiac disease. *Cardiac complications.*—Pericarditis, five times; endo and pericarditis, eight times; morbus cordis (nature unspecified), four times; mitral disease, twenty times; aortic, once; aortic and mitral, twice. *Pulmonary complications.*—Pneumonia, twice; pleurisy, once; pleural effusion, twice; fatal pulmonary disease (nature?), once. *Nervous.*—Delirium, twice; delirium tremens, once; melancholia during convalescence, once; chorea, once. *Cutaneous.*—Erythema, twice. M 86 (Hospital Reports, xxiv. 22): Had fever without arthritis. F 21 (Hope 142): Had endo and pericarditis, pleural effusion, delirium, and in addition intestinal hæmorrhage and diarrhœa. Lactation is mentioned four times; one of these cases was a third attack, and all her attacks had come on during lactation.

Rheumatism.—In some cases shading into rheumatic fever; pericarditis in two instances, F 11 and M 19.

Gout.—Glycosuria, once; chronic renal disease, four times. The fatal case (F 72) died from cellulitis of the leg; had granular kidneys.

Senectus.—M. 81: Had had cataract extracted. Died with obscure nervous symptoms. No post-mortem.

Anæmia.—Of the male cases—M 45: Cause undetermined; improved on arsenic. M 35: Had enlarged spleen and hæmatogenic icterus. M 50: Doubtful whether cirrhosis of liver. M 11 (Luke 166): Had been frequently in the hospital; he died soon after admission. Nothing found post-mortem (P.M. xv. 42) save watery blood, anæmic organs, and a very fatty liver.

The fatal female case, F 37 (Martha 127), had been in previously for flooding; re-admitted with flooding, epistaxis, purpuric eruption, bruise on knee. P.M. xv. 62: Hæmorrhages beneath pericardium and gastric mucous membrane; fatty heart.

Purpura.—The fatal case, F 15 (Faith 58), died of hæmatemesis. Post-mortem (P.M. xiv. 272): Capillary hæmorrhages in stomach; fatty heart. F 12 (Elizabeth 149): Had enlargement of spleen and cervical glands, but she improved.

Leukæmia.—M 33: Had malaria in Mauritius. M 61: Had tremors not unlike paralysis agitans; also signs of former syphilis. Post-mortems on the three fatal cases showed—P.M. xv. 23: Greatly enlarged spleen, enlarged liver, no nodule in them; no enlarged lymphatic glands; necrosis of epiglottis (? syphilitic). P.M. xv. 48: Spleen enlarged to 18 oz., no nodules in it; enlarged lymphatic glands; fauces intensely congested; hæmorrhages into pelvis of kidneys, and subserous and subcutaneous ditto; peculiar nodules in intestines. P.M. xv. 180: Spleen and lymphatic glands enlarged (? lymphadenoma); ulceration of stomach, of large and small intestine; phthisis of lung.

Hodgkin's Disease.—M 39: Somewhat uncertain; post-mortem forbidden. M 5 (John 48): Had intermittent pyrexia; enlarged spleen and lymphatic glands, but no leucocythæmia. Post-mortem (P.M. xiv. 321): Spleen full of white nodules; liver fatty; small white points (? tubercles) in lungs and other organs; rough deposit on dura mater which had eroded the skull.

Enlarged Spleen.—The fatal case a new growth (P.M. xv. 92). F 28 (Hope 175): Spleen large, painful, and very movable; first noticed after a confinement. F 36 (Hope 232): Enlarged spleen and liver; signs of syphilis; improved on pot. iod.

Raynaud's Disease.—F 16 (Elizabeth 192): Died of pneumonia; nothing found in the nervous centres, peripheral nerves, or arteries, which could explain the symptoms (P.M. xv. 192).

TABLE I. (continued).

DISEASE.	Total.		Under 5.		— 10.		— 15.		— 20.		— 30.		— 40.		— 50.		— 60.		Over 60.		
	M.	F.	Discharged.	M.	F.	Discharged.	M.	F.	Discharged.	M.	F.	Discharged.	M.	F.	Discharged.	M.	F.	Discharged.	M.	F.	
DISEASES OF THE NERVOUS SYSTEM (continued).																					
Congestion (?) of Spinal Cord	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cerebro-spinal Degeneration	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Acute Ascending Paralysis.	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Progressive Muscular Atrophy	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Acute Anterior Poliomyelitis	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Spinal Pachymeningitis	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
General Paralysis of Insane	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Peripheral Neuritis	15	3	3	1	3	8	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1
Diphtheritic Paralysis	7	5	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Epilepsy	13	9	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Epileptiform Fits	9	5	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Vertigo	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tetanus	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tetany	5	3	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chorea	29	7	22	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Choreoid Movements	4	3	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Paralysis Agitans	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tremors of Uncertain Nature	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

APPENDIX TO DISEASES OF NERVOUS SYSTEM.

Hemiplegia.—As to causation—In six cases probably *hæmorrhage*; in four, probably *embolism*, one of these of very doubtful nature (John 13); in two, probably *thrombosis*, one of these (Hope 163) had both sides more or less paralysed; in two cases optic neuritis and *albuminuria*; probable connection with *syphilis* four times one of these a case of cross paralysis; history of *injury*, viz., fall on back, once; mental symptoms, ? general paralysis, once. M 4: Spastic hemiplegia of childhood. M 28 (Luke 228): Onset with pain and rigid palsy left side, then convulsions right side, then dementia.

Cerebral Hæmorrhage.—The non-fatal case, M 55 (John 121), had left hemianæsthesia, with right facial palsy (of peripheral type), and paresis of right external, left internal rectus oculi. A somewhat similar distribution but with more motor palsy of limbs in F 38 (Mary 181); in this last was found (P.M. xv. 9) left pontine hæmorrhage, and hæmorrhage into left cerebrum (double lesion). There were three other cases of pontine hæmorrhage, viz., P.M. xv. 34, 79, 101.

Cerebral Softening.—M 40 (Matthew 59): Drowsiness with some delirium, then deviation of eyes to left, then right hemiplegia, P.M. xiv. 284, softening chiefly along right fissure of Sylvius, parenchymatous nephritis. F 58 (P.M. xiv. 299): Gangrene left lung with pneumothorax, plugging of left Sylvian artery, softening in its area of distribution.

Cerebral Abscess.—M 13 (P.M. xiv. 266): Old ear-disease, abscess of left temporal sphenoidal lobe, meningitis of base. M 35 (Mark 234): Symptoms pointed to disease of right motor area; was trephined and pus let out, but the abscess had extended very deeply.

Intra-cranial Tumour.—M 38 (Luke 145): In the hospital with ophthalmoplegia last year; post-mortem forbidden. M 40 (Luke 288): Re-admitted early in 1889. The following cases were examined post-mortem:—F 11 (P.M. xiv. 263): Cerebellar glioma spreading to fourth ventricle. M 3 (P.M. xv. 138): Multiple tumours of dura mater, of choroid plexus, &c.; new growth of liver. M 10 (P.M. xiv. 260): Multiple green sarcomata of orbits, dura mater, internal ear, and abdominal organs. M 10 (P.M. xv. 86): Tumour of pons varolii. M 7 (P.M. xv. 18): Tubercular disease in middle lobe of cerebellum. M 31 (P.M. xiv. 291): Symmetrical tumours of both coronæ radiatæ.

Meningitis.—Seven post-mortems; basic meningitis of infancy once; purulent meningitis involving whole convexity (in children) without apparent cause, twice; from ear disease and necrosis of temporal bone once. M 35 (P.M. xiv. 359): Patchy meningitis of convexity, endocarditis, patchy inflammation, and ulceration of intestines; multiple infarcts of kidneys. M 31 (P.M. xv. 176): Purulent meningitis without apparent cause. M 50 (P.M. xiv. 271): Purulent meningitis almost confined to left hemisphere, tubal nephritis.

Otitis.—The two fatal cases had thrombosis of the lateral sinus and pyæmia.

Locomotor Ataxy.—M 10: Neuro-mimetic, not true tabes. M 33 (Mark 140): Had complicated ocular palsies and nystagmus on looking to left. M 45 (Luke 167): Had reflex iridoplegia on one side only. M 48 (Luke 1): Paralysis of upward movement of eyes.

Paraplegia.—Neuro-mimetic in two cases. F 19 (Hope 113): Admitted with absolute paraplegia, motor sensory urinary, of about one day's standing; then delirium, convulsions, death. Post-mortem (P.M. xiv. 366): Phthisis, slight meningitis, but no macroscopic spinal lesion.

Disseminated Sclerosis.—M 27 (Matthew 316, P.M. xv. 178): Symptoms mainly paraplegia, with affection of bladder; numerous islets of sclerosis found post-mortem.

Postero-lateral Sclerosis.—Paraplegia with excessive tendon-reflexes, and some sensory affection of 12 months duration; after admission vomiting, death; spinal lesions manifested after hardening in Müller's fluid. (Faith 19, P.M. xiv. 229).

Acute Ascending Paralysis.—M 33 (Matthew 322, P.M. xv. 201): About a week's duration on admission, incomplete motor and sensory palsy, with absence of tendon-reflexes, spreading upwards; death in five days more; no macroscopic nervous lesion; spleen large and soft. M 29 (Luke 294, P.M. xv. 202): About two weeks on admission; death next day; no macroscopic nervous lesion; heart dilated; double pleural effusion and ascites; inflammation and ulceration of stomach.

Progressive Muscular Atrophy.—M 11 (Luke 291): Hand muscles principally wasted, not facial nor upper arm muscles; no family proclivity.

Peripheral Neuritis.—Post-mortems on four cases; neuritis found microscopically in three instances, in the other the nerves unfortunately were not examined: tubercular phthisis in two of these cases, both alcoholic; mitral disease in a third, probably alcoholic; dilated heart in the fourth, no history of alcoholism. References, P.M. xiv. 226, 273; xv. 107, 22.

Causation.—Alcoholism in eight cases, probable alcoholism in one, gout in one, rheumatism or exposure (i) in two. F 25 (Elizabeth 107): Had increased knee jerks, subsequently delirium tremens. Re-admitted in 1889 with absent knee jerks.

Tetanus.—M 44 (Luke 120): Got drunk April 16th, jaw stiff April 18th, took to bed April 20th; admitted April 25th; typical spasms in hospital; passed a large tape worm. Discharged quite well June 2nd.

Tetany.—F 12 (Hope 92): First at 6 years ago, recurrence yearly, since every October or November.

Choreoid Movements.—F 42 (Mary 194): Spastic diplegia with athetosis. M 44: Post-hemiplegic chorea (Mark 135). M 41 (Luke 290): Choreoid movements, muscular weakness and muscular hypertonicity, failing memory. M 34 (Luke 62A): Choreic movements of sudden onset two days before admission (right arm and leg); similar attack a year ago.

Mania.—The fatal case, F 39 (Elizabeth 139), as follows: Had been suckling for ten months till three weeks before admission; then vomiting, headache, and rigors for three weeks; after admission wandering and delirious; died in three days. Post-mortem (P.M. xiv. 367): Early interstitial nephritis, but no sufficient cause of death found.

APPENDIX TO DISEASES OF CIRCULATORY SYSTEM.

Displacement of Heart.—M 25 (Mark 188): From irregular development of chest.

Mitral Disease.—M 40 (P.M. xv. 35): Mitral valve perforated and pouched; spleen large, but no infarcts; no clinical signs of ulcerative endocarditis. F 32 (Faith 46): Had daily rigors and oscillation of temperature. Post-mortem (P.M. xiv. 250): No ulceration of valves, but embolism of brain and of spleen.

Mitral and Aortic.—F 54: Musical diastolic murmur heard, even into the radial arteries. Post-mortem (P.M. xv. 77): A small tongue of fibrin hung down from the aortic valve; also a small aneurism of mitral.

Ulcerative Endocarditis.—M 26 (Luke 130): History of shiverings twice a day for a month before admission, and in hospital temperature rose twice a day to nearly 105°; spleen large; apex murmur developed; lived about a fortnight. (P.M. xiv. 36): Large vegetation of mitral, and small perforation of the valve; spleen large; no infarcts anywhere. M 21: Ill only 14 days on admission, and lived only 15 in hospital: double apex murmur and then double aortic. Post-mortem: Ulcerated patch in auricle just above valve; large vegetations about aortic orifice (Mark 147, P.M. xv. 19). F 21 (Elizabeth 271): Lived over 6 months in hospital. Post-mortem (P.M. xv. 185): Mitral and tricuspid disease, with extensive infarction of spleen. No rheumatic history in any of these cases.

Pericarditis.—The fatal case, M 12 (P.M. xiv. 319), had granular kidneys.

Thoracic Aneurisms.—Three post-mortems. M 40 (P.M. xv. 55): Aneurism of upper part of arch, pressing on trachæa; small pin-hole opening into trachæa; innominate dilated, and (with right carotid and subclavian) blocked. M 30 (P.M. xiv. 304): Dilatation of arch with aneurism running up into left neck; pin-hole perforation into trachæa. M 63 (P.M. xv. 103): Dilatation of whole arch, but especially of transverse part; complete perforation of manubrium and adjacent cartilages.

Abdominal Aneurism.—M 36 (P.M. xv. 143): Oval opening at back of aorta opposite cæliac axis into large sac; sac reached out and down behind right kidney, and then ruptured; no clotting. F 34 (P.M. xiv. 369): Sac size of cricket ball, almost filled with laminated clot; had ruptured behind right kidney.

APPENDIX TO DISEASES OF RESPIRATORY SYSTEM.

Bronchitis.—M 1½ (Hope 173): Had bronchitis, and with it laryngeal obstruction, for which tracheotomy; recovered, tube removed; then fresh obstruction requiring tracheotomy. Death, and (post-mortem) diphtheritic membrane found, causing the second attack.

Emphysema.—Including most cases of chronic bronchitis.

Pleurisy.—M 53 (Luke 274): Paracentesis September 15th=two pints bloody effusion; dry tap September 29th; death December 4th. (P.M. xv. 183): Old pleurisy and collapse; fibroid change and some tubercle of lungs; granular kidneys.

Pleural Effusion.—F 44: After erysipelas of head; liver was cirrhotic and scarred. M 72 (P.M. xv. 40): Pleural effusion, tubercular pericarditis.

Empyæma.—One case (M 10) a circumscribed empyæma; in four cases the abscess opened itself through the lung.

Pneumothorax.—In three cases due to phthisis; in one to gangrene of the lung, with a history pointing to previous pneumonia; in the non-fatal case the cause was uncertain.

Pneumonia.—Four cases without definite physical signs, probably central or abortive; two headed chronic pneumonia. M 75 (Mark 220): Right pleuro-pneumonia, recovered. Of the fatal cases, empyæma three times; cirrhosis of liver once; malignant disease of ovaries and uterus once; right pneumonia, double pleurisy, and pericarditis once; interstitial nephritis, old cavity in pneumonic lung (P.M. xiv. 324). F 30 (Mary 202): Indefinite symptoms, probably pneumonia and meningitis, in an alcoholic subject; no post-mortem. M 34 (Casualty 37): Had just before admission coma and convulsion with transient right hemiplegia; after admission was violent; he had a blue line on gums; he became quite well for some days, then attacks like hystero-epilepsy, coma, fever, death. Post-mortem (P.M. xv. 122): Nothing found but commencing pneumonia left lung, and œdema of both lungs.

Broncho-pneumonia.—M 12: Admitted as rheumatic fever; had mitral disease, adherent pericardium, meningitis, left pleurisy and right broncho-pneumonia. (P.M. xiv. 331).

Malignant Disease of Lung.—M 38 (Luke 152): Admitted with signs of catarrh only, then dulness left base, then exhaustion; died with attack of right hemiplegia and coma. Post-mortem (P.M. xv. 37): New growth at root of left lung, pneumonia left base; no explanation of cerebral symptoms. M 38 (P.M. xv. 69): Almost all right lung packed with greyish growth, this jutted into right auricle; growths in glands of neck, pancreas, and upon left Poupart's ligament. M 31 (P.M. xiv. 349): Absolute solidification of right lung; the growth extended into pericardium and into superior cava.

Phthisis.—F 35 (Faith 149): Died during administration of chloroform, given for the opening of a gland in the neck. M 37 (John 165): Had gout also. (P.M. xv. 166): Cavities both apices, and much fibroid change.

Dyspnœa.—M 28: Neurotic, following a "fit." M 4 (Mark 102): Had been previously in hospital for same complaint; tracheotomy had been performed, and patient recovered; this time tracheotomy had to be repeated, but patient died; the left vagus nerve was found adherent to an indurated gland in the neck (P.M. xiv. 333).

APPENDIX TO DISEASES OF DIGESTIVE SYSTEM.

Ulcerated Sore Throat.—M 4 (Faith 25) : Admitted with vomiting, sore throat ; fever January 29th ; died February 2nd. A sister had returned from a fever hospital a month previously. Post-mortem : Nothing save ulceration of right side of fauces.

Gangrene of Fauces.—M 2 : Patient's mother was in hospital with acute tonsillitis and slight albuminuria.

Glossitis.—M 41 (Luke 104) : Great swelling of tongue ; foetid sanious and puriform fluid ran from mouth ; two subsequent attacks of gout.

Gastric Ulcer.—Of the five fatal cases—M 34 died with profuse hæmatemesis ; no post-mortem. In the four others there was perforation and peritonitis. F 28. (Martha 225) : Admitted for peritonitis and abortion ; peritoneum opened, but no cause for the peritonitis could be found till the post-mortem. F 58 (P.M. xv. 162) : Had dilated stomach with hour-glass constriction ; two large and several small ulcers. F 73 : Two ulcers ; one had perforated partly into cavity of omentum, partly into adhesions ; there were 28 plum-stones in the stomach.

Duodenal Ulcer.—M 45 (Matthew 199, P.M. xv. 45) : Gastric and duodenal ulcers ; fatal hæmorrhage, intestines full of blood. In the three cases (P.M. xiv. 307, 351, xv. 158) perforation and peritonitis. In the last of these (Luke 255) the abdomen was opened during life, but the cause of the peritonitis could not be found.

Ulceration of Colon.—F 20 (Hope 11, P.M. xiv. 222) : The ulceration was caused by a calcified hydatid ; there were also hydatids of the liver. F 20 (Hope 225, P.M. xv. 155) : "Ulcerative colitis" ; cæcum, rectum, and whole large intestine denuded of mucous membrane, except for small islets looking like polypi.

Cancer of Colon.—F 75 (P.M. xiv. 287) : Of ascending colon, cæcum, and valve. M 35 (P.M. xiv. 228) : Of transverse colon. M 39 (P.M. xiv. 37) : Of ascending colon, with a minute perforation into duodenum.

Cancer of Rectum.—F 33 (P.M. xv. 123) : Cancer of rectum, both ovaries, liver, adrenals, and lumbar glands.

Peritonitis.—One case treated by tapping ; three others by incision. (Mary 128, 169, 186, Luke 240). *Vide* Hospital Reports, vol. xxiv. p. 149. The fatal case (P.M. xv. 146) was acute general peritonitis, 2 months after confinement.

Cancer of Peritoneum.—F 49 (Faith 26) : Had been several times in the ward previously. Post-mortem (P.M. xiv. 237) : New growth of ovaries, peritoneum, intestines, and old tumours of breasts.

Malignant Disease of Liver.—M 38 (P.M. xiv. 259) : Had also old obstruction of the inferior cava. M 48 (P.M. xv. 111) : Melanotic sarcoma of liver, peritoneum, other abdominal organs, and skin. F 40 (P.M. xv. 203) : Old scirrhus of mamma ; characteristic deposits in liver, spleen 20 oz., full of small white nodules. Admitted for metrorrhagia ; symptoms during life pointed to leucæmia.

Abscess of Liver.—M 35 (Mark 10. P.M. xiv. 221) : Never out of England ; no history pointing to dysentery ; signs during life left it uncertain whether the pus was above or below the diaphragm ; aspiration and then incision in 8th right interspace let out pus. Post-mortem, dysentery was found and a large hepatic abscess ; no pleurisy where the pus had been let out.

Hydatids of Liver.—M 39 (Mark 231. P.M. xv. 127) : Jaundice and abdominal swelling over a year ; large firm irregular hepatic swelling which diminished while

in hospital; arthritis of knees and ankles; two large hydatids, and around one a thick firm fibrous wall in which the main hepatic duct was embedded. F 17 (P.M. xiv. 300, Elizabeth 81): Hydatid of liver with lardaceous kidneys.

Acute Yellow Atrophy.—F 11 (Faith 136, P.M. xiv. 368): Total duration 2 to 3 weeks; vomiting, then jaundice; liver and spleen felt upon admission; measly rash on legs and buttocks; then delirium, epileptoid attacks, fever, coma.

Cancer of Bile-ducts.—F 55 (Elizabeth 41, P.M. xiv. 247): Bright jaundice 3 months; no tumour felt; general health fair; finally rigors, death; new growth of mucous membrane of common duct, gall stones.

Gall Stones.—The fatal case (F 45) in a very destitute woman; there was thickening (? cancerous) of the gall bladder (P.M. xiv. 241).

Cancer of Pancreas.—F 46 (P.M. xv. 114): Deposits also in liver, and in lungs (?). F 39 (P.M. xv. 39): Confined 3 or 4 weeks before her death; subinvolution of uterus and adherent placenta; cancer of liver. M. 54 (P.M. xiv. 286): Cancer of liver also; obstruction (α) of cystic (β) of common bile-duct. M 62 (P.M. xv. 200): Cancer of middle and tail end of pancreas; pressing upon and almost perforating cardiac end of stomach; dilatation of oesophagus from this cause; abscess at hilus of spleen; infarcts of spleen; cirrhosis of liver; clinical symptoms mostly oesophageal (Luke 295).

Vomiting.—M 45 (Luke 136): Knee jerks slight or absent; miosis and reflex iridoplegia; ? early tabes dorsalis.

Hæmatemesis.—M 27 (Mark 72, P.M. xiv. 297): Admitted for profuse hæmatemesis, which subsided, but died next day. Post-mortem: Old and recent peritonitis, enlarged liver, shrunken brain, some dilatation of heart; history of alcoholism.

Fæcal Impaction.—M 28 (Mark 148, P.M. xv. 13): Fatal. Post-mortem: The whole large intestine was stuffed with clayey stools, but no organic obstruction could be found.

Intestinal Obstruction.—M 3 (P.M. xv. 148): Strangulation by a fibrous cord, which started from the intestinal wall close to a Meckel's diverticulum, and accompanied it to the umbilicus. F 29 (Elizabeth 257): Partial obstruction; left inguinal colotomy; death. No post-mortem.

Psoas abscess.—M 56 (Luke 131, P.M. xiv. 364): Apparently in connection with old mischief about the vermiform appendix. F 70 (Faith 50, P.M. xiv.): Admitted for sciatica; a hard irregular mass was discovered lying near the brim of the pelvis on the corresponding side; this proved, post-mortem, to be an abscess.

APPENDIX TO DISEASES OF THE URINARY SYSTEM.

Acute Nephritis.—M 4 (Elizabeth 76) : Died after nearly 4 months in hospital ; large white kidneys post-mortem.

Chronic Nephritis.—Nine cases examined post-mortem ; large white kidneys in five ; contracting white kidneys in four. Enlargement of the heart in three of the latter class, and in one of the former class. References : P.M. xiv. 213, 232, 264, xv. 64, 106, and (for the contracting white) P.M. xv. 118, 137, 149, 184 ; death from pericarditis in one of the latter class.

Granular Kidney.—M 33 (John 152, P.M. xv. 144) : Five days before had a sudden loss of power right face and right arm, but no local cerebral lesion, post-mortem. Pericarditis in two of the fatal cases.

Albuminuria.—Four times in connection with pregnancy.

Renal Calculus.—F 38 (Martha 95) : Death after nephro-lithotomy.

Malignant Disease of Kidney.—M 46 (P.M. xv. 89) : Left kidney, lungs, and pancreas affected.

Movable Kidney.—F 62 (Hope 240) : Bilateral.

Hæmoglobinuria.—F 27 (Faith 53) : Second attack ; jaundiced on both occasions. No history of ague nor syphilis.

Diabetes Mellitus.—Of the fatal cases—coma in six cases, phthisis in two. The two phthisical cases were—M 39 (Mark 230, P.M. xv. 124) : A large sloughing cavity, symmetrically placed in either lung with some tubercle in the neighbourhood. M 47 (Mark 31, P.M. xiv. 245) : Phthisis, leading to pneumothorax. The remaining fatal case. F 57 (Martha 23, P.M. xiv. 233), died from thrombosis of the right middle cerebral artery.

TABLE I. (continued).

DISEASE.	Total.		Under 5.		— 10.		— 15.		— 20.		— 30.		— 40.		— 50.		— 60.		Over 60.		
	M.	F.	Died.	Died.		Died.		Died.		Died.		Died.		Died.		Died.		Died.		Died.	
				Discharged.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
DISEASES OF THE FEMALE GENERATIVE SYSTEM (continued).																					
Hypertrophy of Cervix	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Uterine Fibroid	36	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Uterine Polypus	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Mole	2	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cancer of Uterus	9	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Uterine Tumour	3	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Hæmatokolpos	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Prolapsus Uteri	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Congestion of Uterus	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Metritis	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Oophoritis	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Oophorectomy	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Ovarian Tumour	8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Parametritis	23	..	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Perimetritis	11	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Pelvic Hæmatocele	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Abdominal Tumour	13	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Pelvic Tumour	9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total	184	..	15	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

APPENDIX TO DISEASES OF THE FEMALE GENERATIVE SYSTEM.

Cancer of Cervix.—The three fatal cases as follows :—F 36 (Martha 77, P.M. xiv. 290) : Had peritonitis after cauterisation of the growth. F 23 (Martha 23, P.M. xiv. 275) : Had nephritis secondary to retention of urine, the retention having been caused apparently by the pressure of the enlarged cervix. F 44 (Martha 19) : Had secondary hæmorrhage after amputation.

Uterine Fibroid.—Electrolysis in eight cases, in some cases repeated frequently ; of the two fatal cases, F 31 had had the fibroid enucleated (Martha 2). F 36 (Martha 113) had septic peritonitis after operation.

Mole.—F 33 (Martha 53, P.M. xiv. 302) : Died of pyæmia after removal.

Uterine Tumour.—F 49 (Hope 108, P.M. xiv. 362) : Died with thrombosis of the pulmonary arteries.

Ovarian Tumour.—F 40 and F 49 died after operation. F 47 (Martha 53, P.M. xiv. 309) : Malignant disease of ovaries and peritoneum. F 57 (Martha 215, P.M. xv. 142) : Malignant disease of left ovary, which contained a large cyst ; malignant disease of peritoneum, omentum, pleuræ, lung, and liver. F 52 (Martha 107, P.M. xv. 5) : A huge ovarian cyst containing over a gallon of fluid ; it pressed on the right ureter ; the uterus was fixed to the posterior wall of it, and drawn out into a long thin tube.

Parametritis.—F 22 (Martha 101, P.M. xv. 11) : Abscess on left side of pelvis ; abscess in right ovary ; fatty liver and kidneys.

APPENDIX TO DISEASES CONNECTED WITH PREGNANCY.

Puerperal Eclampsia.—F 20 (Martha 226, P.M. xv. 186): Kidneys diseased, fatty or tubal nephritis.

Peritonitis.—F 23 (Martha 78, P.M. xiv. 329): Got up on ninth day; some pain on walking; 3 weeks after confinement walked for an hour; pain and first rigor the next night. Post-mortem, peritonitis, fatty kidneys.

Ruptured Perinæum.—F 44, a publican (Martha 63), died of pyæmia after operation.

APPENDIX TO TABLE OF POISONS.

Alcoholism.—About four cases had delirium tremens and died with pneumonia. They are tabulated under that heading.

Lead.—F 27 (Hope 155): Worker in white lead; symptoms almost entirely cerebral; had double optic neuritis, followed by atrophy.

Nitric Acid.—F 21 (Elizabeth 204): Fuming acid, taken during temporary insanity; great dyspnoea, requiring tracheotomy; died.

Sulphuric Acid.—M 38 (Luke 173, P.M. xv. 46): Much charring of stomach; mucous membrane of œsophagus grey and hard; trachæa inflamed.

Ammonia.—M 23 (Mark 139, P.M. xv. 26): $\frac{3}{4}$ of strong ammonia taken suicidally; mucous membrane of œsophagus and stomach peeling off; upper intestine much bile-stained; lower ileum collapsed; large intestine full of tarry fæces.

Zinc Chloride.—M 32 (Mark 74, P.M. xiv. 308): Took a mixture of zinc chloride and free hydrochloric acid; lived over 3 weeks; died with vomiting and emaciation. Post-mortem: Several ulcers of stomach, stricture and thickening of pyloric end.

Laudanum.—M 46 (Luke 251, P.M. xv. 152): "A shilling's worth of laudanum" taken suicidally; no lesion found post-mortem except fulness of the meningeal veins.

Morphinism.—Morphia habit combined with cocaine habit (Matthew 259).

ABSTRACT OF TABLE I.

DISEASES.	Total Number of Cases completed during the Year 1888.	Number of Cases discharged.		Deaths.		Remaining in the Hospital at the end of the year 1888.
		M.	F.	M.	F.	
GENERAL DISEASES, A	294	120	99	33	42	
Do. B	342	145	174	14	9	
LOCAL DISEASES—						
Diseases of the Nervous System	309	135	104	41	29	
" Circulatory System	212	94	55	34	29	
" Respiratory System	446	210	120	90	27	
" Digestive System	333	129	131	44	29	
" Urinary System	153	53	49	39	12	
" Female Generative System	184	...	169	...	15	
Diseases connected with Pregnancy	36	...	33	...	3	
Diseases of the Cutaneous System	17	4	12	...	1	
CONDITIONS NOT NECESSARILY ASSOCIATED WITH LOCAL OR GENERAL DISEASE—						
POISONS	55	41	9	4	1	
	2,381	931	955	299	197	198
		1,886		496		
		2,382				

SURGICAL REPORT.

TABLE I. (continued).

DISEASE.	Total.		Discharged.		Died.		Under 5.		— 10.		— 15.		— 20.		— 30.		— 40.		— 50.		— 60.		Over 60.		
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
	Discharged.	Died.	Discharged.	Died.	Discharged.	Died.	Discharged.	Died.	Discharged.	Died.	Discharged.	Died.	Discharged.	Died.	Discharged.	Died.	Discharged.	Died.	Discharged.	Died.	Discharged.	Died.	Discharged.	Died.	
TUMOURS (continued).																									
Cysts—																									
Blood Cyst—																									
Ankle ...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Breast ...	5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Coccygeal ...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dentigerous—																									
Jaws ...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dermoid—																									
Eye-brow ...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Floor of Mouth ...	3	2	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Forehead ...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Naso-Frontal ...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Neck ...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Hygroma—																									
Neck ...	2	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mucous—																									
Cheek ...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Periosteal—																									
Jaw ...	2	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Sebaceous...	27	16	11	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Serous—																									
Axilla ...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cheek ...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Neck ...	3	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Recto-Vesical Space ...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Thyroid ...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

TABLE I. (continued).

DISEASE.	Total.		Under 5.		— 10.		— 15.		— 20.		— 30.		— 40.		— 50.		— 60.		Over 60.		
	M.	F.	Died.	Discharged.		Died.	Discharged.		Died.	Discharged.		Died.	Discharged.		Died.	Discharged.		Died.	Discharged.		Died.
				M.	F.		M.	F.		M.	F.		M.	F.		M.	F.		M.	F.	
TUMOURS (continued).																					
Fibroma (continued)—																					
Scalp	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Skin (Painful Subcutaneous Tumour)	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Thigh	4	1	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Fibro-enchondroma—																					
Knee	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Fibro-Myxoma—																					
Inguinal Canal	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Fibro-Myoma—																					
Uterus	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Lipoma	18	3	15	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Lymphoma—																					
Abdomen	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Arilla	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Neck	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Nævus	6	3	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Painful Subcutaneous Tubercle—																					
Leg	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Phantom Tumour—																					
Abdomen	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Papilloma—																					
Anus	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Arm	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

TABLE I. (continued).

DISEASE.	Total.		Under 5.		— 10.		— 15.		— 20.		— 30.		— 40.		— 50.		— 60.		Over 60.	
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
MALFORMATIONS AND DEFORMITIES (continued).																				
Genu Valgum	9	4	1	...	3	...	1	...	5	1	...	...	...	...	...	1	...	...	...	...
Hallux Valgus and Flexus.	5	4	1	...	...	...	...	...	3	...	1	...	...	...	...	...	...	...	...	...
Hammer Toe	12	9	3	...	...	...	...	...	5	2	...	1	...	2	...	1	...	...	...	...
Supernumerary Toe	2	2	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...
Imperforate Anus	4	1	2	1	1	2	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Spinal Lateral Curvature	3	...	3	...	...	...	...	...	3	...	...	...	...	...	...	...	...	...	...	...
Spina Bifida	1	...	1	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...
Talipes—																				
<i>Cavus</i>	3	3	...	...	...	...	...	...	2	...	...	...	...	1	...	...	...	...	...	...
<i>Equinus</i>	10	7	3	...	...	...	...	...	4	...	1	...	1	...	2	1	...	...	...	...
<i>Equino-Varus</i>	10	7	3	...	4	...	...	...	3	...	1	...	...	...	...	...	...	...	...	...
<i>Planus</i>	3	3	...	...	...	...	...	...	3	...	...	...	...	...	...	...	...	...	...	...
<i>Varus</i>	1	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...
<i>Valgus</i>	1	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Wry Neck	5	2	...	3	1	...	2	1	...	1	...	...	...	...	...	...	...	...	...	...
DISEASES OF THE EYE.																				
Conjunctiva—																				
<i>Conjunctivitis</i>	28	16	12	...	...	...	...	...	1	1	...	2	1	...	5	1	...	2	3	...
<i>Episcleritis</i>	3	3	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	2	...	...
<i>Trachoma</i>	2	1	1	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...
<i>Lippitudo</i>	1	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...
Cornea—																				
<i>Keratitis</i>	37	17	20	...	2	2	...	...	...	3	...	5	6	...	3	...	2	1	...	3
<i>Interstitial Keratitis</i>	5	2	3	...	1	...	...	...	1	...	1	...	...	1	...	...	...	...	...	1

TABLE I. (continued).

DISEASE.	Total.		Under 5.		— 10.		— 15.		— 20.		— 30.		— 40.		— 50.		— 60.				
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.				
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.			
DISEASES OF THE EYE																					
<i>(continued)</i> .																					
Cornea <i>(continued)</i> —																					
Opacities ...	4	2	...	...	1	2	...	...	1	...	...	...	...	...	...	...	...	...
Phlyctenule ...	3	1	...	...	1	2	...	...	...	...	...	...	...	...	...	...	...	...
Ulcers ...	20	10	...	...	3	2	...	...	1	1	...	...	2	2	...	...	1	...
Staphylococci ...	9	7	...	...	2	1	...	...	1	1	...	...	1	...	...	...	...	...
Iris—																					
Iritis ...	16	12	...	...	...	...	...	...	1	1	...	2	2	3	1	...	3	...
Hypopyon ...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Lens—																					
Cataract—																					
Hard ...	54	32	1	4	...	1	2	4	2	...	10	5	16	7		
Soft ...	8	4	1	3	1		
Traumatic ...	7	7	1	...	2	2	...	1		
Opaque Capsule ...	21	9	1	4	...	4	...	3	1	1	...	1	...	1	1	2	2	
Aphakia ...	11	7	1	...	2	1	...	1	...	1	3	1	
Dislocation of Lens ...	5	5	1	...	1	2	
Retina, Optic Nerve, and Vitreous Humor—																					
Optic Neuritis ...	2	1	1	...	1	
Optic Atrophy, Amaurosis ...	8	5	2	...	1	2	
Choroid—																					
Chorioiditis ...	5	4	1	...	1	...	1	1	1	

DISEASE.	Total.		Under 5.		— 10.		— 15.		— 20.		— 30.		— 40.		— 50.		Over 60.	
	M.	F.	Discharged.	Died.	Discharged.	Died.	Discharged.	Died.	Discharged.	Died.	Discharged.	Died.	Discharged.	Died.	Discharged.	Died.	Discharged.	Died.
DISEASES OF THE GENITO-URINARY ORGANS (cont.)																		
Vagina—																		
<i>Noma Vulvae</i> ...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
<i>Perineum Injured</i> ...	6	...	6	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...
Urine and Urination—																		
<i>Hæmaturia</i> ...	12	...	12	...	2	...	2	...	1	...	1	...	1	...	1	...	2	...
<i>Incontinence</i> ...	12	...	12	...	1	...	2	...	1	...	3	...	1	...	1	...	3	...
<i>Retention</i> ...	1	...	1	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...
Breast—																		
<i>Chronic Mastitis</i> ...	3	...	3	...	...	...	...	...	...	...	1	...	1	...	1	...	...	...
<i>Eczema of Nipple</i> ...	1	...	1	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...
DISEASES OF THE ORGANS OF LOCOMOTION.																		
Bone: Diseases of—																		
Abscess—																		
<i>Tibia</i> ...	5	...	5	...	...	...	...	...	...	...	1	...	1	...	1	...	...	...
Caries—																		
<i>Femur</i> ...	1	...	1	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...
<i>Fibula</i> ...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
<i>Jaw</i> ...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
<i>Metatarsus</i> ...	1	...	1	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...
<i>Os Calcis</i> ...	4	...	4	...	2	...	2	...	1	...	1	...	1	...	1	...	...	...
<i>Radius</i> ...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
<i>Ribs</i> ...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
<i>Spine</i> ...	18	...	18	...	3	...	3	...	4	...	5	...	3	...	1	...	1	...

TABLE I. (continued).

DISEASE.	Total.		Under 5.		— 10.		— 15.		— 20.		— 30.		— 40.		— 50.		— 60.		Over 60.		
	M.	F.	Discharged.	Died.	Discharged.	Died.	Discharged.	Died.	Discharged.	Died.	Discharged.	Died.	Discharged.	Died.	Discharged.	Died.	Discharged.	Died.	Discharged.	Died.	
DISEASES OF THE ORGANS OF LOCOMOTION (cont.)																					
Bone: Diseases of (cont.)—																					
Caries (continued)—																					
Sternum	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tarsus	7	1	...	...	3	...	1	1	...	...	...	...	2	...	...	...	...	...	...	...	...
Tibia	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ulna (Olecranon)	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Necrosis—																					
Coccyx	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Facial Bones	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Femur	10	2	...	...	1	...	5	...	1	1	2	...	...	...	...	...	...	...	...	...	...
Fibula	2	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Humerus	6	3	...	...	...	...	...	2	1	1	...	...	1	...	...	...	...	...	...	...	...
Jaws	19	9	...	...	...	...	...	1	4	3	1	1	3	1	1	2	...	...	...	...	...
Malar Bone	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mastoid	8	5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Metacarpus	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Metatarsus	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Nasal Bones	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Os Calcis	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Petrils	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Phalanges	9	5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Rib	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Skull	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tarsus	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

TABLE I. (continued).

DISEASE.	Total.		Under 5.		— 10.		— 15.		— 20.		— 30.		— 40.		— 50.		Over 60.	
	M.	F.	Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.	
			M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
DISEASES OF THE ORGANS OF LOCOMOTION (cont.)																		
Joints—																		
Anchylosis—																		
Ankle	1	1	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...
Elbow	4	1	...	...	1	1	2	...	...	...	...	...	...	...	...	...	...	...
Finger	4	2	...	...	...	...	1	...	2	...	...	1	...	1	...	...	...	...
Hip	3	2	...	...	...	...	1	...	1	...	...	1	...	1	...	...	...	...
Jaw	1	1	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...
Knee	10	5	...	...	2	2	...	1	1	...	1	2	...	1	1	...	...	...
Shoulder	8	6	...	...	...	...	...	...	...	...	2	1	...	2	...	...	...	2
Wrist	1	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...
Charcot's Disease—																		
Knee	3	3	...	...	...	...	...	...	...	...	...	...	...	3	...	...	...	...
Deformity of Articulation of Jaw	1	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Hysterical Disease—																		
Hip	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Knee	3	1	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...
Internal Derangement—																		
Knee	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Gonorrhoeal Arthritis—																		
Elbow	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Knee	2	2	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...

TABLE I. (continued).

INJURY.	Total.		Under 5.		— 10.		— 15.		— 20.		— 30.		— 40.		— 50.		Over 60.	
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged et.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
INJURIES OF THE ABDOMEN.																		
Contusions ...	14	1	1	...	...	...	3	...	2	1	...	4	...	3	...	1	...	...
Wounds ...	2	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...
Punctured Wound of Intestine ...	1	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...
Rupture of Colon ...	1	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...
INJURIES TO THORAX.																		
Contusions ...	2	...	...	...	...	...	...	...	1	...	1	...	1	...	...	...	...	...
Wounds ...	7	...	...	...	...	...	...	...	2	...	3	...	1	...	1	...	1	...
Fracture— <i>Ribs</i> —																		
(Without Injury to Viscera) ...	12	3	2	1	...	...	...	...	...	...	1	...	1	1	1	1	1	1
(With Injury to Viscera) ...	9	3	6	...	...	...	1	...	...	...	...	...	1	3	1	...	...	2
Traumatic Pneumothorax ...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
INJURIES OF THE NECK.																		
Contusions ...	2	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...
Concussion of Spinal Cord.	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Wounds ...	7	2	3	...	...	...	...	...	...	...	...	...	1	1	2	1	...	1
Spine— (Fracture-Dislocation)—																		
<i>Carried</i> ...	4	...	2	2	...	...	...	...	...	...	...	...	...	...	...	1	1	2

TABLE I. (continued).

INJURY.	Total.		Died.		Under 5.		— 10.		— 15.		— 20.		— 30.		— 40.		— 50.		— 60.		Over 60.		
	M.	F.	M.	F.	Discharged.		Discharged.		Discharged.		Discharged.		Discharged.		Discharged.		Discharged.		Discharged.		Discharged.		
					M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
INJURIES OF THE LOWER EXTREMITY.																							
Contusions ...	12	7	...	...	...	...	1	...	...	...	...	...	...	...	1	2	1	1	2	2	1	1	6
Wounds ...	32	24	1	...	2	2	2	2	1	1	5	1	...	...	3	2	4	1	4	4	...	...	...
Wounds (Popliteal Artery and Vein) ...	1	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Wounds (Knee-Joint)	4	3	1	...	...	...	...	...	1	...	1	...	...	...	1	2	...	...	...	...	...	...	...
Sprain—																							
Ankle ...	6	4	...	2	...	...	...	...	...	...	1	...	2	1	1	1	...	...	...	...	...	...	1
Lig. Patella Ruptured ...	3	3	...	...	...	...	...	...	...	...	...	...	1	1	1	1	...	...	...	...	...	...	...
Fractures—																							
(Simple)—																							
Femur—																							
(Ectracapsular)	3	2	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	1
(Intracapsular)	14	5	7	1	1	1	1	1	1	1	2	1	3	1	7	1	3	1	3	1	2	1	1
(Shaft)	52	38	13	...	1	1	17	1	3	3	2	1	3	1	4	2	8	1	5	1	5	4	1
Patella ...	34	23	11	...	2	1	6	1	3	3	3	3	8	1	6	3	20	1	2	2	2	2	5
Tibia and Fibula	73	56	17	...	2	1	5	1	5	1	5	1	8	1	11	1	4	3	4	3	2	2	1
Tibia ...	43	34	9	...	2	1	3	1	3	1	3	1	4	1	8	1	6	1	6	1	4	1	1
Fibula ...	22	20	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
Potts'	33	26	7	...	...	...	...	...	...	...	1	1	1	1	2	2	9	2	9	3	3	1	2
Astragalus	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Os Calcis	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(Compound)—																							
Humer ...	1	1	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...
Femur (Lower End, into Knee-Joint) ...	2	2	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...

ABSTRACT OF TABLE I.,

With Average Duration of Surgical Patients in the Hospital.

Discharged, Cured or Relieved	...	...	...	...	...	...	...	...	...	{ M. — 2,371 { F. — 1,464
Died	...	...	...	...	...	...	...	...	...	{ M. — 131 { F. — 69
Remaining in at the end of year 1888*	...	...	...	...	...	...	...	...	...	{ M. — 192 { F. — 125
Average stay of Men	...	...	...	...	...	...	...	...	...	24.5 days.
„ Women	...	...	...	...	...	...	...	...	...	27.1 „

* These cases are not included in Table I.

APPENDIX TO TABLE I.

GENERAL DISEASES.

Tetanus.

The patient mentioned in the Table died of acute tetanus the day after her admission. The disease resulted from a slight injury to the leg.

Gangrene.

One patient, a woman, aged 59, had well-marked diabetes, in addition to gangrene of the foot.

DISEASES OF THE NERVOUS SYSTEM.

One patient, with tabes dorsalis, was admitted to the surgical wards on account of a perforating ulcer of the foot, and another for Charcot's disease of the tarsal joint.

DISEASES OF THE VASCULAR SYSTEM.

A woman, aged 37, was admitted with dry gangrene of the left foot, resulting from the lodgment of an embolus in the common femoral artery.

In another woman, aged 23, a similar embolism did not result in gangrene.

DISEASES OF THE DIGESTIVE SYSTEM.

The patient with aptyalism was a young woman of 23, in whom there was not only deficient secretion of saliva, but also of nasal and lacrymal secretions. She improved slightly under treatment (see Trans. of Clinical Soc.)

The boy of 12 who died from ulceration of the pharynx had swallowed a pen nib shortly before admission. The foreign body had perforated the posterior wall of the pharynx, and after three weeks the patient died of suppuration, extending along the front of the bodies of the vertebræ as far as the mid-dorsal region.

A woman, aged 48, died of extensive syphilitic ulceration of the tongue and pharynx.

A child, aged 4, died from ulceration of the œsophagus, resulting from the impaction of a marble just above the cardiac extremity of the tube.

The lumbar hernia mentioned in the Table occurred in a woman, aged 26, in the site of a previous nephrectomy incision.

In the case of ulceration of the colon the bowels was the seat of numerous small mucous diverticula, and the ulceration apparently resulted from fæcal impaction in one of these.

DISEASES OF THE CUTANEOUS SYSTEM.

The case of facial carbuncle was one of extreme severity, the patient being in a most exhausted condition on admission. The chief local treatment consisted in the application of ice.

The cases of malignant pustule occurred in lads of 15 and 22 years of age, the lower lip and the neck being the affected localities. Each case was treated by free excision, and the patients made rapid recoveries. The lad aged 15 was almost in a moribund state on admission.

The case of phagedænic ulceration occurred in a child aged 15 months, the larger part of the skin of the chest being involved. The patient died the day after admission.

INJURIES OF THE HEAD AND FACE.

Bullet Wounds.

In one case a man, aged 37, discharged a pistol into his mouth without seriously injuring himself; in the other a man shot himself through the brain and died a few hours after admission.

Wounds of the Tongue.

A man, aged 43, was stabbed in the left cheek, the knife penetrating and wounding the tongue. Hæmorrhage was at first arrested by pressure, but as it recurred several times the left lingual artery was ligatured. Bleeding again recurred and the patient died. A post-mortem examination showed that the knife had passed completely through the tongue, and had wounded the right lingual far back, near the floor of the mouth.

INJURIES OF THE ABDOMEN.

A butcher, aged 39, was stabbed in the left loin, and as it was evident that the wound had penetrated into the abdominal cavity it was enlarged, and an incised wound in the colon discovered and sutured. Three days later the patient died of acute peritonitis, and a post-mortem examination showed that a coil of small intestine also had been wounded and that there was some faecal extravasation.

INJURIES OF THE THORAX.

A child, aged 9, was admitted suffering from dyspnoea after a severe contusion of the chest. No fracture of the ribs could be detected, but the typical signs of pneumothorax soon developed. The patient made a good recovery without surgical interference. There were no other signs of an injury to the lung.

TABLE II. (continued).

OPERATIONS.	AGE AND SEX.																								
	Total.		Discharged		Died.		Under 5 Years.		— 10.		— 20.		— 30.		— 40.		— 50.		— 60.		— 70.		Over 70.		
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
MISCELLANEOUS OPERATIONS (continued).																									
Removal of Malignant Pustule	1	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Lip ...	1	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Neck ...	2	4	2	4	...	...	...	...	...	1	2	1	2	...	...	...	...	...	...	...	...	...	...	...	...
Removal of Strumous Glands.	4	4	4	4	...	...	...	...	...	3	3	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Nose—																									
Operation for Septum Deviated ...	2	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Removal of Tumours with Caustics ...	2	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
OPERATIONS FOR HERNIA.																									
Herniotomy for Strangulated Hernia—	2	16	1	12	1	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Femoral ...	10	3	4	3	6	1	...	...	...	1	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Inguinal ...	...	3	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Umbilical ...	2	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Operation for Radical Cure of Reducible Hernia ...	2	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Operation for Radical Cure of Irreducible Hernia...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
COLOTOMY.																									
Inguinal—	7	10	7	6	...	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
For Carcinoma ...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
For Imperforate Anus ...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
For Entero-Vesical Fistula	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Lumbar—																									
For Carcinoma ...	1	1	1	1	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

STATISTICS OF ANÆSTHETICS.

During the year 1888 Anæsthetics were administered 3,788 times.

Chloroform	...	...	...	...	...	...	1,711 times.
Ether	...	...	...	...	...	...	1,003 „
Gas	...	...	...	...	...	...	723 „
Gas and Ether	...	...	...	...	...	...	349 „
Ether followed by Chloroform	...	...	...	...	...	...	2 „
							3,788
							3,788

One death occurred during administration of Chloroform.

APPENDIX TO TABLE II.

PLASTIC OPERATIONS.

A boy of 14 was operated upon for deformity of the ear, which occurred in connection with a congenital tumour of the neck and deficiency in the bones of the skull. The ear had become displaced downwards so that it was on a much lower level than its fellow. The operation consisted in removing a portion of the scalp above, and suturing the ear to the freshly cut surface.

A child, aged 5, was operated upon by Trendelenberg's method for the cure of ectopia vesicæ. The operation was followed by much suppuration, and the patient died a few days after her removal from the hospital.

A woman, aged 44, died of pyæmia after an operation for ruptured perineum. No post-mortem examination was allowed.

EXCISIONS.

The whole of the patients operated upon for the excisions of bones and joints recovered, with the exception of a woman of 54 who died of bronchitis four months after excision of the superior maxilla.

The scapula was excised in two cases, in one for recurrent chondrosarcoma in a man aged 31, and in another man of the same age for sarcoma recurrent after amputation at the shoulder joint for periosteal growth of the humerus.

OPERATIONS ON BONES.

All the patients suffering from disease of the bones recovered, with the exception of a lad, aged 17, who died of pyæmia after osteotomy of the femur for knock knee, the operation being followed by suppuration, which extended into the knee joint.

Of the patients operated upon for injuries, a man, aged 58, died from laceration of his brain; a boy, aged 9, from profuse meningeal hæmorrhage.

A man, aged 38, was operated upon for a cerebral abscess which was successfully evacuated, although the patient died several days later from abscesses in other parts of the cerebrum.

AMPUTATIONS FOR INJURY.

Primary.

Only one patient died, namely, a man, aged 52, who had sustained a severe compound fracture of the leg by falling beneath a railway train. He had lost much blood before admission, and died of shock a few hours after amputation.

Secondary.

The one patient who died was a man, aged 22, who was admitted for a lacerated wound of the knee joint. The knee suppurated, and septicæmia set in. Amputation was then performed, but the patient died on the sixteenth day after admission.

AMPUTATIONS FOR DISEASE.

In the case of amputation at the shoulder joint, the scapula was subsequently successfully excised.

In the case of amputation at the hip joint, the common femoral artery was first tied and lateral skin flaps were cut. Eight months later the patient was in good health, without any evidence of recurrence.

Of all the patients operated upon only two died from the operation itself: one, a man of 42, of exhaustion, from suppuration following amputation of the leg in the upper third; the other a feeble woman of 65, who died from a similar cause, after removal of the thigh in the lower third for disease of the knee joint.

In addition to these, a child, aged 13, died of secondary growths in the viscera three months and a-half after amputation of the thigh for a periosteal sarcoma of the femur, the stump having been soundly healed for nearly three months.

OPERATIONS ON THE BREAST.

A woman, aged 46, died of erysipelas after amputation of the breast for carcinoma.

Of four women who died after removal of the axillary glands as well as amputation of the breast, one succumbed in thirty-six hours from shock, one died of cellulitis of the chest wall and axilla, one died of pleurisy, and one of mania, apparently due to iodoform poisoning.

REMOVAL OF TUMOURS.

An epithelioma of the bladder was successfully removed by incision through the vagina.

OPERATIONS ON THE TONGUE.

A man, aged 68, died of septic broncho-pneumonia after removal of the tongue complicated by splitting of the lower jaw.

Another patient, aged 65, died of delirium tremens after removal of the lateral half of the tongue with scissors.

OPERATIONS ON VASCULAR SYSTEM.

The superficial femoral artery was ligatured in Scarpa's triangle in a man aged 33, who had an aneurysm in Hunter's canal.

The popliteal artery and vein were successfully ligatured for a punctured wound of these vessels. The case is recorded in the *Lancet*.

OPERATIONS ON THE GENITO-URINARY ORGANS.

A man, aged 20, died after incision of a cystic kidney, and a post-mortem examination showed that the other kidney was similarly diseased.

A woman, aged 42, died of cystitis and sloughing, followed by pyæmia, after lithotripsy performed for a large vesical calculus.

Two suprapubic lithotomies performed on children did well, but the wounds did not heal by first intention in either case.

A man, aged 68, died six weeks after suprapubic opening of the bladder and removal of part of an enlarged middle lobe of the prostate.

OPERATIONS ON THE RECTUM AND ANUS.

A woman, aged 41, died of erysipelas after an operation on an anal fistula.

A man, aged 49, died of collapse after secondary hæmorrhage following on the operation of ligature of hæmorrhoids.

OPERATIONS FOR HERNIA.

Of five patients who died after herniotomy for strangulated femoral hernia, the cause of death in four was perforation of the intestine at the seat of stricture after its return into the abdomen. The fifth patient died of exhaustion 36 hours after operation.

Of those operated upon for strangulated inguinal hernia, six died. In two of these the gut was already gangrenous at the time of admission. In another, strangulation had existed for six days. The other three patients died of exhaustion.

COLOTOMY.

Of ten cases of inguinal colotomy in women, four died. Two of these were suffering from intestinal obstruction, and one from cancerous growths in the liver. All of them had carcinoma of the rectum.

In one case the operation was performed for a fistulous communication between the bladder and rectum, due to the extension of a cancerous growth.

One man operated upon by lumbar colotomy died of peritonitis due to ulceration of a greatly distended colon, which gave way into the peritoneum.

ABDOMINAL SECTION.

In two cases in which this operation was performed for acute peritonitis a post-mortem examination showed that the cause of the peritonitis was a perforating gastric ulcer.

In another case, a man, aged 42, the cause of the peritonitis was a perforating duodenal ulcer.

A woman, aged 51, was operated upon for a tumour the size of an orange, just above the umbilicus. It was found to be caused by matting of the intestine and omentum around an ulcer in the duodenum.

SUB-TABLE, SHOWING THE NUMBER OF CASES OF ERYSIPELAS, PYÆMIA, &c.

DISEASES.	Under 5.		5-10.		10-20.		20-30.		30-40.		40-50.		50-60.		60-70.		70-80.		TOTAL.		Deaths.			
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.		
	CUTANEOUS ERYSIPELAS—																							
Admissions	5	1	5	4	2	7	10	4	5	5	7	3	2	2	1	2	65
Occurring in Hospital	...	2	1	2	5	1	2	1	1	1	2	18
Occurring after operation	2	...	1	...	1	...	1	...	1	...	1	2	1	11
PHLEGMONOUS ERYSIPELAS AND CELLULITIS—																								
Admissions	2	3	2	1	13	2	12	5	5	4	12	4	5	4	5	2	5	...	86
Occurring in Hospital	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	2	...	...	...	...	...
Occurring after operation	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...
PYÆMIA AND SEPTICÆMIA—																								
Admissions	1	...	1	...	...	...	1	...	1	...	...	...	...	...	...	...	...	4	...	...	...	...	...
Occurring in Hospital	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	2	...	...	...	...	...
Occurring after operation	...	...	...	...	1	...	...	...	...	...	...	2	...	...	...	...	...	3	...	...	...	...	...
DELIRIUM TREMENS—																								
Admissions	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	2	...	...	...	...	...
Deaths	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...

APPENDIX TO SUB-TABLE OF CASES OF ERYSIPELAS, &c.

ERYSIPELAS.

Admissions.

The apparent discrepancy between the number of cases in this and in the first Table is due to the fact that some cases were admitted with erysipelas complicating some other disease or injury, and that such cases have been entered in the first Table under the heading of the primary disorder.

Occurring in Hospital.

Male.—In three cases of abscesses. In one case of carbuncle. In two cases of scalp wounds. In one of epithelioma of the groin. In one of sinus in the axilla. In four cases of wounds of the forearm and hand.

Female.—In three cases of lacerated wounds. In two cases of abscess. In one case of noma. In one of hip disease.

Occurring after Operations.

Male.—In three cases of amputation of the thigh; in one of amputation of the fingers; and in one of amputation of the penis. In one case of removal of bone from a malunited fracture; and in one case of operation for the radical cure of a hernia.

Female.—In two cases after amputation of the breast; and in one of local removal of a carcinoma from the mamma. In one case of amputation of the breast, with removal of the axillary glands; and in one of anal fistula.

PYÆMIA AND SEPTICÆMIA.

Admissions.

In one case of acute osteitis of the humerus. In one of lacerated wounds of the head; and in another of the hand. In one case of gluteal abscess.

Occurring in Hospital.

In one case of suppurative arthritis of the knee; and in one of acute osteitis of the humerus.

Occurring after Operations.

In one case of lithotrity in a female; and in one of plastic operation for ruptured perineum. In one lad. aged 17, after MacEwen's osteotomy of the femora.

