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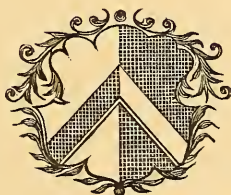
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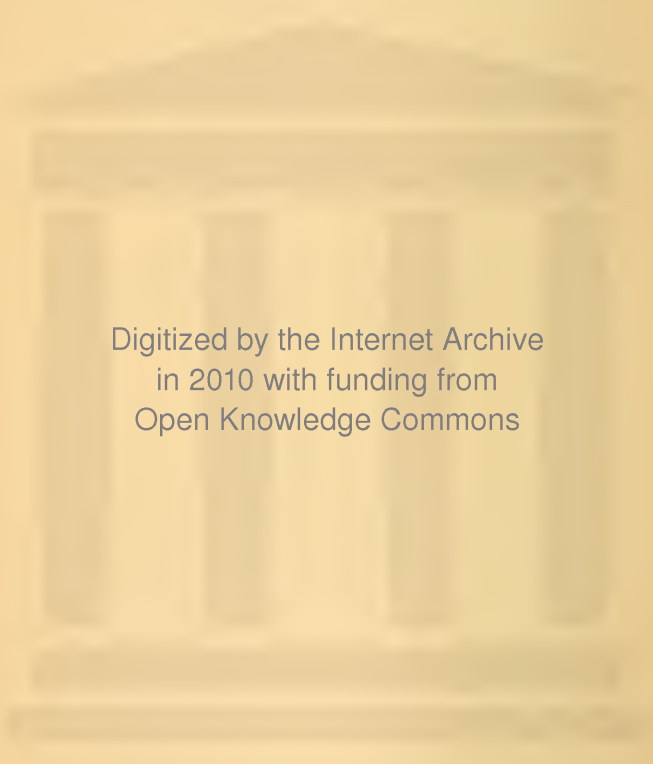
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CONTENTS.

	PAGE
LIST OF SUBSCRIBERS	xi
<hr style="width: 50%; margin-left: 0;"/>	
ART.	
I. The Sexes in Lunacy. By T. Claye Shaw, M.D.	1
II. On the Coeliac Affection. By Samuel Gee, M.D.	17
III. Rheumatic Fever without Arthritis. By Samuel Gee, M.D.	21
IV. On Some Medical Points relating to the Provision of Isolation Hospitals. By R. Thorne Thorne, M.B.	25
V. A Case of Progressive Suppurative Parametritis. By J. Matthews Duncan, M.D., F.R.S.	39
VI. On the Relation of Erythema Multiforme and Erythema Nodosum to Rheumatism. By Archibald E. Garrod, M.D.	43
VII. Chorea as a Cause rather than a Result of Endocarditis. By W. P. Herringham, M.D.	55
VIII. On the Study of Biology in Relation to Medicine. By Thomas W. Shore, M.D.	65
IX. On the Treatment by Removal of some Chronic Ulcers of the Tongue. By Henry T. Butlin	83
X. Thirty Cases of Fibro-Myomata of the Uterus Treated by Electricity. By W. E. Steavenson, M.D.	89
XI. Vomiting in Phthisis, with Special Reference to the Association of this Symptom with Left Apex-Disease. By S. Herbert Habershon, M.D.	131
XII. On Croup in its Relation to Tracheotomy. By W. H. Hamer, M.B.	141
XIII. Three Cases of Peritonitis. By Norman Moore, M.D.	149
XIV. A Case of Disseminated Sclerosis. By J. A. Ormerod, M.D.	155
XV. A Case of Dislocation of the Shoulder without Rupture of the Capsule. By F. Claude Evill	163

ART.	PAGE
XVI. On the Difficulty in Determining by Means of Menstruation the Duration of Pregnancy, and its Medico-Legal Importance; with Notes of a Case of Spasmodic Dysmenorrhœa and Sterility cured by Dilatation by Metallic Bougies. By Clement Godson, M.D.	167
XVII. Resorption-Diabetes of Lactation. By Cecil J. Davenport	175
XVIII. Perforating Wounds of the Orbit. By W. Marrant Baker	179
XIX. The Causation of Mitral Diastolic Murmurs. By Humphry D. Rolleston, M.B.	197
XX. A Case of a Piece of Glass in the Eyeball for Seven Years and Ninety-four Days. By Richard J. Reece	201
XXI. Cases from Mr. Baker's Wards. By H. Watts	205
XXII. Excretion of Uric Acid in a Case of Gout; with Notes on the Action of some Drugs. By Alexander Haig, M.D.	217
XXIII. Six Cases of Sinus over the Sacrum and Coccyx. By D. H. Goodsall	229
XXIV. Two Cases of Cerebellar Disease in Cats with Staggering. By W. P. Herringham, M.D., and F. W. Andrewes, M.B.	241
XXV. A Case of Spasm of the Muscles of the Neck causing Protrusion of the Head. By W. H. R. Rivers, M.D.	249
XXVI. Clinical Notes and Observations from the Essex and Colchester Hospital. By Alexander Wallace, M.D.	253
XXVII. Cases illustrating the Clinical Course and Structure of Duct-Cancers or Villous Carcinomas of the Breast. By Anthony A. Bowlby	263
XXVIII. Our Surgical Consultations. By W. J. Walsham	273
XXIX. Proceedings of the Abernethian Society for the Winter Session 1887-88	313
<hr/>	
List of Specimens added to the Museum	341
Donations to the Hospital Library	429
List of Scholarships and Prizes	431
List of Prizemen	432
Hospital Staff	435
<hr/>	
INDEX	439

LIST OF ILLUSTRATIONS.



	PAGE
DIAGRAMS SHOWING THE POSITION OF SOME CHRONIC ULCERS OF THE TONGUE (MR. BUTLIN)	84, 85, 86
DIAGRAM SHOWING SECTIONS OF THE SPINAL CORD IN A CASE OF DISSEMINATED SCLEROSIS (DR. ORMEROD)	158
DISLOCATION OF THE SHOULDER-JOINT (MR. EVILL)	164
CASE OF UTERINE DILATORS (DR. GODSON)	171
THE END OF A WALKING-STICK WHICH ENTERED THE BRAIN THROUGH THE ORBIT	181
PUNCTURED FRACTURE OF THE ORBITAL PLATE OF THE FRON- TAL BONE	185
A HAT-PEG WHICH ENTERED THE ORBIT AND BECAME IMPACTED	194
A PIECE OF GLASS REMOVED FROM AN EYEBALL	202
SECTION OF THE EYEBALL SHOWING THE POSITION OF THE PIECE OF GLASS IN THE EYE	202
CHART SHOWING THE AMOUNTS OF UREA, URIC ACID, AND ACIDITY, WITH THE TEMPERATURE, IN A CASE OF GOUT	218
DO. DO. DO.	220
DO. DO. DO.	222
SEVEN ILLUSTRATIONS OF SINUS OVER THE SACRUM AND COCCYX	231, 233, 236, 237, 238, 239
OUTLINES OF THE BRAIN OF THE CAT IN A NORMAL AND ABNORMAL CONDITION	244
THE SAME SEEN IN LONGITUDINAL SECTION	244

	PAGE
ABNORMAL SECTION OF A PORTION OF THE CEREBELLUM OF A CAT AS SEEN UNDER THE MICROSCOPE	245
SECTION OF THE ABNORMAL CEREBELLUM IN A CAT	246
PROTRUSION OF THE HEAD IN A CASE OF SPASM OF THE MUSCLES OF THE NECK	<i>to face page</i> 250
PULSE-TRACINGS IN A CASE OF MORBUS ADDISONI	256
PAPILLOMATOUS GROWTH INSIDE A CYST	263
SECTION OF A BREAST WITH NODULES OF DUCT-CANCER	266
SECTION OF DUCT-CANCER UNDER A LOW POWER OF THE MICROSCOPE	269
A PORTION OF THE SAME UNDER A HIGH POWER	269

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SAINT BARTHOLOMEW'S HOSPITAL REPORTS.

THE SEXES IN LUNACY.

BY

T. CLAYE SHAW, M.D.

Most medical men engaged in the specialty of lunacy practice are called upon to treat both sexes, and the difference in mind between them when insane is in general well marked. As to treatment, it cannot be said that, as far as remedies are concerned, there is much difference in the call on the pharmacopœia between one sex and the other. Sedatives that suit the one are equally applicable to the other, and so are the purgatives, tonics, and stimulants. It is in the physical and moral treatment that the difficulties and differences lie. To understand the female mind in health is a problem that few of the sterner sex succeed in accomplishing, and the task in disease is by no means easier. Still, owing principally to the fact that women when insane are destitute (or deprived) of the motives for concealing the real feelings and intentions which influence the sane, there are many peculiarities worth noting; and some of these are explicable partly on constructive, partly on educational reasons.

To begin with, women give infinitely more trouble than men, and cause much more anxiety. In this there is no difference between the sane and the insane. All physicians experience the difficulty that exists in persuading the female side of the family that what is being done is the best thing to be done. Women seem naturally suspicious of men, think that somehow

or other they are being taken advantage of; and this element of doubt makes them anxious to have other opinions, to go from one adviser to another; and, in the case of the insane where they have, as a rule, no opportunity of change, makes them reserved and resentful. It should in justice be said, that little as men understand the opposite sex, they are more successful in the management of it than are women themselves, probably because they grasp the main features of an action, which they treat without comprehending the subtle and fine processes that have led up to it, whilst the consideration of such processes might impair the treatment they adopt. That this is no mere assumption of superiority is proved by the experiments of asylums (not in this country), where the sole authority of the female mind has been found to be impracticable unless subordinated to an ultimate male decree, and it may, I think, be also seen in the various religions and secular institutions, nominally governed by women, but finally resolvable into a governing influence derived from the opposite sex. For some time the cry of the newspapers has been "What to do with our girls," and the same difficulty presents itself very forcibly with those engaged in the "moral" treatment of the insane. In a well-managed asylum, with an average distribution of the various kinds of disease, occupation can be found for about 70 per cent. of the men, but only for 35 to 40 per cent. of the women. It might have been thought that washing was an occupation well suited for and desired by female patients; but the greatest difficulty is experienced in getting them to do it. Many (of even low sphere in life) consider it beneath them, others have no knowledge of the business, and others are too indifferent to persuasion to be got to occupy themselves. With men how different is the case! They are not only easily induced to employ themselves, but make no difficulty in doing work to which they are unaccustomed. It amounts to this, that practically the women do nothing more than they are obliged to do, whilst the men prefer anything to laziness. I am speaking now of the poorer classes, of which alone I have experience. No doubt there are many more forms of occupation open to men than to women, but this will not account for the disparity in the numbers quoted; for if the men have farm-work, tailoring, &c., open to them as occupations, the women have sewing and knitting to counterbalance them. One cannot help thinking that this indifference to occupation shown by women in disease is the continuance of their sane temperament, and that even in health it is less natural to the woman to work than it is to the man. This might be expected from physical differences, but it is no doubt partly due also to the custom of the country. In many

lands the women do more physical drudgery than the men, but I have no statistics to quote to prove whether, when will and energy are in abeyance and habit asserts itself, they show more disposition to keep themselves employed than men do. With men the necessity is not only to work, but to do it satisfactorily, and when these conditions are not satisfied, the individual's living is gone; but with women there is no call for either the exactness or the continuance of work, nor are the penalties so great in case of non-compliance; hence, the necessity being removed, there is less of habit, and no tyranny of routine to urge on the individual when the will is in abeyance. The immediate consequence of the absence of necessity or instinct to occupy themselves is that there is a greater degree of ennui on the female side of an asylum than on the male, and therefore much more discontent. Women are much more persistent in their demands to be sent home, and more illogical in their urgency for it. Why not, then, teach women to occupy themselves, and so endeavour to induce a more stable quality of mind in them? It is difficult to teach people who are in a restless state anything new, because their attention cannot be fixed, for one thing, and for another, because modes of employment or occupation are difficult to provide, inasmuch as they cannot be got to garden or do farm-work, and anything that entails close confinement has to be avoided. As a consequence, the women have to be *amused*, and this is one of the greatest troubles in the treatment of the insane. It is indeed true that life would be much more tolerable without its amusements, for to provide these amusements is by no means the easy thing it seems. Among the lower orders the chief amusement of the women seems to be gossip; they are left at home by their husbands, who take their pleasures alone, and beyond an occasional outing for the day, or a seat at the theatre at night, they have to spend their time as best they can until their husband's return; they have no books to read, and they do not engage much in games; and so, when they are taken from home, and are unable or unwilling to occupy themselves, they have no resources to fall back upon, therefore they have to be amused. Perhaps the easiest way of doing this is to let them dance, and it has its advantages, inasmuch as it necessitates no strain on the thinking faculties whilst it gives exercise. In asylums, just as in ordinary life, the men go to the dances *pour passer le temps*, but most of them take little part in these lucubrations, and it may be fairly said of the mad world, as of the sane, that this mode of recreation is the *proprium* of the softer sex, and is simply accepted and endured by the other.

To many people the most striking difference between the sexes in asylums is in the language, and here the women hold the palm for volubility, abuse, and foul-mouthedness. There is no difference in this respect between the barefaced virago from the lowest parts of the town and the fashionable woman from the best quarter. People talk about the revolting nature of the language used by a hitherto fair-spoken woman when she is suffering from an attack of acute mania, but to the psychologist there is nothing extraordinary in it. On the contrary, it is what he might expect from the way in which society is now conducted, and from the careless manner in which people speak in the ears of passers-by. Women are not to be blamed for using bad and indecent language when they are insane, but they are to be blamed for exposing themselves when in the full possession of their faculties to situations where they are bound to receive impressions which cannot be afterwards prevented from declaring themselves. A good share of the time of both the upper and lower classes of female society is spent in attending racecourses and theatres, where all the emotional phases of human nature are presented in the most lurid and impressive manner, and where, if the virtuous side of character is shown, it is always contrasted with the vicious aspect in a most unmistakable manner. Is it likely that these strong impressions die away with the moment of their production? Does the coarse language of the crowds who have lost or won their money fall upon sensitive ears and end in oblivion? There is a moral pathology as well as a structural one, and whilst it is undoubtedly true that there are individuals who pass through life without bodily ailment, so there are some who appear to keep the moral side of their nature free from contamination; but however good the intentions may be, these people are always subject to the accidents of "civilisation" and its accompanying deleterious influences. Under ordinary circumstances, debasing impressions, improper phrases, the newspaper reports of law-court scandals, &c., are not spoken of; but when insanity is established, and the reflex action of the brain asserts itself in an unconscious and irrepressible manner, all these stored-up memories are let loose, and we get a glimpse of the internal life of the individual that was certainly never intended to be revealed. Let, then, men remember that in talking to or before women they are forming modifications of matter that can never be obliterated, and let women not forget that, in exposing themselves to the temporary excitement of sensational literature or of highly-spiced "amusement," they are making themselves the slaves of a tissue-change that may some day assert itself to their confusion. Fortunate it is

that the memory of what occurs and is said in an attack of acute maniacal excitement is, as a rule, forgotten on recovery, otherwise the after-thoughts would be most painful, akin to, but more intense than, the feeling of regret that properly-minded people experience when, having in a moment of excitement or anger said something that they would gladly recall, they find themselves unable to do it.

Few attacks of acute insanity run their course without the element of destructiveness making itself painfully present. Whether it be from delusion, or malice, or habit, destructiveness is a very dangerous and troublesome symptom, and it must be said that it prevails to a far greater extent among women than among men. A look at the airing grounds of an asylum is as good a test of this statement as can be got. On the male side the damage done is comparatively trifling, but on the female side the gardener is driven to despair, for broken trees, torn-up flowers, and trodden-down plants proclaim the presence, in its exaggerated and insane form, of the spirit that animated the occupiers at former times. No doubt much of this destructiveness is the relic of the sentiment that prompts women to decorate both themselves and their homes with cut-flowers. There is no one whose visits to the greenhouse or garden that tyrant the gardener more dislikes than the lady who is bent on taking his best flowers to decorate her boudoir; and this (in his eyes) spoiling of the garden may account for the way in which female patients decorate themselves with anything in the way of floral beauty, taking even hedge-leaves or lettuce-leaves if they can obtain nothing else. In the matter of clothes, too, the female patients are more destructive than the men, and often (in cases where this practice is very present) there seems no reason for it, so utterly demented may be the agents. Must we view it simply as a sign of a degradation of intellect that when entire is constructive? I suppose so; but where it is most prominent there is often the greatest difficulty in getting any explanation for it. The patients will give you no reason, will perhaps scarcely understand the question; and yet, whatever be the nature of the garments you have them dressed in, they will continue the practice. There are, one may say, forms of destructive insanity in which this tearing and rending is the prominent symptom, without which indeed the insanity would not exist, just as if the two residuary mental products in health of balanced production and destruction are in disease upset to the prejudice of the former. In general paralysis, where aimless destructiveness is very great, the balance is of course on the side of the men, because of the much greater prevalence of the disease in this sex, but where the disease occurs in

women the same thing is met with. I have been up to now speaking more of aimless destruction, but when we come to purposed destruction, the women have much the more unfavourable account. Impulsiveness shows itself in glass-smashing or crockery-breaking, probably because these are the readiest ways in which they can vent their superabundant energy; and though men will at times do this, they never approach the other sex in their attempts in this direction. It would seem as if brain action in women is quicker than in men, and that their proverbial rapidity in forming a conclusion is partly due to their natural excitability or proneness for discharge, and partly also to the natural education of life. Men have greater opportunities of seeing that undue haste and impulsiveness spoil their work and get them into trouble, while their greater physical strength and larger experience of danger and circumstances requiring deliberation teach them to weigh pros and cons in a slower and less emotional manner than women do. Of course, in the better-educated classes, where logic has formed part of the education, and has trained the mind to regard action on impulse as one of the most fatal mistakes that can be made, there is less liability to this explosiveness both in men and women, and it might therefore be concluded that in insanity of the upper classes less of this explosive impulse would be noted. Among the men this is certainly the case, and probably to some extent also in women; but then the education of women is not generally so well ordered as is that of men, and hence many women who have been in very good social position are extremely impulsive and destructive. Let me quote the case of governesses, whose lot in many respects is a very hard one. In this country many of them are women of an originally superior social position, compelled by changed circumstances to adopt a sphere for which they have not been adequately prepared. Hence, like all who take up a calling to which they have not been trained, they find themselves exposed to worry and the acceptance of conditions that irritate and warp their primal dispositions. They are thus unable to keep their positions, and if, as often happens, they become insane, they have, in the absence of means, to undergo treatment in the county asylums, and very hopeless cases they often turn out to be. Their want of systematic training leaves them impulsive, and often unmanageable, and in many instances quite incurable. It however occurs that insane governesses are met with who were carefully prepared for their destined occupation, and my experience is that people of this class show far less of the impulsive and destructive forms of insanity than do those of the class first spoken of. We have recently had two women

who showed in a marked degree the difference between the two kinds of disposition, both being victims of delusions of persecution. One, whom I will designate A., was originally of good family and prosperous circumstances, but owing to money-losses had to go out as a governess. She had had an ordinary "ladies' school" education, and had, when grown up, freely enjoyed the social pleasures of her position, but her training had been superficial and emotional, without discipline or subjugation beyond the ordinary conventionalities of society. She became insane, and was the most troublesome patient I had ever to do with. Her impulsiveness for smashing and for tearing clothing was so great, that we never could trust her alone, not knowing how suddenly it would break out; and yet, directly after a violent outbreak she would be penitent and say that she knew it was wrong; but she never tried to restrain herself when the destructive feeling came over her, though often requested to do so, and her excuse was that the violent act was a relief to her, and that she *had not been accustomed to deliberate when she wanted anything*. This was the keynote to her conduct. She had an untrained, unstable mind, jumping to conclusions and acts in an illogical, inconsequent manner, which made the position of those who had to deal with her almost intolerable; for she would suddenly invent lies and make false charges which a few moments afterwards she would acknowledge were concocted on the spur of the moment. It was with the greatest difficulty that I could get nurses to stop with her, for she was very suicidal and dangerous physically, besides being morally so. Her sneering, educated cynicism, and the rebellion of her spirit against the tyranny of the lowered situation she had filled, made in her highly tensioned and undisciplined brain a combination of qualities that made us rejoice when she was afterwards taken to a private asylum. I have since heard that there is no material change in her condition. The case of B. is very different. She is a woman who was *ab initio* trained to be a high-class governess, and one can now see that her training was logical, methodical, and thorough, repressive of all emotional tendencies, and calculated to produce the tone of mind that hesitates before it acts. This patient has been bandied a good deal about the world, and has evidently had much worry and hard work; but though originally of an ardent and salient temperament, one can see that the effect of her training has been to moderate all effervescence. I have seen this woman, when under the influence of her delusions of electricity, &c., and irritated beyond measure by the refusal of her requests to be allowed to go away, repress the evident feeling that she had to commit a violent act or to say

something of a disagreeable and insolent nature; indeed, I have known her to say, "I feel that I should do something violent if I did not know that it was senseless." Nothing but the regulated artificial mental equilibrium produced by a long antecedent period of well-directed training keeps B. from becoming as dangerous a lunatic as A. I have met with many cases of insanity in German governesses, women of the B. class, who were specially trained for the occupation they adopted, and in all of them one could see the influence of their previous culture in lessening the violent outbreaks of emotion. If one studies nationalities, there are noteworthy differences in which people suffering from the same form of insanity behave, having regard, that is, to the emotional or the intellectual side of the disease. From my experience the Germans and the Scotch form the quietest and most reasonable patients; the Irish are, as a rule, very noisy and excitable; but for downright vindictiveness and unreasoning awkwardness, I have never met the equals of the women who come from the parishes of the East of London. It is, I think, generally found that strong determination of character is found in people who arrive quickest at conclusions, who do not stay to balance motives, but rapidly adopt a conclusion and adhere to it. It might be expected that the training of a logical school would predispose people to be careful and slow in coming to a resolution; but whether this is so or not, the fact remains that women of the most uneducated class come to fixed determinations and carry them out in a most persistent manner far in advance of men. It can surely be of no advantage or comfort to women to behave in such a manner as to require extra-supervision, and consequent deprivation of liberty and opportunity of employment; and yet the number of women in asylums requiring special attention far exceeds that of the men. I hope that I shall not be accused of ungallantry in mentioning what is, I believe, a generally acknowledged fact, that in ordinary life women have a mode of teasing each other peculiar to themselves, and it certainly seems as if insanity does not reduce this faculty; for the persistent way in which they will destroy furniture or clothes, make feigned or real suicidal attempts, use bad language, and invent all sorts of incriminating fables, for no apparent purpose beyond that of giving trouble, is a puzzle to unravel on any theory except that it is an exaggerated and explosive condition of tissue already impressed in a certain manner. There are two conditions in men that reduce them to these dangerous and troublesome characteristics of the other sex—one is epilepsy, the other is drink. One of the great evils and effects of drink is to hurry a man on, to destroy the

deliberate balance of opposing arguments, and, by stimulating his brain-cells, to accelerate reflex action, and thus annihilate the voluntary choice of alternatives. Hence no one is so positive of his conclusions and so quick in arriving at them as is the man who is excited but not yet stupefied with drink, and in proportion as what he calls his mind is speedily made up, so is he intolerant of contradiction. It is of no more use to argue with the drunken man than it is with the impulsive, destructive, insane woman; both are best met by disregard of their acts and the adoption of measures calculated to render them as harmless as possible. It is not to be concluded from the above that insanity among the upper classes is altogether easier to treat or is invariably milder in its manifestations than in the lower classes; but I have no doubt that in a great measure it is so as regards more especially the number of violent and unmanageable cases, although it must be admitted, on the other hand, that, owing to better and more disciplined education, there may be a greater freedom from the very demoralised form, whilst there is an increase in artfulness and aggravation. We have here¹ under treatment lawyers, doctors, and clergymen, professors from universities, and men who have made large sums of money in the commercial world; but although they are one and all very insane, there is nothing of the vulgar violence of action and language that distinguishes the uneducated insane people with whom unfortunately they have to associate. Even when affected with that very levelling disease, general paralysis, there is a distinct difference in the form and extent of their violence, traceable, I doubt not, to their education. I know, on the other hand, that many people of the highest social position are, when insane, extremely violent both as regards acts and language; but it must be remembered that high social position does not, of necessity, connote high intellectual training, but is often of a mere formal and emotional character; and hence we should expect, what in fact we see, that human nature, unless trained after a logical and moral method, rapidly reverts to the debased theroid type of savage struggle for existence.

The condition of women has been for ages, and is now, subordinate to that of men—a result due partly to education and partly to the laws of derived inheritance; but without going so far as to say that women regard men as their natural antagonists, they do all probably regard them with at least suspicion. And for many reasons they have a right to do so. To the life of the woman the consideration of her relationship to man is more important than is that of woman to the man, for she is

¹ Middlesex County Lunatic Asylum.

dependent upon him for all that is needful and desirable, and being physically weaker, has to resort to various arts and contrivances of wit to keep her position safe. I think that these qualities account for a good deal in the behaviour of female patients. They view their medical attendants with suspicion, and are reserved in their communications to them; in a state of mania they accuse them of all sorts of unlikely and impossible crimes, and heap abuse upon them with true crotalic venom, and this, too, when they may be docile and obedient to the nurses; or they will indecently expose themselves in order to create disgust, and will behave badly to annoy them. Certain it is that noise, filthy conduct, and sexual depravity, both by speech and act, are much more common on the female than on the male side of an asylum; and it is indeed a common remark to make in the course of visits of inspection that there is more excitement among the women than the men. Of course there is, especially if the visits are made by men, and it is frequently only by chance that one finds out how, under an apparently smiling exterior, there has been lurking a feeling of distrust and positive resentment due to the feeling that I have above enunciated. When I see acute mania among women unattended with noise and excitement, I feel that I am not in the presence of the true disease, but in a medicated form of it, due, most probably, to sedatives or to a tyrannous treatment, and I no more expect to find quiet and unobtrusive mania among women than I should hope to see Niagara without hearing the roar of it. As to whether women would be better attended by women when in an insane state, I am of opinion that it would not make much difference, for I think that the expression of the symptoms would be the same in kind though perhaps modified in form. In all forms of acute insanity the sexual element is more prominently shown in women than in men—a fact not to be wondered at, considering the important part the physiology of the reproductive organs plays in the life of the woman, causing her whole life to be intimately blended with ideas more or less traceable to the rearing of offspring. This shows that much of the question of love and affection is really cerebral, and not directly uterine or ovarian, whilst it points to the fallacy of supposing that in the instances of utterances of the most sexual nature there is any need for interfering with the sexual organs. I have read in some reports of the practice of lunacy in America, where lady-doctors are engaged, that it is a matter of routine to examine every patient with the view of finding an organic or functional derangement of the generative organs; but such a practice is, I think, physiologically unsound, and not to be approved.

It would be difficult to enumerate qualities of mind that are not common to both the sexes; the difference lies not so much in the nature as in the proportion of them. We thus see men of a nature much akin to the woman's; they are emotional, fond of sympathy, passionate, yet forgiving, inclined to fanciful longings, and hysterical at times; given to female occupations, such as dressing dolls, knitting, &c.; and just as they affect the same interest in dress and fondness for decoration, whilst, if dressed in women's attire, they might pass for what they are not, so do we see in their mental phases the same characteristics.

I have before me the case of a young man who was mentally quite feminine. He would occupy himself in needlework or crocheting; dressed himself (when he could get them) in garments of a feminine cut; preferred a shawl to a topcoat, and walked with a small, mincing gait. He was very impulsive and suicidal, and would sulk and weep if in any way crossed; he would exhibit what the Germans call *schwärmerei* for an individual to whom he took a fancy; but he had no delusions, and it is difficult to say, if he had had any, that they would have gone to the length of fancying himself a woman. I have known women fancy themselves to be men, and also imagine that other women in the same ward were men; but I rarely find a man imagine himself to be a woman, or that the men in his vicinity are women. I have now under treatment a woman who fancies that the women near her are men, and the consequences of her delusions are so obnoxious that she has to be specially protected. I have met with one man who fancied himself to be a woman, but such cases are very rare, and must be explained on the theory that reproductive function has nothing like the part in the man's individuality that it has in the woman's, nor is the woman as essential a part of his mental life as is the man in the woman's. Even in the cases I have spoken of there was no physical malformation, so that the above phenomena are purely mental phases brought about by the necessities of existence.

Expression of the features is much changed in insanity; indeed, I have often met with cases in which the friends of patients have been unable to recognise them. All are agreed that positive ugliness is produced in females by long-continued attacks, and in a ward containing demented patients it is painful to see the havoc wrought in features that were evidently once comely. I am sure that the expression of insanity is more characteristic in women than it is in men, although in health expression is more strongly marked in men. The reason is not far to seek. Women are accustomed to give more expression to their feelings; the tendency of men is to repress them. The serious affairs of life

impress defined lines on the man's face, which a temporary affection cannot obliterate; but the woman's face has never been set in the same way, and so the horrible but temporary realities of an acute attack of insanity act upon a comparatively plastic material, and the effect produced is somewhat the same as that induced in young men where time has not produced the set of features above spoken of. It is very often impossible to detect the quality of a man's delusions or the nature of his insanity from the mere expression of his features; in fact, some of the most dangerous lunatics will "murder while they smile;" but though the same thing may be found among women, it is by no means so generally met with. I have known the most suicidal and dangerous women to be anything but depressed in their outward demeanour; indeed, one often finds that crying and grief-expressed women are, whilst very wretched, entirely devoid of the suicidal impulse, and this it is that makes the treatment of women so much more hazardous and uncertain than that of men. It does occasionally happen that men in a state of acute dementia are very suicidal, sufficiently often indeed to make it advisable to guard carefully all such cases; but with women it is the rule, and whilst I might put a certain amount of confidence in a woman "all tears," I should absolutely refuse to trust the silent, vacuous-faced woman, fearing lest she be in a state of impulsive frenzy that may at any moment explode in violence towards others, or in a desperate attempt on herself. Thus, in insanity as in ordinary life, the unobtrusive people are those who require the most studying and watching, whilst the noisy and demonstrative ones speak for themselves, and ensure their own protection. I met with a prominent instance of this recently in the case of a young woman who committed suicide in a moment of impulsiveness, simply because she was placed in a single room for a short time. There was not the slightest idea for supposing her to be suicidal, nor do I think that she was up to the moment when she was left by herself.

The feeling that prompts people to avenge themselves on others by damaging themselves is very strong in women and in savage races, but, except among the purely imbecile, it is not nearly so common among the male part of an educated community. If women are offended, instead of revenging themselves upon the people whom, rightly or wrongly, they think the cause of the offence, they will tear their own clothes, smash glass, and cut themselves, commit suicide, or do something that will, they think, cause trouble and annoyance; but in rare instances do they make homicidal attacks on the objects of their hate; and the same thing is common to young people of unformed minds

of both sexes, and to men who have a good deal of the feminine characteristics about them. But the man is very different in his actions when he thinks himself injured, for he generally makes straight for the object of his wrath, and this probably accounts for the different classes of accidents that are met with on the different sides of asylums. The men, as a rule, are much less trouble; they are more docile, nothing like so impulsive; but the accidents that occur among them are of a more serious nature. The anxieties of the two classes may be best expressed by saying that the men are most violent to each other, the women most so to themselves. There seems to be a code of honour in the male sex that if a man is struck he must return the blow, and this perhaps accounts for the serious tussles and accidents that occur; but with women the affair of honour is more often settled by the tongue than the fists, and the war is thus waged with words, which do no harm. I have been much struck with the difference between the states of curiosity in men and women; the former are not nearly so urgent for their discharge, nor so desirous of asking why they were sent, seem to understand better that there must have been some reason for placing them away; but with the women the craving for home seems more intense; they cannot be made to see that they are or have been ill, and this is no doubt owing to the want of education in the relation of cause to effect, and also in part to the want of true courage, which prompts people to endure the ills they are passing through, and to rely upon their own energy and endurance to carry them through. Men have always been accustomed to trust to themselves, women have been too often placed in circumstances that make them dependent upon the aid of others, and hence they are deficient in this faculty of self-reliance, and their behaviour in disease shows it.

There is a trick much in vogue with female patients that I have great difficulty in accounting for—I mean that of covering the head with the dress. It is found chiefly in confirmed lunatics in a state of dementia, and I look upon it as a bad sign. One sees, and it gives a very bad aspect to the ward, in any large asylum where patients of many years' standing in disease have accumulated, numbers of people sitting for preference on the floor, and covering their heads and shoulders with their frocks. It matters not what the weather is, nor what the time of day or night, nor whether there is a burning sun or darkness. You may take the dress down very often, but as soon as you have left the patient she retires to her own artificial obscurity. People who are not accustomed to this sign of insanity think that it is merely a bad habit, and can be remedied by more attention. But this is

not the case, for it is ineradicable, and I am surprised that it is not generally viewed in this light. Every one knows that it is the custom for women in the manufacturing districts, and especially among the Irish population, to cover their heads with their dresses; but we do not get these patients in the asylums in the South. To some extent I have seen the same desire in men, who will fold their arms, bend their heads down, turn up the collar of their coats, and seem to try to compress themselves into as small a space as possible. I have often put the question to patients as to their motive in thus effacing themselves, but their replies are unsatisfactory; either they "do not know" or they resent the question and retire into their self-obliteration. It is, in fact, a sign of a generally permanent and incurable form of insanity, and can no more be prevented than can self-mutilation or noise or untidiness, or any of the other symptoms which a well-developed mania brings with it.

There is a form of insanity of the most anxious and troublesome kind that seems peculiar to the female sex. I allude to the cases of young women of an age between 17 and 26, in which the combination of deceit, hysteria, impulsiveness, and general inclination to give trouble is most conspicuous. These cases form a group of the most dangerous type. They are violent and suicidal, and can never be trusted. At one moment they are ready to take long walks, and will behave quietly, whilst the next day they will attempt to throw themselves under carts, or will give trouble in a manner peculiar to themselves. They cause more expense and anxiety than other forms of violent insanity from definite organic disease, and from retaining a large degree of consciousness, are very difficult to treat. The present system of non-restraint is calculated to foster this class of cases, and they would be much more successfully treated if one was able to apply some stringent coercive measures to them, such as would in ordinary life be used to correct such manifestations as obstinacy, perverseness, deceit, and love of mischief merely for the annoyance it causes.

Women know very well that they are privileged in their use of abusive epithets, that in ordinary life they can say and do things, both to their own and to the opposite sex, which men would not allow to pass if used by one of their own sex; that, in fact, they have their own way in most things, because men, partly from a quasi-chivalric feeling, and partly from insouciance, find it easiest not to be at the trouble to contradict them. And this knowledge finds its development in disease, and, I may also add, its remedy.

Women in acute states of insanity are abusive, indiscrimi-

nately violent, impulsive, obscene, and wayward out of all proportion to what men are, because they are fulfilling the condition that has been allowed to them in ordinary circumstances. Men have received their abuse with levity, and they think that they will still do so. When in their sane rage they have broken the furniture or used foul language and have been only laughed at, is it not natural that they should think that the same immunity from punishment will attend them in other circumstances? When they have pouted and sulked until their wish has been granted, is it not natural that they should do the same when through disease placed among strangers? Women have been treated much in the same way as animals—they have been petted or cuffed according to the fancy of the moment; and because men have found it easier to let them talk than to argue with or contradict them, they (the women) fancy that their surest way of success is by keeping themselves constantly *en evidence*, by never taking “Yes” or “No” for an answer, and, in short, by never ceasing to worry until they have gained their ends. And as in ordinary life men allow them to talk on at their own pleasure, so it is found best to follow this plan in treating the insane. It is of no use to endeavour to reason with them, to contradict them, nor to pay attention to them. A studied indifference is often the best manner of treating an abusive patient. Notwithstanding the difficulties and dangers of treating the insane, we do occasionally meet with gratitude from those who go out cured (perhaps not so frequently as might be expected, because they often have the idea of the gaoler associated with the doctor); and here the female element distinguishes itself, and makes amends for the extra trouble it has given. Is it, after all, to be wondered at that, with all its drawbacks, many people prefer to be attached to the female side of an asylum? for even in such desolation the decorative instincts and characteristic features of the sex do much to soften the artificial asperities due to their disease; and in insanity as in ordinary life—“Das ewig-weibliche zieht uns hinan.”

ON THE COELIAC AFFECTION.

BY

SAMUEL GEE, M.D.

There is a kind of chronic indigestion which is (met with in persons of all ages, yet is) especially apt to affect children between one and five years old. Signs of the disease are yielded by the fæces; being loose, not formed, but not watery; more bulky than the food taken would seem to account for; pale in colour, as if devoid of bile; yeasty, frothy, an appearance probably due to fermentation; stinking, stench often very great, the food having undergone putrefaction rather than concoction.

“His *stomack* is the *kitchin*, where the meat
Is often but half sod, for want of heat.”

The pale loose stool looks very much like oatmeal porridge or gruel. The hue is somewhat more yellow, otherwhile more drab. The paleness is commonly supposed to signify lack of bile; but the colour of fæces is a very rough measure of the quantity of bile poured into the duodenum; nay, more, the colour of fæces is a very rough measure of the quantity of bile which they contain. Whitish stools are not always so wanting in bile as they seem to be; in particular, opaque white food, such as milk-curd, undigested, will hide the colour of much bile.

Diarrhœa alba is a name employed in India to denote the coeliac affection; not that it is always a coeliac flux, a diarrhœa strictly speaking. True the dejections are fæcal, more liquid and larger than natural, but they are not always more frequent than natural; it may be that the patient voids daily but one large, loose, whitish stinking stool. Diarrhœa chylosa is another name used formerly, and which seems to mean that the fæces consist of chyle unabsorbed. Aretæus and Aurelian speak of the coeliac diathesis, *ventriculosa passio* (as who should say in English, wambecothe or belly sickness), names which are to be preferred, inasmuch as they connote nothing relative to the

precise seat or nature of the disorder. It is one of a few diseases called by the common people consumption of the bowels, a phrase similar to that of pulmonary consumption; the term consumption referring to the wasting of the whole body, and the qualifying words, bowels or lungs, signifying the parts affected first and foremost.

The cœliac disease is commonest in patients between one and five years old: it often begins during the second year of life. Sometimes from India Englishmen return sick with the cœliac affection: seldom is it met with in adults who have never left our island.

The causes of the disease are obscure. Children who suffer from it are not all weak in constitution. Errors in diet may perhaps be a cause, but what error? Why, out of a family of children all brought up in much the same way, should one alone suffer? This often happens. Nor can we deem the cœliac passion always a consequence of accidental diarrhœa, for costiveness is sometimes a forerunner of the disorder. Nor need we call upon teething and worms to explain this, more than every other disease of childhood.

Naked-eye examination of dead bodies throws no light upon the nature of the cœliac affection: nothing unnatural can be seen in the stomach, intestines, or other digestive organs. Whether atrophy of the glandular crypts of the intestines be ever or always present, I cannot tell.

The onset is usually gradual, so that its time is hard to fix: sometimes the complaint sets in suddenly, like an accidental diarrhœa; but even when this is so, the nature of the disease soon shows itself.

The patient wastes more in the limbs than in the face, which often remains plump until death is nigh. In the limbs, emaciation is at first more apparent to hand than to eye, the flesh feeling soft and flabby. Muscular weakness great: muscular tenderness often present.

Cachexia, a fault of sanguification, betokened by pallor and tendency to dropsy, is a constant symptom: the patients become white and puffy; the loss of colour sometimes such as to resemble the cachectic hue of ague or splenic disease: the spleen sometimes enlarged. Examination of the blood by the microscope shows nothing noteworthy, unless much molecular matter in form of clear distinct particles or aggregated masses; but in this is no peculiarity.

The belly is mostly soft, doughy, and inelastic; sometimes distended and rather tight. Wind may be troublesome and very tœtid. Appetite for food differs in different cases, being good,

or ravenous, or bad. Heat of the body mostly natural; sometimes children are said to be hot at night, and especially so over the belly.

To diarrhœa alba add emaciation and cachexia, and we have a complete picture of the disease. At times the bowel complaint is overlooked: the wasting, weakness, paleness are what is noticed, and are thought to be due to another than the true cause. Ulceration of the intestines may be attended by all the symptoms of cœliac affection. In children, chronic ulceration of the intestines is often tubercular, sometimes syphilitic,¹ seldom dysenteric. The diagnosis of ulceration turns upon a diarrhœa purulenta: the microscope discovers pus globules in the fœces. In rare cases the pus is so abundant that the stools consist of hardly anything else. But pus in the stools is not quite pathognomonic of ulceration; an abscess may open into the bowel: even apart from ulceration or abscess, a few pus globules may sometimes be found in the stools: still, for all practical purposes, the presence of pus in fœces may be deemed indicative of ulceration.

The course of the disease is always slow, whatever be its end; whether the patient live or die, he lingers ill for months or years. Death is a common end, and is mostly brought about by some intercurrent disorder; for instance, choleraic diarrhœa. Recovery is complete or incomplete. When recovery tends to be complete, a peculiar weakness of the legs is left long after all other tokens of disease have passed away, a weakness which shows itself in that the child is unable to jump. When recovery is incomplete, the illness drags on for years; the patient getting better on the whole, but being very subject to relapses of his complaint. While the disease is active, children cease to grow; even when it tends slowly to recovery, they are left frail and stunted.

To regulate the food is the main part of treatment. Cows' milk, which is recommended by Aurelian and some modern physicians in the case of the cœliac passion of hot climates, is not only not suited for children suffering from that disease, but is the least suited kind of food for them. Nothing more certain than that cœliac children cannot digest the hard curd of ruminants' milk. Asses' milk agrees with these patients very well, and they may take two, three, or four pints of it daily. If asses' milk cannot be procured, we must make shift with cows' milk from which most or all of the curd has been removed; we must try whey, or cream mixed with water or scalded whey. The allowance of farinaceous food must be small; highly starchy food, rice, sago, corn-flour are unfit. Malted food is better, also

¹ St. Bartholomew's Hospital Reports, vol. xvi. p. 35.

rusks or bread cut thin and well toasted on both sides. No kind of fruit or vegetables may be given, except a tablespoonful or two of well-boiled mealy potatoes, mashed or rubbed through a sieve. Mutton and beef, raw or very underdone, pounded and rubbed through a wire sieve, should be given at the rate of from four to six tablespoonfuls daily. Even English beef, eaten raw, is now and then a cause of tapeworm, much more so foreign beef. Broths and meat juices are allowed, also lightly boiled eggs (and good fresh butter.) A child, who was fed upon a quart of the best Dutch mussels daily, throve wonderfully, but relapsed when the season for mussels was over: next season he could not be prevailed upon to take them. This is an experiment which I have not yet been able to repeat. The disease being a failure of digestion, nothing seems more reasonable, at first sight, than to digest the patient's food artificially before it is given; but my experience has shown that peptonised milk and gruel are of little or no use in the treatment of the cæliac affection.

The diet recommended may seem to be scanty, but we must never forget that what the patient takes beyond his power of digestion does harm. The skin must be kept clean and warm: fresh air is necessary, muscular exercise not so. For drugs, carbonate of bismuth and aromatic chalk powder may be prescribed; also a small dose of compound decoction of aloes now and then. But if the patient can be cured at all, it must be by means of diet.

RHEUMATIC FEVER WITHOUT ARTHRITIS.

BY

SAMUEL GEE, M.D.

Regarding rheumatic fever as a combination of fever and local inflammation (especially of the joints), it is a common experience for the arthritis to pass wholly away whilst the fever remains. This subsequent fever may last for some weeks; nor is it always in the power of salicylic acid to remove the fever. Sometimes the arthritis of the beginning of the disease is very slight and temporary, whilst the fever is high and enduring. In this case, should the arthritis be overlooked, the understanding of the true nature of the fever becomes difficult. In other words, rheumatic fever is not always attended by arthritis—a truth which was known to Graves.¹

CASE I.—C. E. O., aged 20 years, a student of our Hospital, was attended by Dr. P. T. Duncan during an illness, whereof he has kindly furnished me with the following report:—

“I first saw him on October 29, 1886, and found his ankles much swollen, the skin red and very tender; there was also pain in the knees. Temperature, 103° . He had acid perspiration and very acid urine. I gave *sodæ salicylat.* gr. xx. every four hours, and he speedily lost the pain, swelling, &c. After twelve days' pyrexia the temperature fell to normal for two days, and on November 14 he went out for a walk. Next day his temperature rose to 103° , and he went back to bed. There was no return of pain in the joints, but he kept having fever of some considerable severity for several weeks. He had *sodæ salicylat.* again for a few days, but it did not act well; it made him feel ill; he became deaf, and had a furred tongue. Quinine was what he chiefly took, and lately in large doses, gr. x., three times a day. Under this the temperature fell slowly, like in the recovery from typhoid. He has never had any cardiac com-

¹ Clinical Lectures, 2nd edit., vol. i. p. 491.

plaint. His pulse was usually about 80; it was markedly dicrotous when the temperature was high. Urine never albuminous. Sweating at night occasionally. There is a strong family predisposition to tubercle; father died of tubercle, one sister of tubercular peritonitis, one other sister is blind from what is thought to be cerebral tubercle. He has had no cough, nor any physical signs of disease. He never had gonorrhœa. His tongue and digestion were satisfactory; he had constipation throughout. There is no suspicion of typhoid in the causation of the fever."

I may add that I examined him after his recovery, and found no physical or other signs of disease. From November 16 to November 30 the evening temperature always rose above 102° , seldom above 103° , never above 104° . From December 1 to December 16 there was a slow decline of temperature from 102° to 99° . From December 16 the temperature was normal, except for four days (December 23 to 26), when it rose to 100° in the evenings.

CASE II.—William E., aged 13 years. Admitted into Luke Ward on January 20, 1888. Five years ago he was ill in bed for some months with rheumatic fever, which left his heart diseased. Three years ago he was in Matthew for the heart affection. He has been subject to an offensive discharge from the left ear. He was feeling well until one week ago, when cough, short breath, and palpitation of the heart came on; on the 19th swelling of the face began.

On admission, he was febrile, face puffy, slight swelling of the feet, cheeks flushed, and a little dusky; loud systolic murmur at apex-beat of heart, no signs of much dilatation; offensive discharge from left ear. Urine now and then contained a trace of albumen. A little pulmonary catarrh for a few weeks after admission.

The course of the fever was the following:—From January 20 to 23 the temperature varied between 100° and 104.4° ; he was taking a drachm of infusion of digitalis every four hours. On January 24 and 25 he took fifteen grains of salicylate of soda every four hours; the temperature speedily fell to 98.6° . From January 26 to February 7 the salicylate was given only three times a day; the temperature varied between 98.2° and 100° until February 2, when it began to rise, and reached 102.6° . Fifteen grains of antipyrin given three times a day on February 8 and 9 sent down the temperature to the normal, but no medicine being given on February 10 and 11, it rose to 101.2° . The antipyrin given as before from February 11 to 15, the temperature kept at 99.5° , or a few decimal points more or less.

Quinine and iron were given from February 17 to 25; the temperature rose to 102° towards the end of this week. From February 25 to March 2 (six days), fifteen grains of salicylate of soda were given every four hours; the temperature speedily became normal, and lasted so until the boy was discharged, well in all respects excepting the heart murmur, on March 25.

CASE III.—Henry W., aged 8 years 10 months. Admitted into the Hospital for Sick Children on May 14, 1878. On May 1 he felt pain all over him; his ankles and wrists were swollen. The arthritis soon disappeared, but the fever continued. On admission, he was very thin; there were no signs of disease in head, chest, or belly; the joints were natural; urine natural. From May 14 to June 5, upon treatment which could not be called specific, but the details of which are unrecorded, his temperature always rose in the evening to above 99° , often above 100° , sometimes above 101° ; morning temperature always 98° . June 6, he began to take three minims of tincture of aconite every four hours, after this time the temperature was never above 99° . On June 11, the pulse being irregular and intermitting, the aconite was stopped. He soon afterwards was discharged.

Concerning the use of aconite in the last case, that drug was recommended by Störck more than a hundred years ago as a remedy for rheumatism. Lombard believed that “the alcoholic extract of *aconitum napellus* is gifted with a specific action against acute articular rheumatism.”¹ Aconite sometimes reduces fever and inflammation in other diseases, particularly in sore throat or quinsy, which is often a rheumatic affection, and often occurs early in rheumatic fever. Two other drugs which have been highly esteemed in the cure of sore throat are guaiacum and salicylic acid, and both are anti-rheumatic. To do good in quinsy, the remedy must be given early in the disease, before there is much exudation, especially before suppuration has occurred. In some forms of pneumonia, aconite given at the very beginning of the disease, and given so as to have a marked effect upon the pulse, temperature, and secretions of the patient—given, that is to say, in such a manner as to require the constant attendance of the medical man; aconite can undoubtedly cut the disease short. But these conditions can seldom be fulfilled: perhaps the pneumonia which can be thus arrested is rheumatic in its nature. Certainly aconite is of no use when exudation (or hepatisation) has occurred. And, on the whole, I consider aconite to be a very dangerous drug to employ in the treatment of pneumonia under ordinary circumstances.

¹ Trousseau et Pidoux: *Thérapeutique*, 7me édit. vol. ii. p. 119.

ON
SOME MEDICAL POINTS RELATING TO THE
PROVISION OF ISOLATION HOSPITALS.

BY

R. THORNE THORNE, M.B.

Saint Bartholomew's Hospital has already contributed an important proportion of the medical officers of health who have been appointed to the 1628 sanitary districts into which England and Wales was divided at the close of 1887, and each year adds to the number of those officers who have studied in our Medical School. Hence it has been thought that a paper having some bearing upon the duties of health officers might appropriately find a place in these Reports.

In selecting a subject on which to offer some remarks, I have had regard to the circumstance that sanitary authorities and the community at large are daily becoming more and more alive to the fact that, in order to prevent epidemics, they must have at hand, and in actual readiness, some adequate means for the isolation of first attacks of the various infectious fevers. In order to give effect to this growing conviction, medical officers of health are frequently consulted by sanitary authorities as to the principles which should be held in view in making the needful provision. Some of these principles are essentially medical in their character, and it is to a few of the more important of these that I propose to direct attention.

I.—*Diseases Calling for Isolation.*

One of the first points on which sanitary authorities generally need advice relates to the number and character of the several infectious diseases which may be expected, at one or another

time, to call for measures of isolation. And in this connection it will be desirable briefly to consider the various diseases which are referred to by the Registrar-General as constituting the "principal zymotic diseases," as well as a few additional ones which are generally included in the provisions of Acts requiring the compulsory notification of infectious diseases. The diseases I refer to are as follows:—Small-pox, scarlet fever, diphtheria, measles, whooping-cough, typhus, enteric fever, simple continued fever, diarrhœa, cholera, puerperal fever, and erysipelas.

1. *Small-pox.*—Small-pox has had an important influence on the provision of hospitals for infectious diseases. Of the current specific fevers of this country it is the one which is most dreaded by the public generally, and its appearance or its anticipated prevalence has done more to secure the construction of isolation hospitals than anything else. But this result has by no means been an unalloyed public benefit. In the first place, people who dread small-pox are apt to act under the influence of panic, and the result is that temporary structures, generally unattractive in appearance and unfitted to afford proper accommodation for the sick at all stages of the ever-varying meteorological conditions met with in our climate, are hurriedly run up; they are often not ready to deal with the actual outbreak for which they have been provided, and they are not only of such a character as to deter people from willingly resorting to them for other infectious fevers, but they stand in the way of the provision by the sanitary authority of such accommodation as is called for in the interests of the public health. In short, the experience as to small-pox hospital provision in this country has, above all things, shown the importance of constructing isolation hospitals without hurry and in advance of the emergencies against which they are intended to provide. Indeed, it will often become a question, in cases where small-pox is threatened in the district of an authority who have failed to provide themselves with an hospital, whether the future interests of the district will not be best served by trusting to vaccination, including re-vaccination, together with such partial measures of isolation and disinfection as may be practicable in the homes of the sick, rather than by resorting to the hurried erection of a building that will probably for many years be a standing hindrance to the provision of a proper isolation hospital. And in coming to a decision as to this, it should be remembered that in so far as risk of attack and death from the several infectious fevers is concerned, small-pox is by no means the disease that principally calls for isolation. Not only can almost com-

plete security against it be obtained by vaccination, but it is a far less prevalent source of sickness and fatality than several of the other infectious fevers, as, for example, scarlet fever. Thus, during the decennium 1877-86, whereas small-pox caused a total of 18,026 deaths in England and Wales, no less than 132,175 deaths were in that period registered as due to scarlet fever.

There is also another important consideration that should weigh with a medical officer of health in regard to the provision of small-pox hospital accommodation. I refer to the evidence that is now available as to the influence of small-pox hospitals in the distribution of the infection of that disease to the inhabitants living in the neighbourhoods surrounding such hospitals. Mr. W. H. Power, in his well-known investigations on this subject in the case of the Fulham Small-pox Hospital, made a series of exhaustive inquiries over a special area of a one-mile circle having the hospital for its centre, and this circle being divided into a central one of a quarter-mile radius and three outer quarter-mile rings, it was found, as the result of six years' experience, during which time the hospital had been used for small-pox on eight occasions, that on each such use there was an excessive incidence of small-pox in houses in the vicinity of the hospital, and that in regard of the percentage of houses attacked in different zones of the one-mile circle, there was a very exact and constant gradation, the attacks becoming gradually greater as the distance of the houses from the hospital decreased. Further inquiry showed that this result could not have been brought about by human intercourse, and that it was impossible to explain it except on the hypothesis of an atmospheric dissemination of the contagium. In view of this experience, a Royal Commission¹ have urged that special precautions should be taken in the provision and construction of small-pox hospitals, and in a recent memorandum issued by the medical officer of the Local Government Board the following passage occurs:²—"Sites for hospitals designed to receive small-pox require a very much larger space about them than sites for other infectious hospitals. Small-pox hospitals, as we know them, are apt to disseminate small-pox, and their sites should, therefore, be placed outside of towns, and should indeed be sought at places as far distant from any populated neighbourhood as considerations of accessibility permit. It has been suggested that small-pox hospitals may be so constructed as not to be dangerous to neighbouring habitations; that this can be done by a system of passing through a

¹ Report of the Royal Commission on Small-pox and Fever Hospitals (1882).

² Memorandum on the Provision of Isolation Hospital Accommodation by Local Sanitary Authorities (1888).

furnace all out-going air from infected wards and places; but this suggestion has not yet been carried into effect."

2. *Scarlet Fever*.—This disease, as already indicated, prominently calls, by reason of its excessive prevalence and fatality, for the adoption of public measures of prevention. It is also typical of that class of disease in the control of which much may be expected from efficient measures of isolation and disinfection. It is, however, not infrequently suggested that since scarlet fever is essentially a disease of childhood, the primary object of the provision of means of isolation is certain to be defeated by the refusal on the part of parents to allow their sick children to be separated from them. But, as a matter of fact, experience is altogether opposed to this view, especially as regards the classes whom it is most important to remove from their homes when suffering from infectious disease. Scarlet fever, though mainly a disease of childhood, is hardly one of infancy. The age at which most of the attacks occur may be stated as from the fourth to the ninth year of life, the liability to it lessening rapidly after the completion of the tenth year.

In the year 1880 I made a lengthened inquiry into the subject of the provision of infectious hospitals by sanitary authorities, and being desirous of testing the objection I have referred to, I carefully examined the records of the hospitals visited in order to ascertain the ages of the patients admitted. Summarising such results as were procurable on this point, I found that out of a total of 4758 admissions at all ages, as many as 2673 of the patients, or 56 per cent., varied in age from a few months to ten years, the rate varying from 33 per cent. in the case of a large city, to 81 per cent. in a rural district. The vast majority of these children were placed under isolation for scarlet fever.¹

One important reason for urging hospital accommodation for scarlet fever is that, under our present system of elementary education, compulsory school attendance offers facilities for the spread of the disease which did not formerly exist. This has been recognised by the Education Department of the Privy Council, who now make the distribution of the annual parliamentary grant conditional, amongst other things, on the managers having complied with any notice of the sanitary authority of the district in which the school is situated, requiring them for a specified time, with a view to preventing the spread of disease, either to close the school or to exclude any scholars from attendance; and it is found in practice that the absence of proper means of isola-

¹ On the Use and Influence of Hospitals for Infectious Diseases. Report of the Medical Officer of the Local Government Board (1882). Reissued 1884.

tion, by which first attacks can be promptly removed, often makes it necessary to impose serious restrictions of the sort indicated, which would otherwise be unnecessary, on the educational arrangements of a district in which school attendance appears to be a medium by which infection is spread.

3. *Diphtheria*.—This is another disease which sanitary authorities ought, for many reasons, to be prepared to isolate. Diphtheria is essentially a disease of the school-going age, and its diffusion through the agency of schools is even more marked than that of scarlet fever. And, in addition to this, such aggregation of children between the ages of three to twelve years as takes place in the elementary schools has been ascertained to be associated with the development, from cases not recognised as differing from what is usually regarded as ordinary "sore throats," of a diphtheria contagium having particular potency for spread and for death, and it has also been shown to constitute a very important factor in the recrudescence of the disease, and this from ailments so mild, and apparently so simple in character, that they would otherwise have passed unnoticed.

Diphtheria is also a disease the etiology of which is involved in very considerable obscurity; and as long as our information as to its origin and as to its various methods of spread remains so imperfect, it becomes all the more important to aim at controlling so infectious a disease by one of the few trustworthy means at our disposal, namely, by the early isolation not only of well-marked cases, but also of all suspicious sore throats coming under notice during diphtheria prevalences. So far, the check placed upon the spread of diphtheria has by no means been satisfactory. It is but rarely that any comprehensive measures for isolating it have been adopted, and whereas the mean diphtheria death-rate for England was 0.12 per million during the ten years 1871-80, it averaged 0.21, or not far from double, in the six years 1881-86.

4. *Measles and Whooping-Cough*.—Hitherto little or nothing has been done in the direction of any public measures for the isolation of measles or whooping-cough. There are several reasons for this. In the first place, those attacked consist largely of infants. Thus, out of a total of 12,013 fatal attacks from measles in England in the year 1886, no less than 10,878 took place under five years of age, 2498 being under one year; and out of a total of 12,936 fatal attacks from whooping-cough, 12,475 took place under five years of age and 5685 under one year. Then, again, there is the mistaken notion on the part of parents that all children must necessarily suffer from these two diseases, and hence many take but little care to prevent the spread of their respective contagia. And further, there is the

difficulty that, owing to both affections being highly infectious at a stage antecedent to that at which the more definite and characteristic symptoms show themselves, both these diseases have often been communicated to others before a correct diagnosis has been formed. For these amongst other reasons sanitary authorities rarely make provision for the isolation of these two diseases, and until much more progress has been made in the control of the other dangerous infectious disorders, comprehensive measures for the removal to sanitary hospitals of cases of measles and whooping-cough are hardly likely to be adopted.

5. *Typhus Fever*.—Typhus is essentially a disease of large towns and cities, where overcrowding and destitution prevail. It is highly infectious to those occupying the same house as, or coming into contact with, the sick, and in all such districts some means for the immediate isolation of first attacks should be available. The disease is also at times imported into rural districts, and into towns unaccustomed to its visitations, by means of tramps; and in the case of young children, who do not, as a rule, suffer from a severe form of the disease, it is apt to be mistaken for measles. For these reasons the isolation of typhus may become a necessity in any sanitary district; but where immediate measures of isolation and disinfection are adopted, the disease can, as a rule, be rapidly stamped out. Fortunately, typhus is steadily on the decline in this country. In 1869, when, for statistical purposes, it was first separated from among the group of the continued fevers, it caused in England and Wales a fatality amounting to 193 per million living; since then it has steadily diminished, and in 1886 the rate was only 9 per million. But, for all this, no sanitary district can, as yet, be properly regarded as free from the risk of its appearance.

6. *Enteric Fever*.—The desirability of making public provision for the isolation of enteric fever is coming to be more fully appreciated, as the circumstances under which that disease is spread come to be better understood. Formerly enteric fever was admitted without restriction into the ordinary wards of general hospitals, the practice being mainly based on the contention that since the contagium was limited to the alvine discharges, there ought to be no risk of the spread of the disease to others. Experience has not altogether borne out this view, and it is by no means improbable that, under certain circumstances of aggregation and otherwise, some substantial risk of a diffusion of the infection of enteric fever to those in near proximity to the sick does obtain. Some general hospitals now altogether exclude enteric fever patients from their wards, and by far the majority of those still receiving such cases strictly limit the

number under treatment at any one time. Thus it has come to pass, that whilst such isolation in hospital as was formerly available for enteric fever patients has materially diminished, sanitary authorities have been learning that cases of this disease, not subjected to proper sanitary supervision in their own homes, may be the means of widely distributing the contagion by reason of the discharge of specifically diseased evacuations into faulty drains and sewers; through the accidental contamination of water and of milk services; and in other ways. As such knowledge has advanced, an increasing demand has been made upon sanitary authorities to provide means for the isolation of enteric fever patients.

7. *Simple Continued Fever*.—In much the same sense as enteric fever and typhus call for means of isolation, so does simple continued fever. In all probability the designation given to this continued fever is largely due to imperfect means of diagnosis. Murchison held that in its fatal form the disease was essentially enteric fever, but he also considered that the term was at times applied to abortive cases of typhus, and also, at times, of relapsing fever. Subsequent examination of the mortality returns for London goes to show that the deaths registered under the heading of simple continued fever do not, in point of season, correspond with enteric fever, but are rather related to typhus.¹ Whichever of these diseases is masked under the term simple continued fever, it would still call for isolation in the interests of public health.

It may here be noted that relapsing fever has for many years been absent from England. Should it again prevail, its highly infectious character would call for stringent measures of isolation.

8. *Diarrhœa*, in its epidemic form, is mainly confined to infants and very young children. Such infectiousness as the disease possesses hardly calls for isolation as a means of control, and it is rarely, if ever, dealt with in sanitary hospitals.

9. *Cholera*.—The system adopted in this country for preventing the importation and spread of cholera includes a recognition of the need for means of isolation for those actually suffering from the disease, as also for those who labour under suspicious symptoms. Special provision for cholera is mainly called for in port sanitary districts; and since cholera patients cannot safely be carried long distances, hospitals for their reception should be

¹ The Seasonal Prevalence of Continued Fevers in London, by G. B. Lonsstaff, M.A., M.B. Transactions of the Epidemiological Society of London, Session 1884-85.

within a mile of the localities where they are likely to be first met with.

10. *Puerperal Fever and Erysipelas.*—Whilst these two affections are often included in the list of diseases as to which compulsory notification is required by sanitary authorities, I know of but few instances in which erysipelas is removed to isolation hospitals, and I am not aware that any attempt has been made to deal with puerperal fever in this manner. Speaking generally, it may be stated that the means of isolation required for these two diseases is rather that which should exist in every well-appointed general and lying-in hospital, than such as is provided for public health purposes. There are, however, doubtless occasions when sanitary authorities may find it necessary to isolate these diseases on public grounds; and in the construction of several large infectious hospitals the isolation of cases of erysipelas has been contemplated; the practice has also been to some extent carried out.

II.—*Extent of Hospital Provision to be made.*

The number of diseases for the control of which sanitary authorities may be expected to provide some means of isolation is thus somewhat considerable; and, at first sight, their enumeration may appear calculated to impose a heavy burden, and, as such, to have a deterrent effect. But a medical officer of health, in advising as to the extent of hospital provision that it is desirable to make, should have special regard to the current requirements of the district.

The sanitary needs of a district in the matter of hospital provision for infectious diseases are to be judged rather by the frequency with which fresh outbreaks of those diseases occur, than by the number of attacks resulting from prevalences uncontrolled by proper means of isolation. The aim of a sanitary authority should be the prevention of epidemics by the isolation of first attacks, and hence, for this reason alone, the extent of permanent accommodation which they may be expected to provide and to maintain need not be large.

Speaking generally, it has been estimated that one bed per thousand inhabitants would suffice for this purpose. But districts will necessarily differ in this respect. Thus, in a locality where the population is well-to-do and most houses are of a size and construction that offer reasonable facilities for the isolation of single attacks of the current infectious fevers, the amount of hospital accommodation needed for public health purposes will be less than in a manufacturing or colliery district,

where infectious disease cannot be treated in the houses in which it breaks out without very great, if not certain, risk of spread. It has also been supposed that, in districts where a system for the compulsory notification of infectious diseases is in force, the operation of such a measure will so far aid in disease prevention as to reduce the amount of standing hospital accommodation necessary for the isolation of such diseases. As yet, no sufficient experience has been obtained on this point; but as regards such a disease as scarlet fever, it is certain that in some instances the mere fact of the authority being in possession of information as to the amount of disease prevalent has led, in the first instance, to a considerable increase in the removals to hospital. Reduction in the extent of accommodation needed is hardly to be expected as an immediate sequel to the adoption of a system of compulsory notification, but rather to follow on a proper use being made of the information thus acquired.

III.—*Character of Accommodation Required.*

Dealing under this heading solely with medical requirements, I would here point out some of the principal matters on which a medical officer of health may have to advise.

(1.) In dealing with the question of site, I would premise that all the conditions which are deemed essential in the provision of a healthy dwelling-house should be regarded as equally desirable in the case of an infectious hospital. But, in addition, there remain certain points involving medical considerations which are peculiar to hospitals.

(2.) One of the most important is the extent of site required; and in determining this, the need for future extension of hospital buildings, whether owing to such an emergency as an epidemic or to increase of population, should be borne in mind.

(3.) The amount of land to be acquired will also largely depend on the methods of water-supply and drainage which are adopted. If either water has to be sought or drainage has to be dealt with on the site itself, the area of land will almost necessarily have to be considerably in excess of that which is requisite for the hospital proper, and this is especially the case whenever the drainage of the establishment, including bath, laundry, and other liquid refuse, is finally disposed of within the hospital enclosure. As to the desirability or otherwise of so dealing with hospital drainage, I would draw attention to the following sentence, which I wrote as the result of the inquiry

which I undertook in 1880:—"Where public sewers of good construction are available, the hospital drains are always connected with them, and in no instance have I met with any ill results from the adoption of this plan." And I would add, that all the information I have been able to acquire on this subject since that date has been towards the same conclusion. In this connection I would especially refer to the fact, that although many thousands of cases of the various forms of infectious fever have now for a long period been annually received in such hospitals as those belonging to the Metropolitan Asylums Board and the London Fever Hospital, no special incidence of disease has ever been known to occur along the lines of sewers which receive the drainage of these establishments.

(4.) Another point affecting extent of site calls for attention. Since the issue of the Report of the Royal Commission on Small-pox and Fever Hospitals, 1882, no loan for the erection of an infectious hospital by a sanitary authority has been sanctioned by the Local Government Board unless there has been provided between such buildings as are intended to receive infected persons or infected things and the boundary of the site a zone of not less than 40 feet in width. This requirement is mainly based on the experience of the London Fever Hospital, as set forth in my Report on the Use and Influence of Hospitals for Infectious Diseases, where it is shown that, although there were under treatment in that institution, at one and the same time, during different periods—(a) from 100 to 200 cases of typhus, with a score or two of other fevers; (b) from 200 to 300 cases of relapsing fever, with some 60 to 100 cases of other fevers; and (c) of from 80 to 100 cases of scarlet fever, with 30 to 40 cases of enteric fever; yet, after an inquiry extending over some years, not a single case of either typhus or relapsing fever—diseases which were especially infectious among the hospital staff—had occurred in the population around the hospital; and that as regards enteric and scarlet fevers, the numbers attacked around the hospital happened to be somewhat less than those which might have been expected in a corresponding London population living at a distance from an infectious hospital. Although the neighbourhood of the London Fever Hospital is thickly inhabited, the houses which are nearest to it stand at a distance of some 40 feet from the wards and other buildings.

(5.) Dealing next with a few points relating to the hospital buildings, it is as well to bear in mind that no sanitary district can be regarded as properly provided for unless it has immediately available sufficient accommodation for the isolation of two different infectious diseases in both sexes; that is to say, it

should possess at least two pairs of wards or rooms, according to the character of the district, having no aerial communication with each other. Different means for making this provision are illustrated in Memorandum on Isolation Hospital Provision already referred to.

(6.) In the next place, the amount of air-space per patient should be considered. Assuming that each hospital ward will contain the ordinary proportion of acute and convalescent patients, a minimum of 2000 cubic feet of air per head is generally found to suffice in order to maintain such purity of air as may reasonably be regarded as called for with a view to the comfort and the recovery of the sick. But this minimum presupposes that the ward is adequately ventilated and warmed. Small-pox is perhaps the only infectious disease which is as yet known to form an exception to this rule; it having at times been found difficult in the extreme to keep even well-ventilated small-pox wards always "sweet" where each patient has been limited to the minimum capacity named.

Much also depends on the allotment of this amount of air to the individual patient. No excess in the amount of total air provided—as, for example, in the case of lofty wards—can compensate for crowding patients on the floor-level; and hence the beds should be so arranged as to ensure for each patient a floor-space of some 156 square feet. And since it is in the neighbourhood of the patient's mouth and nostrils that it is above all important to maintain the purity of ward-air, it is of all things necessary to allot to each bed a separate amount of wall-space, not less than some 12 feet in length.

In connection with this subject of air-space, I would here quote some remarks which I embodied in my Introductory Address to the Abernethian Society for the Session 1887-88:—

"As bearing on the importance which attaches to this question of ample air-space for the sick, let me record an experience of the London Fever Hospital. The cubic capacity per bed is large; the windows and ventilators of the main scarlet fever wards have for many years never been altogether closed for so much as a single hour, ample movement of fresh air being always maintained; and since this has been the case, the number of patients contracting albuminuria has undergone a marked reduction. There have, however, been occasions when, owing to repairs, periodical cleansings, or otherwise, it has been found necessary, as a temporary measure, to exceed the number of patients properly allotted to one or other ward, and when this has been the case, the practice has almost invariably been followed by an increase in the number of patients exhibiting albumen in the urine. And

again, in Grantham, an epidemic of scarlet fever having some few years ago to be dealt with, partly in tents and partly in the homes of the sick, Dr. Ashby, the medical officer of health, was so convinced of the value of tent over indoor treatment, that he always sought to remove the worst cases of albuminuria to the hillside tent encampment, where the sides of the tents were kept open all the day. Every such case recovered; but it was otherwise with the cases left at home. Summarising his experience as to dropsy, he reported that no single case arose in the tents, and that the several bad cases removed to them recovered. In short, that which is so much needed in the interests of many cases of sickness is the nearest approach to open-air treatment that is obtainable; and acting on this principle, you often see our hospital square dotted about with patients lying on their beds or couches. But the practice needs extension, and I am glad to have had a share in inducing more than one public body in this country to imitate some of our Continental *confrères* in providing, either at one end or along one side of each hospital ward, an open verandah or balcony, on to which the patients' beds can at any moment be easily wheeled through a casement window."

Since this address was delivered, Mr. R. D. R. Sweeting, resident medical officer to the Western Hospital of the Metropolitan Asylums Board, has made careful study of the influence of ventilation and aggregation in the production of albuminuria in scarlet fever; and comparing patients of the same class, subject to the same therapeutic system, and whose urine was submitted to the same chemical tests, but who at intervals differed in the one solitary respect of more or less crowding in wards, he has come to the conclusion that it is "diminished cubic space in the wards" that has mainly "produced an increase of albuminuric cases."¹

(7.) Medical advice is often sought as to the number of beds that should be placed in any one ward of an infectious hospital. In suggesting an answer to this question, I cannot avoid the conclusion that the practice of treating sick persons under circumstances which admit of the air by which they are surrounded being charged, more or less, by the emanations of other sick persons, is wrong in principle, and that from this point of view aggregation of the sick in wards is undesirable. But other considerations must, in the case of a large proportion of the population, be regarded as outweighing this one; and all that can properly be contended for is, that the limit of such aggregation shall be decided by considerations such as are involved in

¹ Annual Reports of the Statistical Committee and Medical Superintendents of the Metropolitan Asylums Board Hospitals (1887).

securing freedom from any recognisable risk, together with such efficiency in general administration and nursing as is consistent with a reasonable regard for economy.

As yet we know but little as to the influence of aggregation in increasing the power for mischief of the several contagia of the infectious fevers; but that which we have learned, whether as to small-pox in hospitals or diphtheria in schools, is all adverse to any unnecessary aggregation. There are also certain general objections to large wards. Just as the number of sick persons in a ward increases, to that extent is there risk that the varying needs of the individual patient will be sacrificed to those of the majority, as, for example, in such matters as temperature, ventilation, purity of atmosphere, quiet, &c. And I would hence suggest that the number of beds in a ward should be regulated by the work which one skilled nurse with a ward-assistant can under ordinary circumstances properly carry out.

The several infectious fevers doubtless differ in regard to the amount of nursing which the sick require; but taking them as a group, and assuming that the ordinary proportion of acute and convalescing cases at varying ages are brought together, it may be held that any one nurse can rarely be expected to take charge of more than twelve patients. The moment this number is exceeded, the nursing staff has to be doubled; and directly a second nurse is required, it would be better, in the interests of the sick, that those whom she nurses should be in a separate ward. Holding this in view, I believe it will generally be found desirable that infectious hospitals should be built in pavilions so contrived that in each there shall be two wards, one for males and the other for females, the two together to contain twelve beds, and to be separated by an intervening nurses' duty-room. Some modern infectious hospitals have, I am aware, been erected with wards each of which has required an ordinary staff of two, three, or more nurses with ward-servants; but except in so far as the original outlay in building is concerned, I know of no economy or other advantage in such an arrangement, and I feel convinced that distinct disadvantage attaches to the practice.

Such minimum hospital accommodation as has been foreshadowed in the above remarks may therefore suitably consist of two separate pavilions, each designed to receive in separate wards male and female patients who shall not collectively exceed twelve in number, together with the needed administrative accommodation. But there is, in addition, immense advantage in providing, in a separate block, a few special isolation rooms having no aerial communication with each other. These serve many useful purposes, and by affording means for the temporary

reception of cases the nature of which is doubtful, risk is avoided of the contraction by patients of diseases other than those for which they were admitted; a risk which should be especially held in view by an authority having for its primary object the prevention of infectious diseases. Such a block may, for small sanitary districts, serve as the sole permanent provision, and in somewhat larger ones it may well take the place of one of the ordinary ward-pavilions, since the number of beds it contains will always be available for the current wants of the population.

In the above remarks I have avoided referring to any points relating to the construction of isolation hospitals which involve architectural considerations, and I can only profess to have given some general indication of that portion of the subject with which the medical officer of health is primarily concerned.

A CASE OF
PROGRESSIVE SUPPURATIVE PARAMETRITIS.

BY

J. MATTHEWS DUNCAN, M.D., F.R.S.

There are described several rare kinds of suppurative parametritis. Among these I have observed great remoteness, great slowness of progress, as a duration of years, sloughing, with or without hæmorrhage, caries and necrosis of bone, advance of abscess into neighbouring joints. But the only case that I know of progressive suppuration is that which I now record.

This kind of suppuration is interrupted, not continuous; abscess in areolar tissue succeeds abscess with only short intervals of some days, the abscesses not in the same part, but in the same locality. In the case to be recorded there was, indeed, continued thin purulent discharge from the sinuses; but, at least after November, without rise of frequency of pulse or of temperature, and with very little pain or tenderness at the seat of the new abscess, there occurred, from such, gushes of laudable pus: all this resulted in healing of the new abscess or the formation of a new sinus; then came another abscess, and so on. A case, of what at any particular time looked a simple parametric suppuration in a healthy young multipara, was, by this succession of abscesses, prolonged till the general health and strength were nearly exhausted, occupying in all nearly two years, counting from the first rigor of the original parametritis to the final healing of all the sinuses.

This progressive suppuration is well known to occur in the pudendum and in the mamma, and an analogous disease is described by Koch in a lower animal. It is natural to suppose that some special microbe is the cause of the disease, but I believe Koch has been unable to identify it. In my case, the search was not conducted, as was desirable on scientific grounds, by using the pyogenic membrane, but Watson Cheyne examined

the pus, and in vain. "On examining the pus," says he, "I found cocci in it in one or two places arranged in short chains. I inoculated a rabbit and a guinea-pig. The rabbit was inoculated on the ear, and showed some inflammation around the seat of inoculation, and afterwards a very small ulcer formed. I injected several drops beneath the skin of a guinea-pig, but no effect followed, and when I saw the animal on Monday (after several weeks), no trace of the inoculation could be found. If tubercle bacilli had been present in the pus, there would have been a nodule at the seat of injection by this time. Hence, so far as one can judge without using the pyogenic membrane, the probabilities are against its being tubercular, and in favour of its being an effect of the streptococcus pyogenes increased by the difficulty of getting good drainage." To these remarks I may add, that being familiar with the evils of bad drainage in parametric abscess, I could see no reason to connect with that evil the renewed suppuration in this case, nor did I see anything like the usual course of a case in which there is such an obstacle to healing, neither was there any special point in the history of the case giving rise to the suspicion of tubercular infection. The case began with acute parametric symptoms, as is usual, and there was in some parts of the extensive disease bad drainage; but when the case came under my care, the evil was entirely removed, and the renewed abscesses continued.

Mrs. Y., æt. 34, has been married eleven years, has had five children and one miscarriage (between the second and third children). The youngest child is nineteen months old (November 1887). On the 13th day of June, two days after her last confinement, she had an attack of fever which ended in copious perspiration, and she has not been well since. Heavy sweats, debility, loss of appetite and strength made her give up nursing. About this time she had what appeared to be a menstrual flow: it has not again recurred. A severe shivering fit in August. About the middle of September stiffness and aching in right leg supervened. Attention was now attracted to a hardness in the hypogastric region, which had been noticed as early as a month after the confinement. In November there occurred a discharge of pus per rectum, and it was repeated every fortnight for some time, fever preceding the discharge. In January an abscess was opened in the groin near the pudendum, and another a little to the outside of this. After these openings pus ceased to come per rectum. There occurred repeated great flows of pus from the openings, generally once a week. As summer advanced they became less frequent—about once a month. In November Mrs. Y. came under my care.

I laid open by bistoury a sinus about $1\frac{1}{2}$ inches long, which joined two openings in the region of the right external inguinal ring; this being done, a sinus was discovered running $2\frac{1}{2}$ inches backwards towards the inside of the neck of the femur. Examination per vaginam and otherwise revealed nothing. Presently a gush of pus came from the sinus, and a new sinus was formed communicating with that last mentioned. Other suppurations without rise of pulse or of temperature followed, the discharge taking place at the outer of the two original openings, and then a long sinus was discovered running along Poupart's ligament to the close proximity of the iliac spine. This was laid open, and at its outer end was discovered a sinus about $1\frac{1}{2}$ inches long running downwards in the direction of the tensor vaginae femoris. From this sinus there came subsequently a large gush of laudable pus, the bursting of an abscess. Other abscesses burst at the external end of this sinus, and a sinus nearly five inches long was found running deep below the ala of the ilium. During this time there was a scarlatioid attack, the rash beginning at the wound.

The general health was now (middle of January) extremely low, and there was great emaciation. Renewed suppurations ceased. The long sinus along Poupart's ligaments was healed; but the deep sinus at the spine of the ilium remained, and the sinuses near the external inguinal ring were only partially healed, the probe entering fully an inch.

In the end of January Mrs. Y. went to Brighton. In the end of March she returned to London, and I found great general improvement, and there only remained one inch of sinus at the spine of the ilium. All the rest healed.

On June 1st she writes that the wound has been completely healed for some time. Menses regular since their return on March 30th. Health completely restored. Power of walking gradually regained.

ON THE RELATION OF
ERYTHEMA MULTIFORME AND ERYTHEMA
NODOSUM TO RHEUMATISM.

BY

ARCHIBALD E. GARROD, M.D.

From the time of Rayer (1835) to the present day, numerous cases have been recorded which illustrate the fact that erythema multiforme and erythema nodosum occasionally appear in the course of an attack of rheumatic fever; an association which, although it is uncommon, is too frequent to be merely accidental, and we are driven to the conclusion that, in some instances at least, the constitutional state to which we give the name of rheumatism is the actual cause of the erythema.

Beyond this we have the fact, which is equally well established, that in a large number of instances these erythemata are associated with arthritis of greater or less intensity, the joints being in some cases obviously swollen, whilst in others there is merely pain on movement.

Arguing from these data, some authors have maintained that the erythemata are merely cutaneous manifestations of rheumatism, whilst others have attributed their occurrence in rheumatic fever to the administration of certain drugs, such as quinine, a view which is obviously incorrect, since they are met with under all forms of treatment, and even before any drugs have been administered. Others, again, who are willing to acknowledge that rheumatism is an occasional cause, attribute a far larger share in their causation to a variety of other disorders; and lastly, there are some who look upon these eruptions as the rashes of specific febrile diseases.

Now, it has been shown, especially by certain French observers, that arthritis may form a part of almost any infective disease,

and such joint-affections are held, by those who have studied them most carefully, to be due to the specific poisons of the diseases in question. It might, therefore, be thought that the arthritis associated with the erythemata is of this nature, but this view is opposed by the extreme frequency of its occurrence, whereas the arthrites of the infectious diseases are for the most part very rare complications.

There are, moreover, no clinical features by which we can distinguish the joint-lesions of the erythemata from those of ordinary rheumatism, which they resemble in one important respect, namely, their transitory character.

On the other hand, the mere fact that rheumatic fever is sometimes associated with the erythemata is not in itself sufficient evidence of their rheumatic origin; for arthritis, with endocarditis, and frequently followed by chorea, a combination clinically indistinguishable from true rheumatism, is not uncommon in the course of scarlatina. There is, however, other evidence than this which points strongly to the conclusion that the erythemata are usually manifestations of rheumatism.

It is unfortunate that, in our ignorance of the pathogeny of rheumatism, we are compelled to rely entirely upon clinical evidence for the solution of problems such as that before us, and to base our conclusions as to the nature of the arthritis which usually accompanies the erythemata, upon the antecedents of the patients, upon the presence or absence of cardiac lesions, and the various other manifestations of the rheumatic poison.

It is to these points that the attention of those who have written upon the subject has been directed. Thus Dr. Begbie argued in favour of the connection of the two conditions, on the grounds that erythema nodosum occurs at the age at which rheumatic fever is commonest; that it is often associated with internal disorders, such as pleurisy and pneumonia, which also accompany rheumatism; that both are associated with menstrual derangements; and lastly, that cinchona bark is valuable in the treatment of both conditions.

Dr. Stephen Mackenzie, in a recent communication to the Clinical Society, pointed to the frequent occurrence of rheumatic symptoms, such as arthritis, sour sweat, sore throat, &c., in the course of erythema nodosum, as well as the development of cardiac lesions, both in cases in which arthritis is present and in those in which there is no affection of the joints, as justifying the inference that this eruption is frequently, if not generally, an expression of rheumatism, even when no definitely rheumatic symptoms are present.

Dr. Mackenzie found that among 108 cases of erythema

nodosum collected from the records of several London hospitals, there co-existed acute rheumatism in 13 and subacute rheumatism in 4, making a total of 17 with definite rheumatism, besides 17 others in which articular pains were present.

Of the cases with arthritis, there were 10 with fairly definite cardiac lesions, and 2 in which the signs were doubtful. Moreover, cardiac lesions were found in 13 cases in which there were no articular symptoms, and in 2 of these murmurs (the organic nature of which does not appear to me to be conclusively proved by the published notes) developed under observation.

Dr. Camille Couland, in his monograph upon erythema multiforme, states that of 21 cases taken at hazard there were 12 in which there had been previous attacks of rheumatic fever, and 9 others in which there had been less intense, but no less characteristic, attacks of rheumatism. However, some of these 21 were already published observations, and we must bear in mind that such cases are usually selected for publication because of their bearing upon the question of the relation of the erythema to rheumatism, and that the proportion is probably somewhat too high in consequence.

The well-known paper of Drs. Barlow and Warner,¹ on rheumatic nodules, supplies some valuable evidence of the association of erythema multiforme with rheumatism, for in no less than 6 of their 27 cases this form of erythema was met with. Each of these 6 patients had previously suffered from rheumatic fever, and in each the eruption was associated more or less closely with nodule formation.

One boy, aged 7, who had suffered from rheumatic fever eight months previously, was admitted with a few nodules, but without articular symptoms; and twenty-two months later was readmitted with erythema marginatum, with no nodules, but with some effusion in one knee-joint, and passed through an attack of pericarditis under observation.

In two other cases the patients had pericarditis, erythema, and nodules; but although the joints were painful, there was no distinct swelling.

Following a somewhat different line of argument from that adopted by previous writers upon the subject, it will be my endeavour to show that no hard and fast line can be drawn between cases of erythema associated with acute rheumatism and those in which there are merely articular pains, and that the cases may be arranged in a continuous series, from those in which the arthritis is most intense to those in which the articular symptoms sink entirely into the background; for, as Dr. Mackenzie

¹ Trans. of the Internat. M. dical Congress, London, 1881, vol. iv. p. 116.

has shown, we have collateral evidence of the rheumatic origin of many cases in which there are no joint-lesions present.

We may compare with this the somewhat similar evidence which we possess connecting tonsillitis with rheumatism. We not uncommonly meet with sore throat in the course of rheumatic fever, and articular pains are usually present in the acute form of tonsillitis; but not only are the intermediate grades of arthritis wanting, but there is also considerable reason for thinking that the transitory throat affection, which so often forms the earliest manifestation of acute rheumatism, has little in common with the acute infective tonsillitis, in which articular pains form so prominent a feature.

I have hitherto grouped together erythema multiforme and erythema nodosum, although they are usually regarded as distinct conditions. It is obvious that if both are manifestations of rheumatism, they must be looked upon as related in the closest manner to each other, differing only in the extent to which the tissues are involved, and this view derives considerable support from the fact that they occasionally appear simultaneously, especially in young children, as is instanced by two of the cases quoted below. However, in constructing my series, I have for convenience grouped the two conditions separately.

The first case illustrates the association of erythema multiforme with rheumatic fever, in a woman under the care of Sir Dyce Duckworth, to whom I am indebted for permission to make use of the notes of this and other cases.

J. G., aged 37, was admitted to Elizabeth Ward on April 26, 1888. Her mother had had three attacks of rheumatic fever, and the patient herself had suffered from rheumatic fever seven years previously, and had been confined to bed for seven weeks.

For four months before her admission she had suffered from enlargement of the glands of the neck, and for six weeks from pain in the ankles and soles. On admission, her temperature was 99.4°, and her right knee was swollen and painful. Four weeks previously erythema had appeared upon the abdomen and arms, and had reappeared on April 23rd. The eruption consisted of marginate patches upon the chest, abdomen, and arms. During her stay in the Hospital she passed through a mild attack of rheumatic fever, and on May 25th it was noted that the first sound of the heart, which was normal when she came in, was prolonged at the apex and left base.

The second case is one of great interest, for the patient, whose heart had been seriously damaged by previous rheumatism,

passed through a succession of outbreaks of erythema, in the course of which she developed acute pericarditis, but her joints, though sometimes painful, were never swollen.

R. A., a girl aged 15, with no family history of rheumatism or chorea, was brought to the Casualty Department on April 23, 1888, with well-marked erythema papulatum on the shoulders and chest, and extending along the extensor surfaces of the arms to the wrists. There was a history of swollen and painful joints eighteen months previously, but she was not confined to her bed at that time.

For one month she had suffered from pain, without swelling, in the knees and shoulders, and simultaneously with its onset the erythema appeared for the first time.

The heart was found to be much hypertrophied, and loud præ systolic and systolic murmurs were heard at the apex, where a præ systolic thrill was felt, and there was also a loud systolic murmur heard in the aortic area. Pulse, 120. Temperature normal.

On April 26th she was admitted to Elizabeth Ward, under the care of Sir Dyce Duckworth.

On admission, there were no articular symptoms, but she said that she had joint-pains at night. On this evening the temperature was 102°.

On the 27th there was found to be a great development of erythema on the trunk and limbs, having no longer a papular character, but consisting of large rings with slightly raised red borders and livid centres. There were still no signs of joint-mischief.

On the 29th it was noted that the rash was fading, and changing to a coppery red colour. Evening temperature, 100°.

On May 3rd the rash had almost disappeared.

On the 4th it was quite gone. There was some impairment of the percussion-note at the right base, and some crepitation all over the right lung behind. On this day there was some slight hæmoptysis.

On May 7th general bronchitis was noted, and the temperature had again risen. The sputum was rusty, but there were no signs of pneumonia.

On the 11th the bronchitis was much better.

During the night of May 30th-31st she complained of præcordial pain, and on June 1st a friction sound was heard at the base of the heart.

On June 8th some pleuritic friction was noticed at the base of the right lung.

The note of June 15th states that pericardial friction was

well marked, and this was still distinctly heard on the 18th.

On June 21st the erythema, which had appeared and disappeared at intervals since admission, returned on the left cheek.

Pericardial friction was still audible on the 22nd, and the area of cardiac dulness extended up to the second costal cartilage.

In the early part of July there was a fresh appearance of erythema, associated with a fresh rise of temperature, but on July 26th the patient was discharged, improved in all respects.¹

In the following case the erythema supervened in the course of an attack of subacute rheumatism, which was already of some standing.

A. M., a girl aged 14, with no rheumatic family history, was brought to the Casualty Department on September 26, 1887, with a most typical eruption of erythema marginatum upon the chest and abdomen, the circles varying in size from that of a threepenny-piece upwards. Each ring was surrounded by a somewhat raised red border, the centre having the peculiar livid hue which is so characteristic of this condition.

For three months she had suffered from pain and swelling in various joints, and when she came under observation the finger-joints, wrists, and knees were swollen and very painful. Temperature, 102.2°.

After her admission to Elizabeth Ward the eruption gradually faded, and the joint-troubles quickly yielded to treatment. When she was first seen, the heart was natural, but she developed later an apical thrill and a systolic murmur heard at the apex and left base, the apex being displaced outside the nipple-line.

During convalescence some purpuric spots appeared upon the legs.

The next case differs from the preceding in the fact that the pain and swelling of the joints appeared and disappeared simultaneously with the erythema.

A. M., a little boy aged 4, one of whose sisters was rheumatic, was brought to the Casualty Department with his left knee swollen, and containing some fluid, and with his body bathed in a profuse sweat with a distinctly sour odour.

Upon the extensor surfaces of the arms and legs was a copious erythematous eruption, having in places the characters of

¹ I am indebted to Dr. Tylden for the use of his notes of this and the preceding case.

erythema marginatum, and in others those of erythema nodosum. The temperature was 100.4°. A faint systolic murmur was heard all over the cardiac area, and the apex-beat was not felt.

The patient was admitted to the Hospital, and four days later had lost both the erythema and joint-pains.

The interest of the next case lies in the presence of a rheumatic family history and the appearance of copious acrid sweat, although the articular symptoms never amounted to more than joint-pains, and the heart was unaffected.

S. H., a girl aged 10, whose mother and maternal grandmother had suffered from rheumatic fever, was brought to the Casualty Department with well-marked erythema papulatum, chiefly upon the extensor surfaces of the arms and legs. There was a history of pain in the joints of the fingers and in the knees for two days, but there was no swelling. The limbs were covered with a copious sour sweat, the odour of which recalled that of rheumatic fever patients. Temperature, 100.2°. Pulse, 112. The cardiac dulness was normal in area, and there was no murmur.

Three days later the erythema had disappeared and the temperature had returned to normal. She had been taking an alkaline quinine mixture.

The joint-pains still continued, but a week later these had also disappeared. The heart-sounds continued natural as long as the patient was under observation.

This case may be appropriately followed by one in which there were articular pains but no sweating.

C. T., a woman aged 39, who gave no family history of rheumatism, and who had at no time previously suffered from any joint-affection, came to the Casualty Department on August 23, 1888, with erythema confined to the arms. Upon the right arm there was a large, slightly raised patch over the biceps, and the remains of two marginate spots upon the flexor aspect of the forearm, which the patient said had resembled ringworm. There was induration, swelling, and redness of almost the entire surface of the left arm, the erythematous area having a serpiginous margin in places, and a slightly livid hue generally. There was some itching. She complained of pain and stiffness in many joints. Temperature normal. Pulse, 96.

On August 25th the erythema was found to have disappeared from the right arm, and was rapidly fading on the left. As on the 23rd the heart-sounds were natural, and the apex was in its normal situation.

By August 27th the erythema and joint-pains were entirely

gone. This patient also was treated with an alkaline quinine mixture.

Lastly, I will quote a case in which there was an entire absence of any evidence of a rheumatic origin.

C. G., a little girl aged 5, with no family history of rheumatism, was brought to the Casualty Department on July 2, 1888, with a copious erythematous rash, which had appeared a week previously. The eruption had the character of erythema papulatum upon the trunk, of erythema tuberculatum upon the arms, and the extensor surfaces of the legs were the seats of a typical outbreak of erythema nodosum. The heart's apex was beating just outside the nipple-line, but no murmur was heard. Temperature, 100.4°.

There were no signs of any articular affection, and the child had never complained of joint-pains.

Within ten days the rash had entirely disappeared, leaving merely a few ecchymotic patches.

The series of cases of erythema nodosum which I am able to bring forward, although it is less complete than that of erythema multiforme, supplies some important links in the chain of evidence, and in it we find instances of erythema without joint-pains occurring in patients who had previously suffered from rheumatism, a class of cases which serves to connect those in which there are no articular symptoms with those of the arthritic form.

Erythema Nodosum with Arthritis and Sweating.

W. E., a youth aged 18, with no family history of rheumatism, and who had never suffered from any previous joint-affection, was quite well until January 21, 1888, when he shivered and had a bad headache. On the following day he suffered from pain in the scapular region, and on the 23rd sweated profusely. On the 24th the right ankle became painful and swollen, and the next day he came to the St. Marylebone General Dispensary, with his right ankle swollen, and very painful, and with an erythematous blush over the internal malleolus.

About three inches above the ankle, on the inner side of the leg, was a typical patch of erythema nodosum, and there were some purpuric spots in this neighbourhood. The heart's apex was in the nipple-line, but there was no murmur and no friction sound. Temperature, 101°. Pulse, 120.

As he was sent to his home in a distant part of London, he passed out of observation.

Erythema Nodosum with Swollen Joints.

L. M., a girl aged 12, with no family history of rheumatism, and who had never suffered from any previous joint-trouble, was brought to the Casualty Department on December 12, 1887.

Her mother gave the following history. On December 8th raised tender patches appeared upon the legs, especially over the tibiæ, each patch being as large as the top of a finger.

These disappeared on December 10th, leaving discoloured spots, which were still present when the patient was seen. These spots did not fade on pressure, and had the appearance of extravasations of blood. On the 10th the knees and left elbow were painful and swollen, but she was able to get about, and the joints had recovered when she came under observation. The heart-sounds were natural.

Erythema Nodosum and Arthritis coming on in the course of Chorea.

R. S., aged 13, a thin fair girl, with no family history of rheumatism, was brought to the Casualty Department with chorea.

She had never suffered from any articular affection. The choreic movements, which had been noticed for a fortnight, were confined to the right side.

She had had no illness lately, and there was no history of fright.

The heart's apex was just inside the nipple-line; the action was irregular, but there was no murmur. She was given a mixture containing arsenic and iron.

The following week the chorea was rather worse, but there was no further change.

Up to this point the case was apparently one of non-rheumatic chorea; for, in the absence of family and personal history of rheumatism, and of any articular or cardiac symptoms, there was nothing to point to such an origin.

A week later the patient came with an eruption of erythema nodosum upon the legs, and with the right ankle painful and swollen. The temperature was 99.5°, and the heart as before.

The joint-affection was exactly similar in character with that observed in the two former cases, and it cannot, I think, be questioned that the appearance in connection with chorea of an acute arthritis and erythema nodosum affords very powerful evidence in favour of the view that the entire series of phenomena was of rheumatic origin.¹

¹ This case is equally interesting from the point of view of chorea, and I have also quoted it in a paper upon the relation of chorea to rheumatism.

Erythema Nodosum—Rheumatic Family and Personal History—Old Heart-Lesions.

E. B., a woman aged 40, whose father had suffered from rheumatic fever, came to the Casualty Department suffering from erythema nodosum upon the legs. She stated that she had suffered from rheumatism five or six years previously, at which time the joints were painful and swollen, and she sweated profusely. There were physical signs of both aortic and mitral regurgitation, and the pulse had the characteristic water-hammer quality. When she came under observation her temperature was normal, and there were no articular pains.

Erythema Nodosum—Rheumatic Personal History.

A. H., a girl aged 16, who gave no family history of rheumatism, but who had suffered from two attacks of rheumatic fever, six years and three years previously, at which times she was confined to bed with swollen and painful joints, presented herself with erythema nodosum upon the legs.

The nodes had appeared in successive crops, and the attack had already lasted four months. It had usually been confined to the legs, but some nodes had occasionally appeared upon the arms. The temperature was subnormal. The heart's apex-beat in the sixth space, outside the nipple-line; but although the sounds had a clanging character, no murmur was heard.

Various modes of treatment were tried in this case, with but little benefit, and successive crops of erythema appeared as long as she continued to attend.

Erythema Nodosum with no Apparent Connection with Rheumatism.

E. B., a boy aged 14, whose father had suffered from gont, but who had no family history of rheumatism, presented himself with a well-marked outbreak of erythema nodosum upon both legs, and with a node situated upon the inner side of the right knee, which rendered movement of the joint painful; a condition which must be carefully distinguished from true articular pains.

The eruption had been present eight days, but the boy had not suffered from any symptoms referable to the joints, nor had he ever had any rheumatic attack.

The heart's apex was in the nipple-line, and the sounds were somewhat altered, but there was no distinct murmur.

If the evidence of which we are in possession is regarded as

sufficient to prove that erythema multiforme and erythema nodosum are usually manifestations of rheumatism, we are not obliged to go further than this, and maintain that all cases are of this nature; for it is well known that identical cutaneous lesions may be produced by widely different causes, as is well seen in the case of the scarlatiniform rash, which results from the administration of a variety of drugs.

The evidence in favour of the frequent close connection between the erythemata and rheumatism may be summed up as follows:—

- (1.) Both erythema multiforme and erythema nodosum occasionally appear in direct association with rheumatic fever.
- (2.) They are usually attended by some degree of arthritis.
- (3.) The arthritis which accompanies the erythemata may have any degree of intensity, from the severe joint-lesions of acute rheumatism to the slightest joint-pains.
- (4.) Collateral evidence, such as the presence of chorea or old heart-lesions, is sometimes obtained, pointing to the rheumatic nature of the slighter joint-lesions.
- (5.) Active cardiac lesions may accompany erythema with the slightest arthritis, and probably occur sometimes in the absence of joint-symptoms.
- (6.) Erythema without joint-lesions is not uncommonly met with in patients who have previously suffered from rheumatism, but in some cases there is no indication of any association with rheumatism.

In a word, it appears probable that erythema multiforme and erythema nodosum are often, or even usually, manifestations of the rheumatic process, and their appearance should always lead us to suspect such causation. We are not, however, justified in concluding that such eruptions have always this origin, nor in concluding, from their presence alone, that the patient is the subject of rheumatism.

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See also the various treatises upon medicine and diseases of the skin.

CHOREA AS A CAUSE RATHER THAN A RESULT OF ENDOCARDITIS.¹

BY

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It was observed early in this century that a large number of choreic patients had suffered from rheumatism, and in rather later years that a great many presented signs of heart-disease. Dr. Kirkes suggested that the chorea might be due to embolism of the brain from the endocarditis, which itself is well known as a product of rheumatism, and his suggestion has been developed by others in England since.

It is manifestly impossible to determine the truth of this theory *a priori*. The fame of those who suggest that blocking of the capillaries leads to congestion, this to over-nutrition or malnutrition, and this to convulsion, rests upon far better ground than this hypothesis, and in a matter of pure guess-work cannot lend strength to their opinion. In order to come to a satisfactory conclusion, the following questions must be answered by experiment and observation:—

1. Is endocarditis always present in chorea?
2. In cases where it is present, does it always precede the chorea?
3. Can capillary embolism be proved in these cases?
4. Can the same phenomena be produced by experiment?
5. Are the immediate antecedents of chorea such as would be likely to cause embolism?
6. Can the disease be produced by other causes?

1. In the living patient it is common to find signs of heart-disease, enlargement and murmur, or at any rate some alteration

¹ That the Ordinary Form of Chorea is rather the Cause than the Effect of Endocarditis. A Dissertation for the Degree of M.D. in the University of Oxford.

of the sounds. But these are not invariable. Many patients do not possess them, and when present, the signs are often transitory. On these grounds many believe that endocarditis is not, at any rate, very common in chorea, and hence that the theory of embolism cannot be maintained. The objection does not, however, hold, for two reasons. Considerable alteration, and even complete disappearance, may occur in true endocarditic murmurs,¹ so that the transient nature of the murmur is no certain proof of its functional origin. This is likely to be specially true of the endocarditis of chorea, which, as will be later mentioned, is often of the slightest description, and therefore the most liable to ultimate disappearance. And again, it has been often proved, both in this and other diseases, that patients may present no murmur and yet be the victims of valvular vegetations,² so that absence of murmur is no certain proof that the heart is healthy.

The post-mortem room shows a very much higher average of endocarditis in cases of chorea than from clinical evidence we should have expected. There are, in fact, very few in which no valvular disease could be discovered. That, however, there are some such seems certain. Dr. Sturges³ was able, after collecting nearly eighty cases from the statistics of Bright, Hughes, Tuckwell, Ogle, Dickinson, and Peacock, to affirm that "in some of the most marked and typical instances the valves of the heart have been found absolutely healthy." Dr. Donkin and Dr. Hebb have since published two cases of the same kind.⁴

In the post-mortem records of St. Bartholomew's Hospital from 1867 to 1887 there are only eight cases of chorea.

(1.) Mary J. M., 16. Clinical notes not obtainable.

Post-mortem notes (Dr. Gee).—Pregnancy; chorea; endocarditis; pleurisy. Uterus contained a six months' fœtus. Row of minute granulations upon mitral valve. Right empyæma. Liver, centres of lobules opaque and yellow, as if fatty. Spleen soft. Kidneys large, flabby, with highly marked cloudy swelling of cortex. Brain, cord, and membranes natural.

(2.) Mary A. D., 24. Acute Rheumatism one year previous. Chorea general. No cardiac murmur on admission. No subsequent note.

Post-mortem notes (Dr. Gee).—"It was thought by one or two that there

¹ Stokes, *Dis. of Heart*, 143; Fagge, *Princ. and Pract. of Med.*, i. 634; but cf. Walshe, *Dis. of Heart*, 258, 4th ed.

² For examples cf. Mackenzie, *Trans. Internat. Med. Cong.*, 1881, iv. 99; Kelly, *Path. Trans.*, xxiii. 94; Baxter, *Brain*, ii. 124; Peacock, *St. Thos. Hosp. Rep.*, viii. 1; Dickinson, *Med. Chir. Trans.*, lix. 1, &c.

³ *Lancet*, 1880, ii. 85. Most compilers of statistics either ignore Ogle's paper, or quote both it and Dickinson's as separate cases. Half Dickinson's cases are Ogle's repeated. Cf. for an instance, Raymond, *Dict. de Med.*, art. *Danse de Saint Guy*.

⁴ *Med. Times and Gaz.*, 1884, ii. 743.

might perhaps be a slight inflammatory swelling along the edge of one of the mitral cusps, but this was doubtful. Certainly in other respects the heart was normal." All other organs quite natural.

(3.) Charles W., 8. Clinical notes not obtainable.

Post-mortem notes (Dr. Gee).—Peritonitis; pericarditis; heart dilated in all its cavities; minute vegetations along edges of mitral and aortic valves; the mitral valve much thickened, and the beads thereon larger. Excess of serum in both pleuræ. Liver congested. Spleen and kidneys hard.

(4.) Mary C., 21. Quite well till a week before admission, when she was frightened by seeing her mother in flames. She had, however, been melancholy for the last three months, and her mother had been in a lunatic asylum. On admission, intellect deficient; general chorea; no cardiac murmur. Death in six days.

Post-mortem notes.—Some vegetations fringing the free edges of the mitral valves. Emphysema. Liver congested; spleen soft; kidneys slightly contracted, with slight adherence of capsule. Uterus natural.

(5.) Emma McP., 18. Previous rheumatism. No other notes obtainable.

Post-mortem notes (Dr. Legg).—Pericardium adherent; mitral and aortic valves fringed with many small granulations. Aorta somewhat atheromatous. Recent left pleurisy; œdema of lungs. Liver large, fatty; spleen large, soft; kidneys very large, but of normal structure. Uterus natural. Brain natural; spinal cord diffuent in the cervical region; grey matter indistinct throughout.

(6.) John H., 14. Fell out of carriage on April 8, 1876. Very much frightened. Shaking fit half-an-hour later. No note of onset of chorea. Admitted April 17th. No cardiac murmur. April 19th, ditto. No further notes. Died May 11th.

Post-mortem notes (Dr. Legg).—Pericardium natural. On the back surface of the heart there is a spot of the size of a sixpence, surrounded by a zone of a pale brown or buff colour; it is wedge-shaped when cut into; thought by all present to be embolic in source; mitral and aortic valves studded with granulations. Lungs natural. Liver natural, save for numerous round buff points. Kidneys ditto. Some of them when cut into are wedge-shaped. Spleen no infarcts. Submeningeal hæmorrhage of the size of half-a-crown on the summit of the right half of the brain. Brain soft, but otherwise natural. Spinal cord soft throughout; grey matter indistinguishable except in lumbar region.

(7.) Ada W., 15. Chorea once before. A fortnight before death no cardiac murmur. Severe chorea. Died of pneumonia.

Post-mortem notes (Dr. Norman Moore).—Heart of natural size. Numerous vegetations along the mitral valve, and much injection round the insertion of the tendinous cords into the musculi papillares of the left ventricle. Aorta and its valves natural. Double pneumonia. Liver and spleen soft. Kidneys, cortex somewhat swollen; pyramids engorged. Uterus natural. Brain, numerous purplish specks in every part. Cord natural.

(8.) Rosina P., 16. Chorea once before. No history of rheumatism or fright. It returned one month ago. On admission, the heart's apex was in the natural position, the area of dulness natural and the sounds clear. These signs remained unchanged until two days before death, after which time they were not noted owing to the severity of the disease. The temperature rose during the last two days, reaching 105.2° before death.

Post-mortem notes (Dr. Norman Moore).—Slight thickening and redness of mitral valves. Lungs congested and partially collapsed. All other organs described as healthy. Uterus five inches long. Three months pregnant.

This evidence is sufficient at any rate to show that, whether endocarditis is as common in chorea as the post-mortem room would suggest, or as uncommon as clinical observation of the living would lead us to suppose (a question of which we can have no certain solution, for the fatal cases, even when dying of other causes, are no fair samples of a disease whose mortality is less than 1 in 200), it is at any rate not an invariable concomitant, and therefore, if a cause at all, cannot be the only cause at work.

2. Before, however, we can say that any case of chorea in which endocarditis is traceable is due to this condition, we must be able to affirm that the endocarditis is previous to the chorea. Considerable uncertainty must attend any argument upon this question drawn from the post-mortem appearances, because no accurate history of the course of a disease can be thus attained. But by considering first the condition of the valves, and second the state of the other viscera, we can give at least a plausible guess as to the matter. The endocarditis that is most frequently seen in chorea is a row of small vegetations on the auricular surface or free edge of the mitral valve. There is no ground for supposing that their minuteness means anything more than that the inflammation producing them is slight or recent. In many cases it has been noted that these little beads of fibrin are easily detached, which connotes the same character in the endocarditis. It is not infrequent to find the vegetations described as recent in the post-mortem accounts. Illustrations of all these points are so numerous that I refrain from quoting them. In the cases transcribed above there are two which are of a yet earlier stage. In one there is a doubt whether there was a slight inflammation of one valve, in another there was slight thickening and redness of the mitral valves. Even this is absent in others, as has before been mentioned. The absence of hypertrophy in cases where there are vegetations (cf. Case 7) points in the same direction. If these appearances were observed in any other disease, it would be described as likely to produce endocarditis, and that it also occurred in cases where there was previous heart-disease would not be considered to invalidate this description. Furthermore, the presence of recent pericarditis, pleurisy, and peritonitis¹ would also suggest a severe disease capable of affecting the serous membranes. They are not easily explained otherwise, unless as mere chance coincidences.

In this connection it becomes of interest to observe whether in other convulsive disorders, such as hydrophobia and tetanus, there is any affection of the heart's valves. I find that since Octo-

¹ Cf. Seé, *Memoire de l'Acad. Nat. de Med.* (1850).

ber 1867 there have been six cases of tetanus and eight cases of hydrophobia examined by the demonstrator of morbid anatomy. In nearly all these the heart is described as normal, but the two last cases of tetanus and the last case of hydrophobia have all presented abnormalities. The following are quotations from the registers of complete cases:—

Vol. ix. 353 (*Dr. Norman Moore*).—Tetanus. Male, 39. Heart, weight 10 oz. On the mitral valve and on one cusp of the aortic valve Dr. Church pointed out a slight reddish intumescence, amounting on the mitral valve to beading. The chords were all free from thickening.

Vol. xiii. 103 (*Dr. Norman Moore*).—Tetanus. Male, 33. A fringe of small semi-translucent pinkish growths along the edge of the mitral valve. Many of these growths were very small, and two somewhat larger. None of the chords were thickened. Microscopically these presented no fibroid growth. Of the aortic valves two cusps were adherent, but not so as to allow regurgitation. One, the posterior, was fenestrated. No growths on this or on the pulmonary or the tricuspid valves, which were normal.

Vol. xii. 162 (*Dr. Ormerod*).—Hydrophobia. Male, 11. On the auricular surface of the edge of the mitral valve were numerous small granulations of the size of a moderate-sized pin's-head, and smaller, looking like small bubbles of air under the endocardium. None on the tricuspid, pulmonary, or aortic valves.

It is highly probable that minute changes such as these, which are not infrequent in complete cases of chorea, would escape notice unless, as in that disease, some special search were instituted for them,¹ and it is significant that the cases in which they have been recorded are the last of their respective series. How this minute endocarditis is produced need not now be discussed. It is, however, important to remark that in these two diseases, in which nervous symptoms predominate quite as completely as in chorea, similar appearances are present on the heart valves. On the one hand, they are cases of disease of the nervous system affecting the heart;² on the other, they are cases of nervous convulsion, for which no one would suggest the explanation of embolism, although they present the very appearances which in chorea are considered evidence of its occurrence.

Of clinical evidence there is not nearly so much to be obtained as might be expected. In published papers physicians have rather contented themselves with stating the existence of heart symptoms than noted the time of their occurrence, so that no idea can be formed from the few scattered exceptions how often these have developed under observation. Besides this, a choreic hardly ever comes to be treated until the disease has existed for

¹ The Surgical Registrar tells me that not having had his attention specially directed to the point, his notes would not be trustworthy as negative evidence.

² It may be said they are rather diseases of the blood affecting the nervous system. I should myself incline to the same view of chorea.

some time—of eighty cases of my own, not eight have come to me in the first week—and thus an endocarditis, even if detected at the first visit, may yet be subsequent to the chorea.

I am, however, able to offer some cases included in a paper now in the hands of the Royal Medico-Chirurgical Society, in which the evidence tends to prove that the endocarditis ensued on, not preceded, the chorea.

(9.) Edith D., 11, came to me on April 21, 1885, for a first attack of chorea, which had then existed for a week. She had always been a delicate child, but had never suffered with any form of rheumatism. No rheumatism had existed in her parents, or in her brothers and sisters. I saw her again on March 6, 1888, and there had been neither rheumatism nor chorea in her or any members of the family since the former observation. She had in the interval, though delicate as before, had no serious ill-health. Her heart was at first quite natural, the apex-beat in the normal position, the sounds clear, and the pulse regular. It remained thus, being examined regularly at each visit, until six weeks from the beginning of treatment, by which time the jerking had almost if not quite ceased. The apex-beat was then for the first time found to have moved slightly outwards to a spot just inside the nipple-line, and a faint systolic murmur was audible. Two weeks later the apex was in the same place, the murmur was more distinct, and the jerking had ceased. In 1888 she presented marked signs of organic heart-disease. The apex-beat was palpable outside the nipple-line in the fifth interspace, and a systolic murmur was heard very loudly at that place, and also, but less well, in many other parts of the chest. The cheeks were congested, and there was some dyspnoea on exertion.

(10.) Annie C., 16, was admitted to the West London Hospital on June 4, 1885. She had been severely frightened by a false report of her father's death at 2 P.M. on June 1, and chorea had been noticed at 7 P.M. of the same day. She had had occasional pains in her hands and feet, and had never been strong. Her father and mother had both had rheumatic fever, and the latter had some signs of mitral disease. The patient's heart, however, appeared perfectly healthy, the apex-beat natural, and the sounds clear. The chorea became very violent. On June 8 there was still no murmur. On June 11 the apex-beat was still in its natural place, but a soft systolic murmur was heard there and for a little way outwards. The second sound was natural. On June 21 the apex was just outside the nipple-line. The murmur varied considerably while she lay in bed, and was inaudible on July 20, just before her discharge, but the apex was still in the nipple-line. I saw her again on November 23, 1885, and she had had no chorea or rheumatism in the meanwhile, and was not anæmic. The heart's apex was in the nipple-line; the first sound was replaced by a murmur at the apex, which was heard also at the angle of the scapula and at the base, and the second sound was accentuated over the pulmonary valves. She came to see me again in March 1888, having had no illness in the interval, and looking healthy and strong. The heart's apex was still in the nipple-line, and the second pulmonary sound was accentuated, but no murmur was audible.

In at least six other patients I have observed the signs of heart-disease begin during chorea, but having been unable to trace the patients since, I will not quote the cases at length.

In the first of these cases there seems little ground for dispute. The second is open either to the interpretation that the patient may have had rheumatic endocarditis previously, which had subsided without leaving physical signs, but was again brought to light by the over-action of the heart in the chorea; or to the objection that the disappearance of the murmur in the three years' interval is enough to discredit its organic origin. I think, however, that the fairest way to read the case is to believe that endocarditis began during the chorea, and that though the murmur has disappeared, the hypertrophy and accentuated second sound remain as traces of its existence.

However, the occasional absence of murmur in endocarditis, which I mentioned before, should not be forgotten in discussing this question. It renders the exact beginning of the physical signs in chorea of somewhat less value in determining the exact beginning of endocarditis.

3. Since the hypothesis of capillary embolism was first set agoing, many attempts have been made to prove it by direct observation. Of these, very few have been reported as successful. Dr. Broadbent in 1875,¹ stated that he had found them in large numbers in one case, principally in the corpus striatum. Dr. Hughlings Jackson considered that he had found them twice in the smaller arteries. Dr. Bastian has found plugging of the vessels of the medulla oblongata,² or of the corpus striatum and cortex,³ but ascribes the condition to thrombosis rather than embolism. Kelly⁴ describes the vessels as showing fatty degeneration, and the larger arteries as filled with granular fibrinous material, but with no distinct plug. But these, which are at variance with one another, are almost, if not quite, the only cases wherein the smaller vessels or capillaries have been found in any way closed. It may, at any rate, be said that, after twenty years' trial, this explanation of the disease has taken no hold upon the mind of the pathologists either here or on the Continent, and this is the only way in which matters of such minute observation can be valuably tested. But, curiously enough, within this time another form of disease has been discovered possessing movements of the same character as ordinary chorea, which does bear out Kirkes's suggestion, and is truly, at any rate not seldom, dependent upon embolism. This, the chorea of coarse lesion, often dependent on a small patch of hæmorrhage or softening in or close to the optic thalamus, but at other times the effect of a larger and less localised damage, cannot be quoted in support of a hypothesis which assigns "over-nutrition" or

¹ Med. Times and Gaz., 1875.

² Path. Trans., xx. 149.

³ Brit. Med. Jour., 1877, i. 37.

⁴ Path. Trans., xxiii. 94.

malnutrition of the grey matter of the cortex as the cause of chorea. All we know about the brain at present, though quite insufficient for a trustworthy explanation, would point rather to some reflex irritation comparable to that of a diseased tooth¹ or an amputation stump² than to a direct interference with movement. It is to be remembered that to this class, and not to that of minute embolism, belong the cases described by Tuckwell,³ and Gray, and probably also the second of Osler's cases.⁴ Moreover, if, as we saw some reason to believe, chorea is itself a cause of endocarditis, it is possible that some of the cases in which small embolisms have been found in other organs were examples of the effect rather than of the cause of the disease.

4. The most important attempt to reproduce chorea artificially is that of Dr. Angel Money.⁵ By injecting granules of potato-starch, arrowroot, and carmine, he was able, among other symptoms, to produce involuntary movements, which in some cases were rhythmical, in others irregular, and in one instance exactly resembling chorea. He concludes that "any symptom or group of symptoms of disease of the nervous system may be caused by capillary embolism," and "that a certain amount of capillary embolism may be present in the convolutions and other parts of the brain without inducing any obvious symptoms during life." He further says, "In none of my observations have I seen clonic spasms which could be set down to lesion of the brain proper," which he explains by the great difference between man and the animals upon which he experimented in the relative importance of the brain and the spinal cord, and in the connection between the two. While, therefore, it will be agreed that Dr. Money's experiments prove that choreic movements *may* be due to capillary embolism, the great number of other symptoms, the occasional absence of any symptoms, and the localisation of the lesion in the spinal cord, prevent their materially increasing the evidence in support of the embolic hypothesis.

5. There next arises the question, are the antecedents of chorea such as would be likely to cause embolism? and an objection has been raised against this explanation of chorea that the only proved exciting cause is fright or some other mental emotion, and that this is not likely to produce the lesion. Mental shock, however, affects the heart to a remarkable extent, and it seems to me that, far from rendering embolism improbable, this might be easily adduced as an argument in its favour. The frequent

¹ Jour. de Méd. et Chir. prat., 1881, lii. 66.

² Wood, Med. Times and Gaz., 1880, i. 16.

³ Hosp. Reports, vol. v. p. 86.

⁴ Amer. Jour. of Med. Sci., Oct. 1887.

⁵ Med. Chir. Trans., lxxviii. 277.

antecedence of rheumatism is of course producible on the same side of the case. Taken together, these two precede about half the cases of chorea. The remainder have either no traceable antecedents, or such as would be quite unlikely—mental overwork, worry, or slight ill-health, for instance—to detach vegetations from valves.

The evidence on this head is therefore rather unfavourable to the embolic hypothesis, but it is of necessity so inconclusive that it is not worth while to dwell upon it at any length.

6. It has been before pointed out that one class of choreic movements has been proved to depend upon embolism; but these cases are so distinguished by their hemiplegic character, their continuance, and in death by their post-mortem appearance, that they are not confused with chorea of the ordinary type. But there are at least two other diseases resembling chorea which must be carefully considered when its pathology is under discussion. There is a sporadic form of chorea in the old, sometimes accompanied by, sometimes without, insanity; and there is a disease, also usually producing insanity, called chronic hereditary chorea.¹ In neither of these is there any connection with heart-disease. It is quite clear, therefore, that choreic movements with mental alteration, and at any rate in the last class with some paralysis, occur in circumstances which preclude any suspicion of embolism.

It is, however, very remarkable that whereas in chorea girl patients preponderate greatly over boys, rheumatism shows no such difference. During the last four years, 15 boys under eleven and 38 between eleven and fifteen years of age were admitted into St. Bartholomew's Hospital for rheumatic fever, as against 13 and 39 girls of the same respective ages. During the same time 9 boys and 18 girls under eleven, 21 boys and 45 girls between eleven and fifteen, have been admitted for chorea. If embolism be the only, or even the usual, cause of chorea, it is difficult to account for this difference in its incidence. Dr. Church's statistics² show that both in the first and second decades of life the proportion of heart affection in acute rheumatism is rather higher than lower in boys as compared with girls. Both are, therefore, at least equally open to the chance of embolism. The remaining alternative is to suppose that boy's vessel is less liable to be affected by plugging of minute blood-vessels than girl's brain, and this appears to me wholly untenable.³

¹ Cf. Brain, April and October 1888, for a more detailed account.

² St. Bartholomew's Hospital Reports, xxiii. 272.

³ If the liability to epilepsy can be regarded as at all analogous with liability to chorea, it is noticeable that the numbers in each sex are according to Gowers (48 males to 52 females per 100) almost equal.

It has been shown in the preceding pages that endocarditis is not always present in chorea; that in cases where it is present there is often strong evidence that it was consequent on the chorea; that the post-mortem evidence of capillary embolism is extremely unsatisfactory, and its effects in experiments so varying as to deprive them of much of their value for argument. It has also been shown that diseases closely resembling chorea are independent of embolism, while other acute convulsive diseases are accompanied by endocarditis, and that not much assistance is to be drawn from the antecedents of the disease itself. The conclusion to which we are forced is, that whatever may be the case in some instances, chorea of the ordinary form is in others independent of embolism, and the question then arises whether the cases occurring in practice can be in any way divided into more than one variety. With the greatest wish to make such distinctions, I have found it totally impossible to do so. The onset, the course, the symptoms, and the results of chorea arising after such totally different conditions as rheumatic fever, fright, pregnancy, catarrh, school examinations, or in apparently perfect health, have appeared to me so identical, that I have been driven to consider the disease to be a single species. The symptoms do, indeed, vary relatively to each other; there is sometimes more imbecility, sometimes more irritability, sometimes more depression, more movement, more paralysis, more anæsthesia than at others. These differences I agree with Dr. Money in assigning to the variation in the part of the nervous system which is affected, or rather to the fact that in one case such a part is much, in another little diseased. But they are quite inconstant, combined in no certain way, not connected with one more than another antecedent, and do not afford any ground for dividing the disease into varieties. This appearance of unity in the symptoms renders it difficult to believe in a diversity of causes. One symptom may often be caused by different diseases, but in a constant group the greater the number of symptoms present, the stronger is the evidence that the disease is one and the same. On this ground it appears to me unlikely that the ordinary form of chorea is caused now by embolism, now by thrombosis, now by anæmia, or whatever other cause may be assigned, and I think it more reasonable to regard it as a separate species of disease, having for one of its effects inflammation of the lining membrane of the heart.

ON THE STUDY OF BIOLOGY IN RELATION TO MEDICINE.

BY

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Perhaps at first sight it may seem unnecessary to devote any time to the consideration of any such subject as the above, for most thinking men will at once admit the extreme importance of the study of biology to the physician and surgeon. There are, however, a considerable number of men admitted into the ranks of medical practitioners yearly to whom the title of this paper will in some degree come as a surprise, so little have they realised the intimate connection there is between the structure, working, and diseases of the human body and that of lower animals, and even of plants. The deeper one enters into the study of physiology—the foundation of pathology, and therefore of medicine—the more one becomes convinced of the truth of the grand generalisation, that all the processes of life resolve themselves into the chemical changes of building up (anabolic changes) or of breaking down (katabolic) of an essentially uniform substance—living matter. This is true equally of man and of the lower animals; equally of a highly organised animal and of one which is but a speck of protoplasm, like the amœba; true equally of animals and of plants. The differences between a highly organised and a lowly organised animal and a plant are simply differences of degree, not of kind. How much more simple, then, not to say scientific and rational, to approach the study of the structure and working of the highly complex human machine with a knowledge of the principles of the anatomy and functions of much more simple though similar machines.

Many of the organs found in, and not a few of the functions performed by parts of, the human body would have remained for long absolutely misunderstood but for a knowledge of similar

simpler organs and less complicated functions in lower forms of life. How little, for example, should we be able to understand the real nature of the Eustachian tube and middle ear of man, if we had not traced their origin from embryonic life, and found an identity of origin with a far different structure in fishes, viz., the spiracle or first gill slit, an organ which has no connection with the function of hearing. How else could we have learnt that the middle ear and Eustachian tube were not primitively essential parts of the organ of hearing, but are structures originally having a different function, which, with an increase in complexity of the living machine, have lost this function and become modified into subsidiary organs of hearing. Again, how little should we know of the real nature of the malleus, incus, and stapes if we had not compared them during development with the very different, though homologous, bones in lower types of vertebrates, and thus shown their identity with the quadrate bone of birds, the hyomandibular, and the columella. It has long been known, that in the development of the human embryo structures called visceral arches are found, but no sort of explanation of their nature or why they were formed was given till it became established by the researches of the comparative anatomist and embryologist that they are the equivalents of the gill arches of the fishes; in fact, are remnants of structures which at one time supported the respiratory organs of some of man's earliest ancestors. Again, some of the so-called abnormalities in the distribution of blood-vessels and nerves in man only receive a satisfactory explanation when viewed in the light of the normal state in lower animals. As another example of how the study of lower forms may help us to an understanding of organs found in man, let us take the case of the thyroid gland. So little is known of the nature and functions of this so-called ductless gland, that a knowledge of its equivalent in lower animals may help us to discover its functions. In *Ascidians* there arises from the ventral wall of the pharyngeal sac a deep groove known as the endostyle or hypopharyngeal groove. This remains permanently in the adult, and forms a glandular organ secreting mucus. In *Amphioxus* there is a similar and homologous groove, and this is also present in the larval Lamprey. In the adult Lamprey, however, it becomes divided off from the pharynx, develops a pair of anterior and a pair of posterior horns, and is divided into numerous follicles; in fact, it becomes the thyroid body. So similar is the mode of origin of the thyroid in the Chick¹ and in the Rabbit (Kölliker), and in man (His), that there can be no question of the identity of the thyroid gland of man with the

¹ Müller: Ueber die Entwicklung der Schild-drüse. Jenaische Zeitschrift, 1872.

hypopharyngeal groove of Ascidians. Many more illustrations might be given of the bearing of biology on the study of human anatomy; but biology has a more direct relation to medicine than this, and perhaps no better illustration of it can be taken than the relation of intracellular digestion in Invertebrates to the process of inflammation, a subject which was so ably treated of by Metschnikoff.¹ The elementary processes of life are the same in man and the unicellular *Amœba*. Every one knows how the *Amœba* ingests its food by means of pseudopodia, acts chemically on it so as to digest it, builds up, from the materials thus formed, new protoplasm; how its living body undergoes oxidation, taking up oxygen and giving off water and carbonic dioxide (respiration), gets rid of excrementitious bodies like urea (excretion), is capable of being excited by external stimuli, can move from place to place, and finally reproduces itself by division. The first step in the evolution of a highly organised animal from such a type as *Amœba* was by the formation of a colony having the form of a hollow sphere, composed of a single layer of similar units. All the cells of such a colony had exactly similar physiological powers. From such a colony there next arose an organism having two layers of cells, the outer layer preserving chiefly the powers of locomotion, irritability, and reproduction; the inner, chiefly that of ingestion, digestion, and assimilation of food. Subsequently a third layer of cells arose—the mesoderm—probably originally by budding from the endoderm. With this stage there took place a further subdivision of functions; the endoderm, originally digestive and nutritive, gave rise to nutritive mesoderm cells, itself retaining the digestive function; and the ectoderm developed processes which eventually formed nervous and muscular organs. Thus gradually, with an increased complexity of structure, there took place a “division of physiological labour,” functions originally all performed by the single cell being distributed more or less amongst the cells of the more complex organism. The essential similarity between the colourless blood corpuscles of the human blood and the *Amœba*, and the known identity of the former with the wandering leucocytes and with pus-corpuscles, is highly suggestive; but when we are able to trace throughout the whole animal series, Vertebrates and Invertebrates, highly organised and lowly organised alike, the same amœboid colourless bits of protoplasm, it becomes a very important question to inquire, what are they? whence do they come? what are their functions?

¹ Researches on the Intracellular Digestion of Invertebrates, *Quart. Jour. Micr. Science*, 1884 (translated from *Arbeiten a. d. zool. Inst. Wien*, 1883); and *Ancestral History of the Inflammatory Process*, *Quart. Jour. Micr. Science*, 1884.

When the *Metazoa* (animals with at least two layers of cells) arose from the colonial *Protozoa*, all the cells of which were amœboid, and could ingest and digest food, to what extent did all the cells retain this power? Metschnikoff's researches show that the cells of the ectoderm rarely retain this power. It is, however, known in Sponges, in some hydroid Polypes, and in the tentacles of some species of *Actinia*. A remarkable example of the retention of this power by ectoderm cells is seen in the ovum of the common Hydra, which in one stage becomes amœboid, eating up the surrounding follicular cells. The endoderm cells much more commonly have the power of ingesting and digesting food. This intracellular digestion in the endodermal cells was first discovered by Lieberkuhn¹ in the common Sponge. Metschnikoff² described it in Planarians, in many of the *Medusæ*, and some of the *Ctenophora*. Jeffery Parker³ found it in the common Hydra, and Ray Lankester⁴ in *Limnocoelium*, the fresh-water Medusa, which he described in 1880. But it is in the cells, or some of the cells, of the mesoderm that the amœboid ingestion of particles is found throughout the whole animal series. In Sponges the process of nutrition is carried on by such amœboid cells. Hæckel first showed that when a *Tethya* is injected with indigo, the amœboid blood corpuscles take up the pigment in a way closely resembling the mesodermic nutrition of Sponges. In the larvæ of some Echinoderms (*Synapta*), the wandering amœboid cells have the function of devouring, digesting, and thus removing, the disintegrating cells of the larval structures, which disappear during metamorphosis. The same occurs in Starfishes; it appears to be a normal process in the life-history of these types. This reminds one of the process of absorption of spongy bone by osteoclasts in Vertebrates—a normal process, and one of exactly similar nature. A similar process explains the degeneration of the nerve-cord in Ascidian larvæ, and the absorption of the tail of the Frog-tadpole as it passes into the adult condition is brought about by amœboid cells in the blood; for shreds of muscular and nervous tissues have been seen *in* the amœboid cells of the blood and lymph systems. One of the functions, then, of amœboid mesoderm cells is to remove by intracellular digestion structures which become useless during metamorphosis. A process of the same nature, though at first sight essentially different, is found along the "line of demarcation" in the process of separa-

¹ Müller's Archives, 1857.

² Zool. Anzeiger, 1878; also Zeitsch. wiss. Zoologie, 1879.

³ Proc. Royal Society, 1880; also Quart. Jour. Micr. Science, 1880.

⁴ Quart. Jour. Micr. Science, 1881, p. 119.

tion of a gangrenous part from the adjoining living tissue. The agents of this pathological process are the same as those by which useless organs in Echinoderm larvæ are removed. This is shown by the fact that not only do the amœboid cells in the mesoderm of Invertebrates and Vertebrates devour other cells produced by the same organism, but they behave similarly to foreign objects. Carmine injected into the bodies of Ctenophorans, which have no special blood-vessels, is found after a short interval in the interior of the amœboid mesoderm cells, and when the particles of carmine are too large for single cells to deal with, many amœboid cells fuse together and form plasmodia around them. Such large cells have been found by Weiss and Koch around large foreign bodies, and it has been shown by Metschnikoff that in all cases in *Invertebrata* such "giant cells" result from fusion of small amœboid cells. It is not improbable that we have here the key to the nature of the so-called "giant cells" of various pathological conditions; and if so, it is interesting to note that they result from fusion of amœboid cells, and not, as is generally supposed, by incomplete fission. In some animals the amœboid corpuscles of the blood have a tendency to form plasmodia apart from foreign bodies, *e.g.*, in Echinoderms¹ and in Earth-worms and Molluscs.² Similar phenomena were found round clots of human blood injected into the bodies of *Asterigera* (Metschnikoff), but usually this fusion only takes place when the foreign bodies are too large for a single cell to remove or isolate. That this process of intracellular digestion of foreign particles is identical with what is observed in an early stage of inflammation in Vertebrates is easily shown. Metschnikoff injected fluids containing parasitic bacteria beneath the skin of the Frog, and found after an interval that the wandering amœboid phagocytes had ingested them. They were particularly abundant in the spleen. I have myself watched the process of ingestion of bacteria by the amœboid cells of the lymph fluid of the Frog. Bacelli³ found that the corpuscles in fresh spleen pulp could absorb coagulated milk. In the tail of the Newt, which is only slightly vascular, Metschnikoff observed that the connective tissue corpuscles would eat up particles of carmine. He found that the essential result of injecting foreign bodies was the accumulation of wandering amœboid cells around them, and that copious diapedesis did not at first take place. It

¹ Hæckel: Radiolarien, 1862.

² Geddes: On the Coalescence of Amœboid Cells into Plasmodia. Proc. Royal Soc., 1880.

³ Studien über die Funktionen und die Pathol. der Milz. Virch. Arch., B. 51, 1870.

only occurred to any great extent if the injury done was extensive, *i.e.*, more than the wandering phagocytes were able to deal with. Bacteria injected into Invertebrates which have no special blood-vessels were absorbed by the amœboid mesoderm cells. Koch found *Bacillus anthracis* and the bacillus of septicæmia inside amœboid cells, and tubercle bacilli are well known as occurring in giant cells.

The effects of the injection of foreign particles in Invertebrates *without blood-vessels* and in Vertebrates are, at any rate at first, essentially the same. From this we are led to conclude that the phenomena of inflammation result from the normal action of amœboid mesoderm cells, one of whose functions is to destroy by intracellular digestion injurious foreign bodies; and the fact that this occurs in Invertebrates *which have no blood-vessels* shows that Cohnheim's dictum, "without blood-vessels no inflammation," does not strictly hold good. Inflammation is, phylogenetically, much older than blood-vessels, exudation being a comparatively late development.

The process of absorption of fat in Mammals, whether it be by the epithelial cells of the villi, or, as Schäfer maintained, by the wandering amœboid leucocytes in the tissue of the villi, is probably a survival of the original intracellular digestion of the Cœlenterates and the Planarians, and so can be directly traced to the process of ingestion of food in a type like the *Amœba*. The amœboid cells of the mesoderm, when first budded off from the endoderm, were originally *nutritive* in function, *i.e.*, carriers of food to other parts, as seen in Sponges. Subsequently they acquired the function of devouring dead or degraded products of the animals themselves, and later on of destroying injurious substances which may have entered the organism, thus becoming *absorbent* and *prophylactic*. From these considerations the idea is suggested that the lymphatic glands and lymphatic tissue generally, as well as the spleen, may have been evolved as prophylactic organs. Perhaps in this way we may explain the large quantity of lymphatic tissue in the walls of the alimentary canal, where it would have the function of absorbing and preventing the entry into the blood of bacteria and their poisonous products, *e.g.*, ptomaines.

As another example of the direct bearing of biology on medicine, let us consider some of the questions arising in connection with some diseases of nutrition. It will at once be admitted that it is only by means of a thorough knowledge of the chemical processes of normal nutrition that a proper understanding of such diseases as diabetes, gout, anæmia, rheumatism, &c., can be obtained. What is known of the pathology of diabetes beyond

the physiological facts established by the researches of Claude Bernard, and what, even then, is certain beyond that diabetes is the result of some profound change of nutrition, and that the production of sugar is in some way connected with glycogen? We have no knowledge of the state in which glycogen exists in the liver, whether free or in a state of loose combination with a proteid. Whatever the condition in which it exists in the liver, we do not know the exact steps by which it has been formed, whether *directly* from carbohydrates of food or as a product of oxidation of liver protoplasm. It seems to me that questions of this kind, upon which our knowledge of the pathology of diabetes so directly depends, can best be solved by viewing them from a broad standpoint. One of the greatest problems of biology, and one upon which at present we have but little evidence, is to determine what exactly are the chemical changes which occur in the gradual building up of living matter from its elementary constituents, and what are the steps through which the breaking-down of living matter into carbonic dioxide, water, and urea is effected. That many intermediate substances are produced in both the constructive and destructive processes is certain, and the tendency of physiological research is to show that the general process is the same in all living organisms, though differing in degree. The simpler the form of life which we employ for the elucidation of these problems, the more likely are we to arrive at a result, and one which will prove the key to the proper appreciation of similar changes in man, whether in normal or diseased conditions. It may at first sight appear anomalous, but it is nevertheless true, that there is no great physiological process occurring in animals which is not present in the same though simpler form, and which cannot be more easily studied in plants. This is well seen in the case of glycogen and glucose, whose relations to each other have their exact counterpart in plants in the relations of starch and sugar. The history of starch in a plant is briefly this:—It is built up out of carbonic dioxide and water, not directly, but by steps. This first stage in the history of starch is, however, absent in animals. They cannot build up starch, but, given ready-formed starch, they behave to it exactly as plants. Nor is this first step in the history of starch found in *all* plants, the large group of Fungi having no power of constructing starch; but when supplied with it, or with sugar, they behave exactly as other plants and as animals do. The second step in the history of starch in a plant is its conversion by a diastatic ferment into sugar, a process exactly resembling the digestion of starch by animals. It is next conducted in the form of sugar to the growing organs, and is there

used together with nitrates, sulphates, &c., from the soil, in constructing proteids, which afterwards form living substance. The same general change occurs in animals, but with this difference, that they have less constructive power; they must be supplied with ready-formed proteid. Given this, they build up living substance just as plants do, and in this process they use the sugar derived from the starch of food. It is well known that the energy of muscular contraction results from the explosive oxidation of the non-nitrogenous constituents of the muscle protoplasm; and it is equally certain that these non-nitrogenous constituents form an integral part of the living "contractile substance;" the proteid, which is set free at the same time, becomes immediately combined with carbohydrate (sugar) supplied from the blood to reconstruct the "contractile substance." A similar change occurs, more or less, in the construction and oxidation of all protoplasm, animal and vegetable. Both the animal and the vegetable are "destructive" as well as "constructive," but in different degrees, the plant having greater constructive and the animal greater destructive power. It is quite possible that the excess of sugar in the blood in diabetes is caused by the general diminution of the constructive power of the tissues, so that less sugar than normal is used. But the plant manufactures starch more rapidly than is required by its growing living substance. This surplus starch, like that on its way to become protoplasm, is converted by ferment action into sugar, then is conveyed to some distant part of the plant, where, by an opposite ferment action, it is changed again into starch and stored up. The animal does precisely the same with the surplus carbohydrate in its blood; it stores it up as glycogen, and in most cases in the liver. It is a remarkable fact that glycogen has been found in the bodies, in some place or another, of *all* well-nourished animals in which it has been looked for. It is the exact equivalent of starch in plants, in being the form in which surplus carbohydrate is stored up. Just as in plants, little local stores, if I may use the expression, of starch are formed in the growing cells themselves, ready to be used when wanted, so is glycogen in animals found in small quantities in the active metabolic organs like the muscles. Perhaps the most important unsettled problem in the history of glycogen is whether it is formed simply by dehydration of the sugar from digestion or is produced in the hepatic cells by a breaking down of their protoplasm. This question, which is an all-important one in the pathology of diabetes, would be to a great extent answered if we could prove that starch is one of the products of the breaking down of vegetable protoplasm. From *à priori*

considerations, there is no reason to suppose that vegetable protoplasm has not this power, for the extremely widely distributed substance *cellulose* found in the cell-walls of plants, which has the same general composition as starch and glycogen, is undoubtedly secreted and formed by the protoplasm of the cells; and that animal protoplasm has, in some cases, the same power is shown by the occurrence of cellulose in the "tests" of Ascidi-ans, a degenerate group of Vertebrates. Though it is probable that the production and storage of albuminous matters and starch in the seed of plants results from destructive metabolism of the living matter of the cells, this cannot be said to have been directly proved. The solution of this problem would go a long way towards settling the question of hepatic glycogen, and perhaps of giving the key to the pathology of some forms of diabetes.

In studying these and similar questions of nutrition, there is one particular in which plants present greater facilities than animals, viz., that in them some of the products of waste are retained in the organism, in combination in some way or other, so as to render them harmless, and in a lower state of oxidation than in animals, in which the waste bodies are excreted, and generally in a high condition of oxidation. This can be well seen in the case of oxalic acid, an extremely common product of the waste of vegetable tissue. This substance is extremely poisonous, but is rendered harmless by at once combining with lime, and becoming deposited in the form of the characteristic octahedral crystals. Though we know but little of the exact process by which oxalic acid is formed in plants, we know still less of its history in animals. That it is formed normally in animals is highly probable, but it is certainly still further oxidised before it is excreted, for there is normally no oxalic acid or oxalate in the urine of man. We are, on account of the less active katabolic changes in plants, more likely to arrive at an understanding of the exact history of oxalic acid by studying them, than by working with a highly organised animal. It is possible that the so-called oxalic acid diathesis, characterised by oxaluria and a tendency to the formation of the oxalate of lime calculi, may be due to some peculiar deficiency of oxidation in the body—in fact, to a condition resembling the normal oxidation of plants.

The fact that the hæmoglobin of the blood of the higher animals contains iron has its parallel in various pigments found in the Invertebrates, many of which equally contain this or some other metal, such as copper, &c. When iron is extracted from hæmoglobin, the latter loses those properties upon which its functions depend, and without iron it cannot be built up in the body. This has its parallel in plants, in that the production of chlorophyll is

just as dependent on the presence of iron as is the formation of hæmoglobin in animals. A striking fact with reference to the blood of the higher animals is the preponderance of potassium and of phosphates in the coloured blood corpuscles, and of sodium and chlorides in the plasma. That this and like distributions of salts in the body has some definite meaning is certain, but what is the nature of the connection is absolutely unknown. A study of plants, however, reveals the fact that potassium is as necessary for the *activity* of chlorophyll as iron is for its production. Without potassium the formation of starch by the agency of the chlorophyll ceases. This suggests that potassium may have a similar connection with the *activity* of hæmoglobin in animals. It is quite possible that some varieties of the so-called blood diseases may be due just as much to a deficiency in potassium in the blood corpuscles as to a want of iron.

In a paper which I published on the relations of the Mammalia,¹ I showed that the *Mammalia* and *Aves* were probably independently evolved from common ancestors closely resembling the *Amphibia*. In arriving at this conclusion, I took no account of the physiological differences between these animals; but that these must have some direct value in determining phylogenetic questions is certain, and this cannot be better seen than in relation to tissue change. In all the Fishes and Amphibians the oxidations of tissue result in the production of urea, as the chief nitrogenous waste product. In Mammals generally, this is also the case, but in Reptiles and Birds the place of urea is taken by uric acid. If we regard man as occupying the highest place in the main stem of evolution of Vertebrates, and other groups as branching off from this stem at various points, then it will appear that those types which are least modified and specialised have urea as the characteristic product of tissue waste, whilst those farthest removed from the main stem and most specialised have other characteristic excreta, such as uric acid and hippuric acid, &c. As was pointed out by Dr. Brunton,² this may have some important bearing in relation to the pathology of gout, just as he shows it has considerable influence in the action of drugs. It is, however, certainly inaccurate to describe gout, as was done by Dr. Milner Fothergill,³ as "hepatic *reversion*, the formation of a quantity of *primitive* urine products by a mammalian liver," for it is most probable that the primitive urine products are not uric acid, but urea. Though it is probable that the gouty con-

¹ The Relations of the Mammalia, &c. Journ. of Anat. and Phys., 1887.

² Modifications in the Action of Aconite, &c. St. Bartholomew's Hospital Reports, 1886.

³ Proceedings of the Medical Society of London, vol. ix.

dition of metabolism in man is similar to, or identical with, the normal process in Birds, it is certainly not a "reversion," but is rather a reproduction, as the result of some profound change, of the process of evolution of the specialised metabolic changes of Reptiles and Birds. A study of the points of difference in the tissue change of these types and of Mammals will, I think, very probably give us most useful information as to the nature of tissue change in gout. That the process is not *simply* one of lessened oxidation is already probable from the study of Birds, for in these tissue change is very active, as shown by their higher normal temperature.

As another illustration of the intimate relation of biology and medicine, I will briefly allude to the application of the great truths of evolution to pathology. If it be granted (and all biologists agree in admitting it) that what we call "species" of plants and animals, or, to put it in the abstract, "specific differences," have arisen by the interaction of the two principles of "variation" and "heredity" under different external conditions, then it must follow, in the abstract, that diseased states have at one time or other arisen in the same way, for the laws of life are uniform. At one time the diseased state must have been evolved from the normal, but the question is, how and by what means? How can we explain the origin of a disease in an apparently healthy individual? Has it been evolved in that individual? and if not, how is evolution concerned in its origin? We are able, in the etiology of most diseases, to specify what we call "exciting" and "predisposing" causes. What exactly is meant by these two classes of causes? As I understand it, a "predisposing" cause is one inherent in or characteristic for the time being of the individual attacked, and an "exciting" one is some condition or circumstance external to the individual. External circumstances form one of the influences in the evolution of specific differences in animals and plants, but this is by no means the most important agent. "Variation," in the biological sense, is not *due* to external surroundings, but to an inherent tendency, which all living things have, to be different in some small particulars from their parents; and though in many cases "variations" are only individual, yet they often become hereditary; and one of the causes upon which the *continuance of the existence* of a variety depends may be found in external influences. A variation which adds to the resisting power of the individual in the "struggle for existence" with other individuals and with all sorts of external influences, will tend to be perpetuated; and, *vice versa*, a variation unfavourable to the individual in its struggle with surrounding conditions will, after a few genera-

tions, tend to be lost. Is there any parallel in the etiology of disease with these principles in the evolution of a "species"?

Suppose a human individual to be born with some "variation" rendering him weaker than the average of the race; then surrounding external or exciting causes of disease will be more prone to produce disease in his case; he is, in fact, "predisposed" to disease. He may or may not be attacked with some particular disease, and his defect may not be perpetuated, but most probably his "predisposition" will tend in the next and succeeding generations to be inherited and (may be) intensified. Such a predisposition, at first slight, may, in a few generations, on the laws of evolution, become so marked that all the individuals so predisposed might be incapable of resisting ordinary or special "exciting" causes of disease, and so the race or family become extinct. We have examples of these principles in the so-called hereditary diseases,—tubercle, cancer, scrofula, hæmophilia, and the like. These diseases are not "hereditary" in the sense that *they* are transmitted from parent to offspring, but in the sense that some "weakness" or "tendency to" a disease which has been evolved in previous ancestors is transmitted. To speak of cancer as "hereditary" is equivalent to saying that a "predisposition" to cancer has been inherited, and that if the individual be exposed to certain exciting causes, cancer may be developed. This, of course, does not preclude the *possibility* of a "predisposition" arising in an individual in other ways than by the hereditary transmission of a "variation;" but in some such way as this evolution, it seems to me, has played, and is playing, an important part in the causation of disease.

Perhaps, however, it is in the etiology of the infectious diseases, the so-called "specific fevers," that the principles of evolution are best seen. The close parallel between the clinical history of one of these diseases and the life-history of an animal or plant has long been recognised and commented on, even from so early as the time of Sydenham. The steps in the history of a living organism—its origin from a pre-existing organism, its growth till it attains the adult characters of its parent, its power of giving rise to new individuals, its decline, its death, are all similar to the history of a case of "specific fever"—its origin from a pre-existing case, its gradual development to a maximum intensity, its power of originating other cases, its decline by lysis or by crisis, and its disappearance. The resemblance is so close as to have justified the use of the term "specific" for this class of diseases, just as we apply the term "species" to animals and plants. Now, if we assume the origin of species by a process of "natural selection" under the laws of evolution, we must, it

seems to me, equally apply these principles to explain the origin of "species" of infectious fevers. When, however, we bear in mind the probability of the causal relation of certain micro-organisms to these diseases, this conclusion becomes so accentuated in force as to be almost a certainty. These micro-organisms must have been evolved by the action of the same causes which have led to the origin of other species of plants. In addition to the pathogenic bacteria, we know of several species of the same genera, but which are not capable of producing definite diseases, and it seems probable that the former have been evolved from the latter. If this is not the case, then the pathogenic bacteria must have arisen *directly* from non-living matter by the process of *abiogenesis*. That bacteria—the smallest and most elementary forms of life known—have ultimately arisen by abiogenesis must be admitted by all who accept the teachings of evolution. These abstract considerations raise two important questions in relation to the specific fevers. Can pathogenic organisms be evolved *now* from non-pathogenic ones? and can they *now* be spontaneously generated from non-living matter? These are entirely biological questions, and not till the biologist can answer them will the practical physician or the medical officer of health advance his knowledge of the question of the *de novo* origin of these diseases. The only answers which the biologist can give to these questions are—(1.) That pathogenic organisms *have never yet been proved* to arise from non-pathogenic. (2.) That abiogenesis *has not been proved* to occur at the present time. (3.) That pathogenic bacteria *have at one time* arisen from non-pathogenic, and *at some time or other* abiogenesis has occurred; and that if the conditions under which what has taken place once, or it may be many times, are repeated again, or are existent now, such changes would occur again; and that at present we have no knowledge what these conditions are, or whether they exist now. A large number of instances have been brought forward by different observers, which are believed by them to prove the *de novo* origin of infectious fevers, and in some of these instances it must be admitted that the evidence is very strong. It is not my intention to discuss any of these cases, but I would point out that the evidence on which they rest is chiefly negative, viz., failure to discover any case from which infection might have come. There is one other point which bears very strongly on this question, and one which has to some extent been overlooked, viz., that the spores of bacteria are extremely resistant to ordinary destructive agents, much more so, in fact, than the bacteria themselves: a much higher temperature, for example, is required to destroy the spores of bacteria than to kill the organisms themselves. It

is quite possible that such spores may remain for many years dormant and incapable of activity, and yet, when placed in favourable circumstances for growth and development, may suddenly produce their pathogenic effects. This has its parallel amongst other plants. Spores of Cryptogamic plants as well as seeds of Phanerogamic ones have been known to remain for many years dormant, and yet retain all their vital characteristics, as shown by their subsequent germination and growth.

In these two ways, by the evolution of predispositions or tendencies to disease, and by the origin of pathogenic organisms from harmless ones, the principles of evolution have played an important part in the causation of disease; but there are other considerations. The biologist who accepts the doctrines of "natural selection" and applies them to the case of pathogenic organisms, must also accept the statement that from the existing disease-causing germs there are *now* arising "variations," which will tend after many generations to become new species; in other words, the biologist teaches us that *new diseases are now* in the process of being evolved from those which we know and are familiar with. This conclusion of the biologist is in no way at variance with the experience of the physician; on the contrary, it serves to explain the so-called "anomalous" cases of infectious disease, the "hybrids," the cases which are difficult to class, the febriculæ, and others of the same nature. These are either imperfectly evolved "species" or mere "sports," which may in time become new "specific" disorders. From considering such a topic as this, our thoughts are naturally led to another though kindred one. Is a specific kind of pathogenic micro-organism always constant in the effects which it produces in the human body? and if not, what determines the difference? Speaking from practical experience, the physician will answer that the same cause—whatever it may be—can give rise to different though kindred effects in different individuals, and that the difference depends on some condition in the individual attacked, *i.e.*, some difference of soil. I need not enter into instances, but there seems to be evidence that enteric fever, scarlet fever, and diphtheria, for example, may arise from the same filth. Whether in such a case as this it is one "germ" which produces different effects in different individuals, or one "germ" from which the "specific" ones are evolved within a short period of time, or whether the spores of bacteria, or the various "specific" micro-zymes themselves, are growing together in the same filth *ab initio*, are questions for the biologist.

Such topics as these naturally lead on to the great question of bacteria, and what are their relations to the diseased state with

which they are found associated? Of late the study of bacteria has become a science in itself, and the first requisite of the bacteriologist, and without which he will not advance our knowledge much, is a thorough knowledge of the leading biological principles, as well as of the details of the mode of life of low forms of animals and plants: the bacteriologist must be *primarily* a biologist. The first question, of course, which the practical physician wants the biological pathologist to answer is—what is the relation of microzymes to the diseased states in which they occur? And in the present state of our knowledge the biologist replies as follows:—

1. That the relation is *causal* is shown if the following tests¹ are found to hold good in the instance examined:—(a.) The micro-organisms must be found in the blood or tissues of the animal suffering from the disease in question. (b.) They must be cultivated artificially for many successive generations, with due care and in suitable media. (c.) They must then be introduced into the body of a healthy susceptible animal, which must forthwith develop the same disease as that from which the organisms were originally taken. (d.) In this animal the same micro-organisms must be found. A considerable number of the infectious diseases are associated with organisms which fulfil these tests. If any *one* test fails, then the causal relation is not considered proven.

2. That there is a difference between the pathogenic and non-pathogenic organisms, in that the latter are incapable of existing in the healthy living tissues of animals, whilst the former can overcome the power of the living tissues.

3. That non-pathogenic organisms produce changes in the substances on which they feed. From proteid bodies they produce peptones, lencin, tyrosin, skatol, indol, cressol, and other more or less highly oxidised nitrogenous bodies, as well as fatty acids, amines, &c. They can convert sugar into lactic acid, lactic acid into butyric acid, alcohol into acetic acid, &c. Ultimately they produce the final products of the breaking down of living matter in general. During this process they can produce poisonous alkaloids called ptomaines, a certain putrid principle named sepsin, as well as other bodies of the nature of unorganised ferments. Whether they cause all these changes by the *direct* action of their own protoplasm, or *indirectly* by the agency of enzymes which they produce, is uncertain.

4. That each non-pathogenic organism requires a special soil, as also does each pathogenic one. That different animals have different resisting powers to the same pathogenic organism, some

¹ Abstracted from Klein's "Micro-Organisms and Disease."

being capable of overcoming and destroying bacteria which in another animal will prove fatal.¹

5. That non-pathogenic organisms can grow in fluids of much simpler composition than those in which pathogenic organisms can exist. The ordinary putrefactive organisms will grow in Pasteur's fluid (containing ammonium tartrate, cane-sugar, and certain inorganic salts), whilst no pathogenic microzyme can exist in this fluid; they require ready-formed proteid. In this respect the pathogenic organisms resemble animal protoplasm and differ from vegetable.

6. That the effects produced by the introduction into the bodies of susceptible animals of pathogenic bacteria do not depend on the dose, for these organisms multiply in the body *ad infinitum*.

7. That pathogenic bacteria in the blood and tissues act as parasites, *i.e.*, draw their nutriment from the body of the animal attacked. That the injury thus inflicted on the body cannot be great.

8. That the pathogenic bacteria must set up chemical changes in the tissues in which they live. That they do this partly by the activity of their own protoplasm, which they build up from the material of the blood or tissues of the "host," and which is again broken down by oxidation, producing poisonous excreta. That they also produce unorganised enzymes, by which destruction of the tissues of the animal may rapidly take place, and so poisonous substances be produced.

Many other questions arise, for the solution of which the physician must look to the biologist. For example: if infectious diseases are caused by micro-organisms, is there a definite "species," in the biological sense of the term, of bacterium for each "specific" disease? With this question is associated that of the "mutability of bacteria." Though the basis on which the various microzymes are regarded as species is different from that on which biological species of other plants and of animals rests, yet the balance of evidence is, at present, distinctly in favour of the definite "specific" character of these organisms. Some investigators, it is true, have arrived at the opposite conclusion. Billroth and Klebs believed that micrococci may grow into bacilli. Billroth² particularly believed all bacteria to represent but a single species of plants, which he called *Coccobacterium septicum*. Ray Lankester³ also, to some extent, thought that

¹ This is explained by Klein (*Micro-Organisms and Disease*, 3rd edit.), by the theory that some *special chemical substance* is formed by the tissues of insusceptible animals, which may give them the characteristic resisting power.

² *Untersuch. über Coccobacteria septica*. Berlin, 1874.

³ *Quart. Jour. of Mic. Science*, 1873.

the genera of Cohn were not altogether distinct. He advocates pleomorphism. Zopf¹ believes that he observed the *Cladothrix dichotoma* of pond-water give origin to micrococci, bacteria, and bacilli. Klein² doubts this observation. Koch, on the contrary, holds that the mutability of bacteria has never yet been proved, though he does not dispute the possibility of such mutability. For our present purpose, the importance of this question is whether non-pathogenic organisms are known to become pathogenic. The three important instances in which this has been asserted to be the case are those of Buchner, Sattler, and Grawitz, in each of which the fallacy has been demonstrated by Klein.³

Finally, the physician asks the biologist for guidance in the prevention and treatment of the diseases caused by bacteria. In the direction of the attenuation of the specific virus and prevention or treatment by the application of the principles of vaccination, as well as by disinfection and by the use of antiseptics, much has already been done, though at present much remains for future research and experiment.

I need only in passing allude to the advantage of a knowledge of biology in relation to the prevention, treatment, and understanding of the diseased conditions brought about by the larger and more obvious parasites—*Trematoda*, *Ascaris*, *Dracunculus*, *Tania*, *Bilharzia*, &c.

I should have wished, before concluding this paper, to have said a few words on the subject of botany, the study of which, I regret, is fast becoming abolished from the curriculum of the medical student; yet on what basis the study of this subject should be excluded, any more than the other branches of biology, I fail to see. The examples I have brought forward in the foregoing pages suffice to show that the study of plant life has a *direct bearing* on pathological questions.

I cannot, I think, conclude this paper better than by quoting the words of Professor Huxley,⁴ who, in speaking of biology in its relation to pathology, says:—"No sharp line can be drawn between the two classes of phenomena. No one can say, for example, where anatomical variations end and tumours begin; nor where modification of function, which may at first promote health, passes into disease. All that can be said is, that whatever change of structure or function is hurtful belongs to pathology. Hence it is obvious that pathology is a branch of biology; it is the morphology, the physiology, the distribution, and the etiology

¹ Zur Morphologie der Spaltpflanzen, 1882.

² Micro-Organisms and Disease.

³ *Ibid.*, pp. 207-229.

⁴ Science, Culture, and other Essays (1881), p. 345.

of abnormal life. Henceforward the connection of medicine with the biological sciences is clearly defined, and pure pathology is that branch of biology which defines the particular disturbances of cell-life, or of the co-ordinating machinery, or of both, on which the phenomena of disease depend."

It seems to me that, without a preliminary study of the general principles and teachings of biology, the student of medicine is the less able to pursue his purely technical studies to a satisfactory end. I would advocate that every medical student should receive a training in the elementary laws of life, and in the general morphological and physiological properties of plants and animals, before he approaches the study of the more complex anatomy and physiology of man. Apart from the *direct* relation of these studies to the better comprehension of the human body in health and disease, there is the less direct connection of their educational value (I mean educational in the true sense of the word), as a means of cultivating those powers of observation, of thought, and of reasoning, upon the possession of which the whole success of a student, as well as the progress of medicine, depend in the real "struggle for existence."

ON THE
TREATMENT BY REMOVAL OF SOME CHRONIC
ULCERS OF THE TONGUE.

BY
HENRY T. BUTLIN.

I will relate three cases in which I have cut out very obstinate ulcers of the tongue with good result, and will conclude this paper with a few remarks on the class of cases in which an operation seems called for.

CASE I.—James C., 39 years old, a barman, came under my care in the out-patient department of St. Bartholomew's Hospital towards the end of 1884, for the treatment of a chronic ulcer of the tongue of about eighteen months' duration. He had contracted syphilis two years previously, and within a short period of the primary disease the tongue had become sore. In the centre of the fore-part of the dorsum was an ulcer of horse-shoe shape, which is figured in my book on "Diseases of the Tongue" (Plate II. fig. 3). The surface was without granulations, and was covered with thin slough and inspissated mucus. The edges were notched, but rather rounded than sharp-cut; they were not undermined. The surrounding area was white and sodden. The sore strongly resembled some old indolent ulcers of the leg, particularly those which have made attempts to heal and have drawn the surrounding tissues in towards themselves, with puckering and tightening of the integument. Such ulcers, wherever they occur, are very difficult to deal with, and the prospect of curing them, unless by transplantation or some surgical proceeding, is very small. There was no induration about the sore, and no sign which made one fear that it might speedily become malignant.

The patient had been treated at the London Hospital for both

primary and secondary syphilitic symptoms, and during that time chromic acid and various local applications had been used to the tongue. I gave him mercury and iodide of potassium, ordered that he should not drink or smoke, and tried many local remedies in vain. I did succeed, on more than one occasion, in healing the two extremities of the horse-shoe, but only to a limited extent and for a short time. Powdered iodoform seemed to do more good than any other application; granulations formed, but soon became exuberant and flabby. On two occasions I painted the surface of the ulcer with cocaine, scraped it quite clean, freshened the edges, and powdered it over with iodoform; after which the sore became more active, and gave

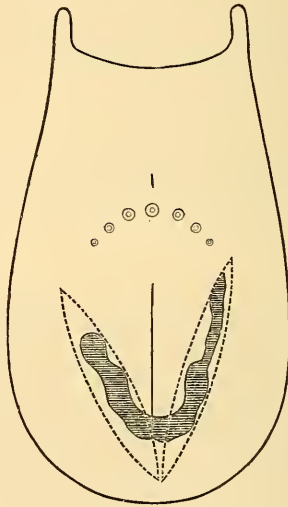


Fig. 1.

some promise of healing; but the promise was not kept, and at the end of several months the man was no better than when I had first seen him.

It then appeared that this ulcer was quite incurable unless some extraordinary means should be adopted. There was the danger, if it did not heal, that, being frequently, nay, almost constantly, irritated, it might not improbably become cancerous.

Taking advantage of the well-known healing power of the tissues of the tongue, I cut the ulcer completely out by four incisions, each two of which enclosed an ellipse. The incisions were made deep into the substance of the tongue, so that not merely the surface, but a considerable depth of tissue was re-

moved. The bleeding vessels were tied with fine carbolised catgut, and the edges of each ellipse were brought together with silk sutures.

Almost the whole of the wounds healed by the first intention, and the patient left the Hospital within a few days of the operation.

I saw him after the lapse of nearly a year, when the tongue was free from ulceration. I have not seen or heard of him since.

CASE II.—Mr. X. Y., æt. 35, had suffered from syphilis fifteen years before he came under my care, and had been treated for the disease for at least two years. His tongue had been sore and

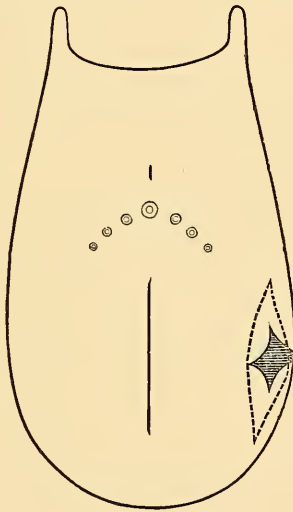


Fig. 2.

troublesome some five years. All the fore-part of the dorsum gave him trouble, and an ulcer of the left side had scarcely ever been healed since it first formed. He had been treated constitutionally with mercury and iodide of potassium, and locally had used bichloride of mercury, borax, alum, chromic acid, and solid nitrate of silver. He was obliged to be very careful of what he ate and drank, and had entirely given up smoking for a long time past.

I first saw him in November 1885, when he was suffering from chronic superficial glossitis of the fore-part of the dorsum, which was in a very irritable condition. There was a quadrilateral ulcer of the left side, nearly as large over as a threepenny-

piece, with indolent surface, slightly undermined thin borders, not showing the least disposition to heal. A lymphatic gland beneath the jaw was slightly enlarged and hard, and there was some induration about the ulcer.

At the end of November I scraped the surface of the sore and pared the undermined edges with scissors. No improvement followed this treatment.

On the 29th of December I cut the ulcer completely out by two incisions, enclosing an ellipse carried deeply into the substance of the tongue. I learned from the doctor that the wound did not heal by the first intention, but it did get well so quickly that he went to business a week after the operation. And on the 21st of January 1886 he came to show me his tongue, which was more comfortable than it had been for years. The seat of the ulcer was occupied by a firm scar, and the dorsum of the tongue was more healthy than I had previously seen it.

In June 1886 there was slight ulceration of the scar, but it soon healed; and I learned in October 1888 that he had not again suffered from ulceration.

CASE III.—James F., 63 years old, became an out-patient under my care towards the end of 1888. His tongue had been

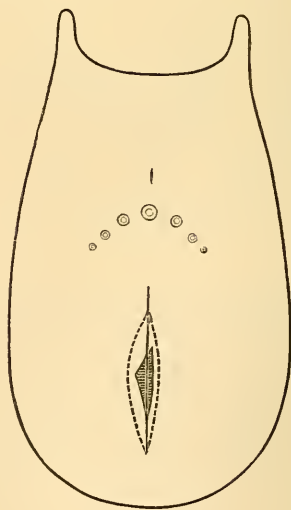


Fig. 3.

a source of trouble to him for a very long time past, and there had been a small ulcer in the middle of it for about two years.

He was suffering from chronic superficial glossitis of the forepart of the dorsum, and in the middle of the inflamed area was a small ulcer, presenting precisely similar characters to those in the preceding cases. During five months I treated him with many different remedies, both local and constitutional, but without success.

On the 18th of March 1886 he was admitted into the Hospital, and on the 22nd I cut the ulcer completely out, in the same manner as in the other cases. He made a rapid recovery, and left the Hospital quite well.

Remarks.—In these three cases the ulcers were very chronic, indolent, probably due in part to syphilis, but not bearing typical characters of syphilitic ulcers, and not mending under appropriate treatment of syphilis. They resisted all medicinal treatment, local and constitutional, not only at my hands, but directed by other persons who had seen them.

In the first and third cases it cannot certainly be asserted that the patients were as careful to avoid unsuitable diet and tobacco as they should have been, although James C. assured me that he was exceedingly so, because he was most anxious to be rid of the ulcer. In the case of Mr. X. Y., however, I have no doubt that he was extremely careful to abstain from everything which appeared likely to irritate his tongue.

These indolent ulcers may at any time become cancerous, particularly when they are associated with chronic superficial glossitis. In the second case, the base and edges of the sore were already indurated to a limited extent, and a lymphatic gland was slightly enlarged when I first saw the patient, so that it was not safe to treat it as a mere annoyance.

The ellipse included between the incisions should be long compared with its breadth, and the incisions should be carried deeply into the muscular substance of the tongue, half an inch deep at least. The greater the breadth of the ellipse, so much the deeper ought the incisions to be made, in order that the two sides of the wound may come smoothly and naturally together, without tension, immediate or consequent, on the mucous membrane on either side of the scar.

The sutures should be carried through the deep textures, in order to bring the whole of the opposed surfaces together. Healing by the first intention leaves a better result and smaller scar than when suppuration takes place. But if the tongue swells and is very painful, the sutures, one or more, must be removed for the relief of tension, lest worse mischief

ensue from the operation than that which it was intended to relieve.

The sutures should be removed as soon as the wound appears to have united, probably on the third day, for their long-continued presence is likely to produce new ulcers in tongues which are the seat of chronic superficial glossitis.

THIRTY CASES OF
FIBRO-MYOMATA OF THE UTERUS TREATED
BY ELECTRICITY.

BY

W. E. STEAVENSON, M.D.

I am indebted to Dr. Matthews Duncan and Dr. Godson for permission to publish an abstract of the notes of several of their cases, in which I have undertaken the electrical treatment.

The object I have in view in writing this paper is to afford those interested in the treatment of fibrous tumours of the uterus by electricity some material on which to base an opinion as to its value. It is necessary in a question of this kind to give rather fully the history and details of the cases. I have, therefore, given them more at length than might otherwise be necessary. When possible, I have given the notes of others who have been connected with the cases, chiefly in their own words, so that I may not appear in any way to have coloured their reports. The chief points connected with the use of electricity in the treatment of fibroids are mentioned in the details of these cases, as circumstances arose to call attention to them.

I am indebted for many of the notes to Dr. Duncan's midwifery assistants, and to my assistants in the Electrical Department. Two of Dr. Stöhrer's batteries were used for all the cases treated in the Hospital, and, therefore, the electro-motive force of the cells was probably about the same in every instance. When the resistance offered to the current is mentioned, the electro-motive force was always previously taken with a voltmeter. It will be seen that at one time, with one patient, a certain number of cells gave a current strength (C.S.) of so many milliampères (m.a.), and at another time, with the same patient or another patient, the same number of cells gave a C.S. very much greater or less. The resistance in the circuit at different times must therefore have varied considerably. When the electrode

is withdrawn to the os, it is in closer contact with the substance of the uterus, and therefore the resistance is less and the C.S. increased; when passed into the cavity of the uterus, in many cases the C.S. is reduced, the same number of cells being included in the circuit. When Apostoli's electrode is used, the contact is closer about the os and the cervical canal, and therefore greater action takes place in those situations.

CASE I.—September 3, 1886.—E. F., single, aged 43, an out-patient of the Hospital. Sent to me by Dr. Godson. Five months ago was found to have a sub-peritoneal fibroid. Catamenia irregular. Sometimes menorrhagia. Pain in passing motions and urine. Micturition frequent for the last six weeks.

September 10, 1886.—Faradisation of the uterus. A pad connected with one pole of the battery on the abdomen, and an internal electrode against the os uteri. No sound passed. The tumour can hardly be felt from the abdominal wall. Dulness extends to within $2\frac{3}{4}$ inches of umbilicus.

September 23.—Examined by Dr. Griffith. Exact measurements of tumour could not be determined.

December 10.—Numerous applications of electricity had taken place as on September 10. The tumour is now much smaller.

March 4, 1887.—Uterine cavity smaller. Sound passes $1\frac{3}{4}$ inches.

April 29.—Discharged. Better in every respect. Symptoms relieved.

August 19.—Feels very little discomfort in abdomen now. Amenorrhœa fourteen weeks. Generally now has an interval of two months. No trouble now in passing motions.

September 20.—Says that her uterine trouble has now ceased; that she feels quite right in the lower part of her body. Still continues to come to the Hospital occasionally to be galvanised for pain in her back.

October 19, 1888.—Has experienced no trouble from, or symptom of, her tumour now for nearly two years. Electricity has not been applied since the early part of 1887.

CASE II.—E. M., single, aged 40. Admitted May 26, 1887, an in-patient under the care of Dr. Matthews Duncan, suffering from an enormous fibrous tumour. First noticed five years ago. Catamenia used to be regular and not excessive; usually lasted three days. Since May 13 has had profuse metrorrhagia.

Physical examination by Dr. Duncan:—*Per hypogastrium*.—Belly very prominent inferiorly. Measurement—from xiphoid to umbilicus, $8\frac{3}{4}$ inches; from symphysis pubis to umbilicus, $10\frac{1}{4}$ inches. More than semi-globose, irregular in shape, displaceable,

hard, dull on percussion, dumb. *Per vaginam*.—Cervix high up on the right side. A dense hardness occupies the brim of the pelvis, which has solidarity with the tumour felt through abdominal wall.

June 16.—Measurements made by Dr. Godson (see later on). Sound enters towards the right, then turns into natural direction and passes $6\frac{1}{2}$ inches. Its withdrawal is followed by a slight discharge of blood.

June 17.—Electrolysis. Potter's clay electrode applied to the abdomen and connected with the negative pole of a Stöhrer's battery. A voltmeter was included in the circuit. (At this date we had no galvanometer graduated sufficiently high to gauge the currents used in the electrolysis of fibroids.) The positive pole of the battery was connected with a platinum-pointed electrode, which was passed into the cavity of the uterus. The circuit was closed for eight minutes. Current strength, as calculated by the decomposition of the water in the voltmeter, $42\frac{1}{2}$ milli-ampères.

June 20.—No bad symptoms. Temperature sub-normal. Slight pain she used to feel has ceased.

July 1.—Electrolysis. Current strength estimated by Stöhrer's galvanometer to be about 70 milli-ampères. Current passed for eight minutes.

July 15.—Some slight diminution in measurements. Patient feels sure that the tumour is smaller. Catamenia from 3rd to 13th (eleven days). Electrolysed. C.S. 120 m.a. Sixteen cells used. Electro-motive force of each cell 1.8 volts; therefore the resistance in the circuit was about 230 ohms. Time ten minutes.

August 18.—Has had some pain in abdomen and rise of temperature since the last time she was electrolysed; the battery has therefore not been used since. Again measured by Dr. Godson, and tumour found very much reduced in size.

Measurements, each time taken by Dr. Godson:—

	1887.		1888.
	June 16. Inches.	Aug. 18. Inches.	Aug. 8. Inches.
Xiphoid cartilage to umbilicus	$8\frac{1}{4}$	7	$8\frac{1}{2}$
Xiphoid cartilage to highest point reached by tumour	$3\frac{1}{4}$	$3\frac{1}{4}$	$2\frac{1}{2}$
Xiphoid cartilage to symphysis	$18\frac{1}{4}$	15	$19\frac{1}{4}$
Greatest width with calipers	$9\frac{1}{2}$	$7\frac{1}{2}$	$9\frac{1}{2}$
Greatest length with calipers	$9\frac{1}{2}$	7	$9\frac{1}{4}$
Girth at umbilicus	$33\frac{1}{4}$	$33\frac{1}{4}$	36
Girth over most prominent part of tumour	35	$34\frac{1}{2}$	$37\frac{1}{2}$
Right anterior superior spine to umbilicus	$8\frac{3}{4}$	8	10
Left anterior superior spine to umbilicus	$8\frac{1}{2}$	8	$9\frac{1}{2}$
Symphysis to umbilicus	$9\frac{1}{2}$	9	$10\frac{1}{4}$
Top of tumour to umbilicus	$5\frac{1}{4}$	...	7
Cavity of uterus	$6\frac{1}{2}$	...	$4\frac{1}{2}$

On August 8, 1888, patient returned to the Hospital, and was again examined and measured. The tumour had increased in size, and the patient had lately suffered a good deal of pain, but has never suffered so much from loss of blood as before the treatment by electrolysis. The os is not patulous. The point of the sound first enters to the patient's right, but does not pass more than $4\frac{1}{4}$ inches.

CASE III.—E. B., aged 38; married eighteen years; no children. Sent to me by Dr. W. S. A. Griffith. Admitted into the Grosvenor Hospital, July 6, 1887, with a fibrous tumour about the size of a man's head. First noticed about three years' ago. Was then about the size of an egg. Has been under treatment during the last two years, but the tumour has gradually increased. Used to lose considerably at monthly periods. The tumour becomes larger at those times. The skin of the abdomen over the tumour is then often very tense.

The tumour now causes very little inconvenience except at monthly periods, when she then experiences some difficulty in getting about. Does not now lose so much. Flow lasts for three or four days. The tumour is more prominent on the left side. Measurements—from xiphoid to umbilicus, $5\frac{1}{2}$ ins.; from xiphoid to symphysis, 12 ins.; from symphysis to umbilicus, $6\frac{1}{2}$ ins. Sound passed about 2 inches into cavity of uterus.

July 9.—Electrolysis. C.S. 80 m.a. Could not bear more because of the pain given by the external negative electrode. The potter's clay was not wet enough. Application lasted eight minutes.

July 20.—No bad symptom after last application. Again electrolysed; dorsal position. Platinum intra-uterine electrode made positive. C.S. 120 m.a., for ten minutes. Borne well. A larger and moister external electrode was used.

July 23.—Had no rise of temperature after the 20th. The tumour is noticeably smaller. Extends only about an inch above umbilicus. Skin loose over anterior surface. Can be grasped in the hand. Much adipose tissue. Could not be gathered up into the grasp before, as the skin was stretched tightly over the tumour. About the menstrual periods the skin used to become so tight over the tumour as to render it shiny.

August 17.—Feels much better. Tumour is obviously smaller. Does not now reach above umbilicus. Is now about the size of a cocoa-nut. Has been out of the Hospital and about since July 30th. Last menstrual period three days' duration. There is a considerable deposition of sub-cutaneous fat since the electrical treatment began. Electrolysis repeated. This time

intra-uterine electrode was made negative. Fourteen cells of a Stöhrer's battery used for nine minutes. Patient bore the application well. No galvanometer used, as the Hospital did not possess one. On removal of the potter's clay electrode, the skin of the abdomen was found as congested as when the negative pole is used externally.

October 26.—Electrolysis repeated. Electrode passed into the cavity of the uterus $4\frac{1}{2}$ inches.

November 23.—Electrolysis. Platinum electrode made positive; used internally; entered uterus about 4 inches. C.S. 90 m.a. Patient could not bear a stronger current. Potter's clay electrode had been kept damp since it had been used three days previously. It had not been remixed, therefore the consistency of the clay was not the same throughout, and did not so evenly diffuse the current. The stress of the current was felt over an area exactly beneath the metal plate which was placed on the clay. Application lasted ten minutes. Patient had felt much better since the last electrolysis.

December 7.—Electrolysis. C.S. 125 m.a.

December 21.—Patient is sure she is better. Can now walk sharply, which she could not do before. No pain now when she walks. Sees very much less at her monthly periods. Used to use three diapers a day; now only uses three in the three days.

December 28.—Electrolysis. Intra-uterine electrode negative. C.S. 100 m.a., with fourteen cells. Ninety milli-ampères with twelve cells. Could not bear the current stronger.

January 4, 1888.—Intra-uterine electrode positive. C.S. 120 m.a. Fourteen cells used. Electro-motive force about fourteen volts.

January 19.—Intra-uterine electrode negative. C.S. 110 m.a. Ten minutes. Poorly about ten days ago. Much less than formerly. Used to be of a dark colour, and she was often laid up for a week. Now it is of a much brighter colour, and she suffers no discomfort. The tumour she thinks is less. Has had to tighten all her clothes, especially her stays.

February 15.—Electrolysis. Intra-uterine electrode negative. Eighteen cells. C.S. 110 m.a.

February 29.—Is much better. Tumour not nearly so protuberant. Has had to tighten all her clothes, which are still quite loose upon her. Can now walk briskly for a long way (she says two miles) without discomfort.

March 14.—Electrolysis. Intra-uterine electrode negative. Time ten minutes. C.S. 135 m.a.

June 13.—Has not been feeling quite so well lately. Cata-

menia a little more abundant. Battery applied again. Negative pole internally. C.S. 135 m.a., for ten minutes.

August 22.—Has been away in the country and been ill with rheumatism. Thinks that the tumour is still decreasing. Electrolysis. Electrode made negative entered with some difficulty, passing to the patient's right. C.S. 145–150 m.a. Ten minutes.

September 26.—Has been poorly since last application. Loss a little greater than it has been lately. Electrode made negative only entered $1\frac{1}{2}$ inches. C.S. 100–110 m.a. Ten minutes. Patient said that this application caused her more pain than usual.

October 10.—Electrolysis. Intra-uterine electrode negative. C.S. 110 m.a. Time ten minutes.

CASE IV.—E. M., aged 43; married; no children. Was admitted into the Hospital under the care of Dr. Matthews Duncan on June 27, 1887, suffering from a fibrous tumour.

Catamenia regular until five years ago; since then sometimes every fortnight and sometimes every two months. Has not been so for the last two months. Has noticed her abdomen getting larger during the last five years.

Examined by Dr. Duncan:—“*Per hypogastrium*.—Belly much and uniformly distended, but under semi-globose. Beneath the umbilicus can be felt a hardness with projecting parts; this can be felt to rise within an inch of the umbilicus. Dulness from the latter to the pubes, and over hypogastric to right and left iliac regions. Dulness in flanks displaced by lying on the opposite side. *Per vaginam*.—Cervix uteri reached with difficulty behind upper margin of symphysis. In Douglas's pouch is a moveable hard mass, which is made out bi-manually to have solidarity with the hypogastric tumour.”

July 6.—Dulness in flanks diminished considerably.

July 7.—Dr. Duncan's note:—“Probe enters uterus easily, apparently passing along in front of the tumour and a little to the right side, to 6 or 7 inches.” Measurements—xiphoid cartilage to umbilicus, 8 ins.; xiphoid cartilage to symphysis, 10 ins.; girth at umbilicus, $39\frac{1}{2}$ ins.; right anterior superior spine to umbilicus, $9\frac{3}{4}$ ins.; left anterior superior spine to umbilicus, 10 ins.

July 8.—Electrolysis. Galvanometer showed 700 milliamperes. It was found that the galvanometer (Stöhrer's) was coupled up in the wrong direction. The real current strength, as corrected by Thistleton's dead-beat galvanometer, was shown to be only 35 m.a.

July 11.—Menstruation, which had been in abeyance for between three and four months, reappeared on the evening that the tumour was electrolysed. It has been more profuse than usual since.

July 22.—Electrolysis for ten minutes. Apostoli's platinum electrode used, and Gaiffe's galvanometer. The galvanometer showed a current strength for most of the time of 60 m.a., but went up to 80 m.a. The patient complained that she felt much pain, especially at the negative pole.

July 29.—Electrolysis. Electrode passed farther into uterus. C.S. 100 m.a. for a short time. The greater part of the ten minutes that the current was passing 80 m.a. were used.

August 12.—Electrolysis. C.S. 90 m.a. Patient could not bear 100 m.a. Os more difficult to reach. Tumour appears to be much smaller.

August 26.—Electrolysis. Positive pole used internally. C.S. raised from 100 to 172 m.a., which point it touched once. For about eight of the twelve minutes during which the current was passing it remained at 140 m.a. Ten cells of Stöhrer's battery were used. Electro-motive force, 18 volts; resistance, 128 ohms.

$$R = \frac{E}{C} = \frac{18}{1} \div \frac{140}{1000} = \frac{18,000}{140} = 128 \text{ ohms.}$$

CASE V.—E. S., aged 48, single. Sent to me by Dr. Ward Cousins of Southsea. Admitted into the Grosvenor Hospital, October 31, 1887, with an enormous fibrous tumour. First noticed the tumour 6½ years ago; has not increased lately. For the last three years has been losing very much at her monthly periods. Is only free for a week or ten days. Patient now measures 40 inches round the waist, and weighs 12 st. 10½ lbs. Eleven years ago weighed 8 st. 8 lbs., and was 23 inches round the waist. Measurements—xiphoid cartilage to umbilicus, 10¼ ins.; xiphoid cartilage to highest point of tumour, 7 ins.; xiphoid cartilage to symphysis, 17 ins.; girth at umbilicus, 45⅔ ins.; girth over most prominent part of tumour, 45⅔ ins.; right anterior superior spine to umbilicus, 9½ ins.; left anterior superior spine to umbilicus, 10 ins.; symphysis to umbilicus, 8 ins.; top of tumour to umbilicus, 2½ ins.; cavity of uterus, 8 to 10 ins. Os could not be reached by the finger or brought into view by aid of the speculum. The limits of the vagina could be seen and ascertained by touch, except high up behind the pubes to the patient's left. Into this recess the sound passed as far as its length would permit, with a simultaneous discharge of

dark disintegrated blood and clot, showing that the sound had most likely entered the uterus. A flexible sound only could be passed.

November 12.—Electrolysis. Intra-uterine electrode positive. Potter's clay on abdomen. C.S. 150 m.a. Twenty-four cells of a Stöhrer's battery. Time ten minutes.

November 23.—Electrolysis repeated as on first occasion. C.S. 100 to 125 m.a.

December 7.—Electrolysis. C.S. 175 m.a. Has menstruated since last application. Had less pain and much smaller loss. Only lasted five instead of twelve days, as on many previous occasions.

December 14.—Has had some pain on the left side above pubes, where the electrode goes, but feels much better in herself. Passes her water much more easily. Electrolysis. Current passed for ten minutes. 150 to 160 m.a.

December 17.—Temperature rose to 102.6 last night. Very feverish and sick. Pain in abdomen and back. Pains all over her. Anorexia. Bowels opened with aperient. Says she has had similar attacks before.

December 18.—Temperature last evening 99.8. Passed a good night. Less pain.

December 28.—Has been much better since last note. No pain. Temperature normal. Electrolysis. Intra-uterine electrode positive. C.S. with twenty-two cells 135 m.a.; then rose without any additional cells being introduced into the circuit to 150 m.a., and subsequently to 165 m.a., showing that the resistance to the current had gradually decreased.

December 31.—Has had no rise of temperature. Catamenia commenced on 29th only accompanied by twenty-four hours' pain instead of ten days, which was formerly the case. Feels much better. Bowels are now open regularly without aperients. A small patch of the skin of the abdomen above the umbilicus was destroyed by the electrolysis of the 28th inst., through the abdominal electrode of potter's clay being too thin. Says that a small slough has passed away per vaginam. Can now lie on her back; has not been able to do so with any comfort for the last three years. Can also now straighten her legs when lying in bed, which she has not been able to do for a much longer period.

January 18, 1888.—Losing profusely. Matron had to plug the vagina. Could not pass water. Lips a good colour. Pulse good.

January 19.—Flooded again last night. Was sent for.

Plugged vagina with strips of lint steeped in perchloride of iron and glycerine. Pulse good. Not blanched.

January 20.—Plug removed this morning. No further loss.

February 9.—Electrolysis. Flexible intra-uterine electrode positive. C.S. 145–155 m.a. Time ten minutes.

February 15.—Has had another bad attack. Temperature, 101.2°; pulse, 112. Sick. Bowels not open; required a strong purgative. Pain over abdomen and in right renal region.

March 24.—Electrolysis. Flexible electrode entered 10 inches. C.S. only 90 m.a., with thirty cells of the battery. Found that the patient had placed between the potter's clay and her abdomen a large piece of oil silk 7 ins. by 6 ins. The potter's clay electrode was only 14 ins. by 10 ins.; therefore the resistance was enormously increased, and the current strength proportionately low.

May 16.—Has been poorly twice since last electrolysis. Much less than formerly. Two intervals of four weeks to the day, for the first time in her life. Electrolysis. Flexible electrode made positive. C.S. 180 m.a. For a minute or two a current strength of 230 m.a. was reached, with thirty cells of a Stöhrer's battery. Borne easily. Application lasted ten minutes altogether, followed by some slight show of blood. Internal electrode passed into uterus as far as its length would admit.

May 23.—Flexible electrode made positive. Entered 9 inches. C.S. 166 m.a. Time ten minutes. Twenty-eight cells used. Electrode was moved all over cavity of uterus. A small piece of elastic tissue was placed over umbilicus beneath potter's clay, because at the last application it hurt her in that position.

June 6.—Flexible electrode made positive. Entered to the hilt. C.S. 160 m.a. Time ten minutes. Twenty-eight cells used, as before.

June 14.—Flexible electrode positive. Entered to the same distance as on the last occasion. C.S. 165 m.a. Thirty cells. Ten minutes.

June 20.—Flexible electrode positive. Entered 8 inches. C.S. 175 m.a. Thirty cells. Ten minutes.

July 7.—Electrolysis. Electrode entered 8 to 10 inches. Made positive. C.S. 165 m.a. Patient did not feel the current much. Thirty cells were used of an E.M.F. of 1.6 volts per cell, 48 volts in all. C.S. = $\frac{1.6 \times 5}{1000}$ of an ampère. The resistance equals the E.M.F. divided by the C.S.—

$$R = \frac{E}{C} = \frac{48}{1} \div \frac{165}{1000} = R \frac{48000}{165} = 290 \text{ ohms (resistance).}$$

The increased resistance was most probably due to the potter's

clay electrode being too thick. It was nearly an inch thick, when it ought to have been half an inch. Current passed for ten minutes.

July 14.—Flexible electrode only passed 4 inches out of sight on this occasion. As it was possible it had not entered the uterus, only 50 m.a. were used. Electrode made positive.

Patient left the Hospital measuring only 33 inches round the waist, whereas she was 40 inches on admission.

Heard from patient about the middle of September that the improvement in her condition was maintained. She says:—

“I am wonderfully better in six ways:—

“1. General health; enjoying my food, whereas I used always to be taking tonics to get any food down, and then scarcely ever tasted it.

“2. So little loss and hæmorrhage, against scarcely ever being free.

“3. The almost constant, excruciating, agonising pain so much lessened, and so easily abated with rest, instead of narcotics.

“4. No trouble with bowels. They act regularly every day, and for years they have not done so, long before the tumour was discovered, and never without aperients.

“5. No trouble with the water, and I have lost that almost constant, maddening pain in the left kidney, which often made me beg for an operation, to be free from that alone.

“6. I get so much more and better sleep. If I slept two hours, I awoke in such intense pain, and scarcely ever got that without something to make me sleep. Now I can sleep five and six hours at a stretch, and wake up refreshed, which is such a boon.”

CASE VI.—M. W., aged 38. Admitted October 8, 1887, as an in-patient under the care of Dr. Duncan, suffering from a fibrous tumour of the uterus. Married; eleven children, the last eighteen months ago. Menstruated for the first time after the last child six months ago. For two months the periods were quite natural, then seized with pain and excessive loss at proper menstrual period. For the last four months there has been a continual loss, sometimes passing clots. Worse at times. Used three or four diapers a day. Pain like labour. Worse on sitting. Bowels costive. Is not very anæmic. Appetite poor. Temperature on admission, 100.6°; pulse, 96.

Note by Dr. Duncan:—“*Per hypogastrium*.—Belly slightly distended, not tense. Tender in hypogastrium, where there is a fulness and indistinct hardness. *Per vaginam*.—Cervix uteri is to be felt behind horizontal ramus of pubes. Brim of pelvis

occupied by convex hardness, which has solidarity with hypogastric hardness. Probe enters uterus 3 inches, and passes to the right side of the tumour and above it.

October 24.—Measurements:—

	Oct. 24. Inches.	Nov. 27. Inches.
Xiphoid cartilage to umbilicus	6½	7½
Xiphoid cartilage to symphysis	8	6½
Girth at umbilicus	38	36
Right anterior superior spine to umbilicus	7¼	8
Left anterior superior spine to umbilicus	7½	7½

The measurements are not much influenced by the tumour. The cavity of the uterus is only 3 inches, about what it would be in a woman who had borne several children. Conclusions as to improvement under treatment can only be drawn from a relief of symptoms. Less pain, less hæmorrhage, &c., &c. Had lost nothing since October 20th. Electrolysis. Flexible intra-uterine electrode made positive. Potter's clay on abdomen attached to the negative pole. C.S. 120–125 milli-ampères. Time ten minutes.

October 31.—Temperature has not been above normal since electrolysis. Before it varied very much, often above normal in the evening. On October 10th it was 101.2°. Patient feels and looks much better. Has had no return of hæmorrhage since operation. Electrolysis. Positive pole intra-uterine. Current strength varied. At one time 144 m.a.; never below 120 m.a. during the ten minutes the current was applied. Resistance in the circuit, 268 ohms. This included the resistance of the battery, rheophores, and electrodes. The resistance of the patient was therefore less than the amount mentioned.

November 11.—Electrolysis. Intra-uterine electrode positive. C.S. 120 m.a. Twenty-two cells in circuit. Resistance, 260 ohms. Time ten minutes.

November 25.—Menstrual period since last note. Lost pretty freely; lasted five days. Electrolysis. Intra-uterine electrode positive. C.S. 140 milli-ampères. Sixteen and eighteen cells used. Time ten minutes.

December 2.—Electrolysis. Uterine electrode positive. C.S. 176 m.a. Twenty-four cells. Resistance of circuit, 213 ohms.

December 3.—Discharged from the Hospital. Dr. Duncan's note:—"Per vaginam.—The swelling to be felt seems smaller than when examined last."

February 10, 1888.—Saw patient. She says she is much better, and feels smaller. Is now menstruating; not losing

nearly so much as she used to do. Is taking ergot. Free from pain.

May 29.—Has been regular every month since she left the Hospital. Amount normal.

CASE VII.—E. B., aged 40; married; no children. An out-patient under the care of Dr. Godson. Fibrous tumour. Complains chiefly of menorrhagia. Free only about four days in the month. Noticed swelling first in left lumbar and iliac regions about three years ago. Left leg occasionally much swollen. No pain. Anæmic.

Per hypogastrium.—A hard, round swelling the size of a cocoa-nut in hypogastric region, displaceable from side to side. *Per vaginam.*—Cervix displaced backwards. Os small, difficult to reach, sound introduced $1\frac{1}{2}$ inches. In front of cervix can be felt the lower part of the abdominal swelling, which can be swayed from side to side. Last January sound entered $2\frac{1}{2}$ inches.

Has been taking ergot since September 1886. Menorrhagia little if at all affected by it.

November 8, 1887.—Electrolysis. Positive pole intra-uterine. C.S. 120 m.a. Time ten minutes. Sixteen cells. No speculum used.

November 29.—Electrolysis. Uterine electrode negative, entered $1\frac{1}{2}$ inches. Twelve cells. C.S. 160 m.a. Time ten minutes.

December 6.—Has not lost blood for nearly a month. Electrolysis. Uterine electrode negative. Fourteen cells gave a C.S. of 156 m.a., then 164, and finally rising to 172 m.a. The resistance during the ten minutes the current was passing sank from 167 ohms to 107, and then rose again to 114.

December 27.—Catamenia appeared on December 11th; lasted nine days. Very much less than before.

January 3, 1888.—Electrolysis. Uterine electrode negative, introduced 2 inches. Corrugated carbon electrode soaked in salt water applied to the abdomen instead of potter's clay. Twenty-six cells only gave a C.S. of 100 m.a.

January 24.—Catamenia commenced three days after last electrolysis; only lasted eight days. Patient thinks the tumour is smaller.

February 3.—Firm insulated electrode made negative. Could not be passed beyond the internal os. C.S. 132 m.a. Ten cells. Time ten minutes. Electro-motive force of cells 1.6 volts each. Resistance of circuit, 121 ohms. Potter's clay pad, $12 \times 9\frac{1}{2}$ inches thick to abdomen.

February 28.—Electrolysis. Negative pole in contact with external os. C.S. 184 m.a. Ten minutes.

March 13.—Electrolysis for ten minutes. Negative pole intra-uterine.

April 3.—Electrolysis. Negative pole to external os for ten minutes. C.S. 148 m.a. Twelve cells.

April 18.—Firm uterine electrode passed 3 inches; made negative. The os is now well within reach. Ten cells. C.S. 146 m.a.

May 8.—Catamenia a fortnight ago; loss moderate; no clots. Electrolysis. Uterine electrode negative. Eight cells gave 84 m.a., rising to 100.

May 29.—Electrolysis. Uterine electrode negative. C.S. 130 m.a. Patient has been taking no ergot while under treatment by electricity. Has been about doing her ordinary housework.

June 5.—No loss of blood since May 23rd. Offensive vaginal discharge always present. Electrolysis. Uterine electrode negative. C.S. 100 m.a.

June 19.—Menstruation commenced yesterday. Interval since May 23rd; the longest for quite two years.

July 3.—Electrolysis. Apostoli's platinum electrode could not be introduced. Speculum used. Electrode held against external os and made negative. Water rheostat in circuit. Thirty cells only gave 70 m.a.

July 10.—Electrolysis. Firm uterine electrode negative. Introduced half an inch. Ten cells. C.S. 130 m.a.

July 17.—Electrolysis. Firm uterine electrode negative. Introduced 1 inch. Ten cells. C.S. 140 m.a.

August 13.—Electrolysis. Uterine electrode positive. Entered $1\frac{1}{4}$ inches. Sixteen cells. C.S. 100 m.a. Five minutes.

September 4.—Electrolysis. Uterine electrode negative. Passed $1\frac{1}{2}$ inches. Ten cells. C.S. 100 m.a.

September 11.—Electrolysis. Uterine electrode positive. Entered $1\frac{1}{2}$ inches. C.S. 100 m.a. Ten cells.

October 30.—Electrolysis. Smaller uterine electrode used; entered 4 inches. Sixteen cells gave C.S. 160 m.a. Time ten minutes.

Patient is very much better in every respect. Menstruation almost regular, but still prolonged. Loss is never now excessive.

CASE VIII.—C. J., aged 40. An out-patient under the care of Dr. Godson. No children. One miscarriage eight years ago. Always suffered from dysmenorrhœa, which is getting worse. Enlargement of abdomen not marked. Says it gets larger

at her monthly periods. Loses great quantities of blood at times.

November 15, 1887.—Electrolysis. Difficulty experienced in reaching the os. Flexible electrode could not be introduced. Dr. Apostoli's rigid electrode found useful. Introduced 1 inch; made positive; in close apposition to cervix. C.S. 80–98 m.a. Fourteen to sixteen cells. Time ten minutes.

December 13.—Has not lost for a month. Usually loses every fortnight.

December 27.—Electrolysis. Apostoli's probe used, made negative. Eighteen cells. C.S. 160 m.a. On taking the battery out of the circuit, a reverse current of 12 m.a. was obtainable from the patient. This soon sank to 4 m.a.

January 10, 1888.—Menstruation since last electrolysis. Less than usual. Lasted one week. Patient thinks the tumour is smaller. Pain in back less. Electrolysis. Firm electrode used without speculum; entered 1 inch, made negative. Twelve cells. C.S. 135 m.a.

February 7.—Electrolysis. Firm electrode could only be introduced 1 inch, therefore made negative. Twelve cells gave a C.S. of 150 m.a.; this, however, the patient could not bear. Therefore ten cells were used, giving 144 m.a. Current passed for ten minutes. Resistance, 126 ohms.

February 28.—Had some dysmenorrhœa at the last period. Electrolysis. Uterine electrode negative. Fourteen cells. C.S. 136 m.a. Time ten minutes.

March 13.—Electrolysis. Uterine electrode negative. C.S. 136 m.a.

April 3.—Electrolysis. Firm uterine electrode introduced $2\frac{3}{8}$ inches, made negative. C.S. 200 m.a. Fourteen cells. Ten minutes.

May 15.—Electrolysis. Firm uterine electrode introduced a little over 3 inches. Made negative for two minutes. C.S. 174 m.a. Current then reduced in strength, and internal electrode made positive. C.S. 180 m.a. Eight minutes.

May 29.—Patient was unwell for three days after last application, but lost only very slightly; no clots. Has now no vaginal discharge. Is nearly free from pain, except pain occasionally in the back. Electrolysis. Firm electrode passed 3 inches, negative. C.S. 180 m.a. Sixteen cells. Patient took ergot from March 27 to May 8. None since then.

July 10.—Had a thin watery discharge for three or four days after last electrolysis. Last menstrual period ten days' duration. Electrolysis. Uterine electrode passed 3 inches, made positive. Fourteen cells. C.S. 192 m.a.

July 24.—Electrolysis. Uterine electrode entered 3 inches, positive. Sixteen cells. C.S. 180 m.a.

September 11.—Patient says she has been better. Electrolysis. Uterine electrode introduced 1 inch, made positive. C.S. 80 m.a.

October 23.—Continues to be much better. Has some pain at her monthly periods, but is quite free from pain in the interval. Loss much less. Abdomen smaller. On the whole, she expresses herself as being much better for the treatment. Has been getting about and doing her work all the time.

CASE IX.—Mrs. H., aged 52, sent to me by Dr. Uthhoff of Brighton. Has been suffering from great and continued loss for several years. Was brought to town in a very critical condition. Lips blanched; pulse irregular. Says that her pulse has been weak and irregular since she had a slight hemiplegic stroke three years ago. Abdominal walls loaded with adipose tissue making any measurements of tumour impossible.

November 24, 1887.—Electrolysis. Intra-uterine electrode positive. Only a weak current used, about 30 m.a., for ten minutes.

November 30.—Electrolysis. Intra-uterine electrode positive. Current strength between 30 and 40 m.a. Time fifteen minutes. Has been better, and lost less blood since last application.

December 9.—Patient says she is freer from loss than she has been for months. Wants to return home. Advised that she should not go home until she had had two or three more applications of electricity. Electrolysis. Uterine electrode positive. Introduced through a speculum, as on former occasions. C.S. 110 m.a. Resistance, 340 ohms.

December 12.—Patient now has hardly any loss; only a coloured discharge. Has been up. Wishes very much to go home, as she is afraid the electricity will bring on another hemiplegic stroke.

December 22.—Patient would not submit to another application of electricity.

Returned home on December 19. Bore the journey well. Heard that her friends and her doctor considered her greatly improved by her visit to town.

October 29, 1888.—Received a most satisfactory communication from Dr. Uthhoff, in answer to my request that he would inform me as to the present condition of this patient. He says:—"She is now much better, but for some months after her return home she was rather bad. Looking back on her case,

altogether I think I may fairly say that she was decidedly benefited by the electrolysis, for she has never been so bad as she was before the application, and without doubt the gradual improvement dated from about that time." He points out that she might have taken a turn for the better without the electrolysis, and that she has been taking drugs that have decidedly affected the course of the complaint.

CASE X.—M. B., aged 35. An out-patient under the care of Dr. Godson. Married; one child fifteen years ago; since then five miscarriages. For the last eight or nine months has noticed a swelling in her abdomen, which is increasing. Suffers from a smarting, burning pain at the lower part of her back. Amenorrhœa the last twelve months.

The tumour reaches half way up to the umbilicus, and is about the size of a large cocoa-nut. Sound enters uterus 6 inches.

November 29, 1887.—Electrolysis. Uterine electrode made negative. Fourteen cells. C.S. 156, rising to 192 m.a. Time ten minutes. No speculum used.

December 6.—Electrolysis. Uterine electrode negative; entered 6 inches. Twenty cells used. The current strength rose to 164 m.a. when the electrode was pushed up to the fundus; when withdrawn to the os, the galvanometer registered 152 m.a. Patient thinks her belly has decreased in size.

December 20.—Electrolysis. Fourteen cells. C.S. 188 m.a.

January 17, 1888.—Electrolysis. Firm insulated electrode made negative, entered $4\frac{3}{4}$ inches. Sixteen cells. C.S. 180 m.a. Resistance, 122 ohms.

March 20.—Electrolysis. Firm electrode made negative, introduced 4 inches. Eighteen cells. C.S. 200 m.a. Has had no pain in the back lately. Has menstruated once since Christmas. Tumour is decreasing in size.

March 27.—Electrolysis. Firm uterine electrode made negative; entered uterus $3\frac{1}{4}$ inches. Eighteen cells. C.S. 196 m.a. A corrugated carbon electrode attached to the positive pole was used on the abdomen. Size, 12 inches by 9 inches. Lowest resistance of circuit, 138 ohms.

May 1.—Electrolysis. Firm uterine electrode passed $5\frac{1}{2}$ inches; made negative. Fourteen cells gave C.S. 132 m.a. Ten minutes. On first introducing the electrode, it seemed to pass up the Fallopian tube, since it passed its whole length through the external os.

May 15.—Electrolysis. Firm uterine electrode passed 3 inches, made negative. Fourteen cells registered 148 m.a., which rose to 200 during the ten minutes.

May 22.—Is menstruating, the second time since Christmas; before that she had seen nothing for twelve months. Is losing freely. Used formerly to lose a great deal. Was 30 inches round abdomen before the electrolysis began; is now 27 inches. Could scarcely walk when she first came; can walk now without discomfort.

June 19.—Electrolysis. Firm uterine electrode passed $2\frac{1}{2}$ inches, made negative. Twelve cells. C.S. 160 m.a. for ten minutes.

July 10.—Electrolysis. Uterine electrode introduced several inches, made negative. C.S. 156 m.a. Twelve cells.

July 24.—Electrolysis. Uterine electrode passed 3 inches, negative. Fourteen cells. C.S. 132 m.a.

August 14.—Patient has much improved in health. External measurements of abdomen show that the tumour has decreased in size. Has taken no ergot since March 13th. Can now do her work. Electrolysis. Uterine electrode passed $3\frac{1}{2}$ inches; made negative. Eighteen cells. C.S. 130 m.a.

September 4.—Frequency of micturition is gradually diminishing. Electrolysis. Uterine electrode introduced $4\frac{1}{2}$ inches, made negative. Sixteen cells gave 140 m.a., rising to 180 m.a.

September 11.—Electrolysis. Uterine electrode negative. Twenty-six cells. C.S. 140 m.a.

October 9.—Patient is sure that the tumour is smaller, as she has had to take in her stays. Electrolysis for ten minutes. Electrode entered $5\frac{3}{4}$ inches. C.S. 160 m.a. Resistance in circuit 168 ohms.

October 30.—Irritability of bladder continues. Has not menstruated since May. Electrolysis. Uterine electrode passed $3\frac{1}{2}$ inches, made negative. C.S. 160 m.a.

CASE XI.—S. C., aged 46, widow. Admitted into the Hospital under the care of Dr. Duncan, November 4, 1887, suffering from a fibrous tumour of the uterus. Has had three children, the last fourteen years ago, and two miscarriages, the last twelve years ago. Menstruation began at 15 years of age. Regular every month, lasting three or four days. Always lost freely. Six months ago had a flooding. Has lost every day since then until nine days ago. Large clots came away. Four diapers daily. Lost flesh lately.

December 1.—Examination by Dr. Duncan:—“*Per hypogastrium*.—Has a left inguinal hernia. *Per vaginam*.—Cervix patulous. Close behind the lower margin of the symphysis it has a clot protruding from it. Behind cervix, attached to it, and nearly filling the pelvic excavation, is a lobulated hard

tumour. Probe enters the uterus in front of the tumour, and its point can be felt between the navel and right Poupart's ligament. Probe goes in until it is lost in the vagina (probably up the right Fallopian tube)."

December 2.—Electrolysis. Uterine electrode positive. Potter's clay on abdomen negative. The patient made very little complaint, even when the current strength exceeded 200 m.a. This occurred with twenty-four cells of Stöhrer's battery. It was observed that when the electrode was pushed right up to the fundus, the C.S. fell to 152 m.a., while when the electrode was withdrawn to the os, it rose to over 200 m.a. The resistance in the first position was 256 ohms; in the second, 192 ohms.

December 12.—Patient not so well; has a discharge. There is a tender hardness reaching half-way up to umbilicus. Temperature, 102°; evening, 99°. Per vaginam: The swelling behind the cervix seems more prominent.

December 13.—Some small sloughs came away with the douche this morning.

December 17.—Difficulty with water. Pain. About 3i of pus escaped from vagina, and she felt easier. Temperature sub-normal. Bi-manually the hypogastric swelling has indistinct solidarity with uterus.

December 29.—Dr. Duncan's note:—"Per hypogastrium.—A rounded convex indolent hardness rises 2 inches above the pubes, presumably an increased fibroid: it does not move."

January 4, 1888.—Improving. No pain. A little discharge, but no smell.

January 6.—Electrolysis. Flexible uterine electrode positive. Eighteen cells. C.S. 180 m.a. Lowest resistance, 168 ohms.

January 13.—No pain or rise of temperature since last application. Electrolysis. Flexible electrode positive. Twenty-six cells. C.S. 180 m.a. Time nine minutes.

January 16.—No rise of temperature. Feels stronger. No loss. Has been up the last few days.

January 20.—Electrolysis. Flexible electrode positive. Twenty-six cells. C.S. 184 m.a. Time ten minutes.

January 26.—Dr. Duncan's note:—"Per hypogastrium.—Dense hardness, with dulness; rises 2 inches above pubes, with a rounded upper margin, more prominent on the right than on the left. Per vaginam.—The cervix is 1 inch below the lower margin of symphysis. The uterus is displaceable only. Behind it is a rounded, hard tumour, not bigger than an apple." Dr. Duncan expressed the opinion that the pelvic swelling felt per vaginam had decreased.

January 27.—Electrolysis. Flexible electrode passed 4 inches

and made positive. Twenty cells gave 200 m.a. Time ten minutes.

January 29.—Discharged. Felt quite well. To come occasionally as an out-patient.

April 6.—Made an out-patient. Says the tumour seems to her smaller. Has had one slight loss since she left the Hospital.

April 17.—No loss in interval since last visit. Electrolysis. Flexible electrode introduced into cervix 2 inches; made negative. On increasing the current, twelve cells gave 48 m.a.; fourteen cells gave 76 m.a.; sixteen cells gave 126 m.a., rising to 168 m.a. On decreasing the current, fourteen cells gave 148 m.a.; twelve cells, 130 m.a.

May 8.—Electrolysis. Flexible electrode entered cervix $3\frac{1}{2}$ inches, made negative. Twelve cells gave 100 m.a., rising to 128; fourteen cells gave 160 m.a., rising to 180, and subsequently to 200 m.a.

June 12.—Electrolysis. Flexible electrode entered uterus $2\frac{1}{2}$ inches, made positive. Twenty cells gave 140 m.a.

August 28.—Patient has had no trouble with the tumour lately.

September 25.—Has had only one slight loss since she left the Hospital at the beginning of this year.

CASE XII.—L. N., aged 40, single. Admitted into the Hospital October 6, 1887, under Mr. Willett, suffering from a vaginal discharge and pain. Was under Dr. Duncan for a fibrous tumour three years ago.

Last month (September) noticed a swelling on the right side of the vagina, with tenderness. On the 29th a mass came away along with a blood-stained discharge. At the beginning of October another swelling was noticed on the left side of the vagina, which is slowly increasing.

October 17.—There is great abdominal tenderness. Patient is suffering from peritonitis, which commenced on the 15th inst. Temperature, 101.6° .

October 20.—Peritonitis better. Temperature, 98.4° .

December 5.—Patient has had an attack of acute rheumatism, which commenced on October 28. Has been gradually improving since the middle of November. The abdominal tumour has increased a good deal in size during the last few years. Latterly has suffered from metrorrhagia. After consultation with Dr. Duncan it was decided to try electrolysis.

Measurements—xiphoid cartilage to umbilicus, $5\frac{1}{2}$ ins.; xiphoid cartilage to symphysis, $12\frac{3}{4}$ ins.; girth at umbilicus, 31 ins.; right anterior superior spine to umbilicus, 7 ins.; left ante-

rior superior spine to umbilicus, $8\frac{1}{2}$ ins.; symphysis to umbilicus, $7\frac{1}{4}$ ins.

Electrolysis. Uterine electrode positive. Entered uterus $2\frac{3}{4}$ inches. Twenty-four cells of a Stöhrer's battery gave a C.S. of 160 m.a.

December 12.—Had a little abdominal pain after electrolysis. Menstruation commenced yesterday. Was expecting to be poorly last week at the time of the operation. Catamenia was deferred one week. Five weeks since last appearance. Has never before been so long between times. Period usually lasts eight days.

December 29.—Electrolysis. Apostoli's probe used. Only passed 1 inch into cervix. Made positive. Twenty-two cells gave C.S. of 180 m.a. Time ten minutes.

January 10, 1888.—Firm insulated uterine electrode used. Entered 1 inch. Made negative. Fourteen cells gave C.S. of 150 m.a.

January 23.—Electrolysis. Firm insulated electrode made negative. Introduced $2\frac{1}{4}$ inches. No speculum. C.S. 140 m.a. For one minute the patient bore a C.S. of 160 m.a.

February 3.—Firm insulated electrode negative. Introduced $3\frac{3}{4}$ inches. No speculum used. Fourteen cells gave a C.S. of 166 m.a.

March 1.—Treatment has been suspended as the patient is ill with pneumonia.

CASE XIII.—L. D., aged 29. Admitted into the Hospital December 3, 1887, under the care of Dr. Duncan. Has been married nine months. Catamenia regular every month, lasting three or four days, until the last two years, when the periods have been longer. Has lost off and on for the last six weeks, passing small clots. Has had a good deal of pain and difficult micturition during the last six weeks.

December 5.—Dr. Duncan's note:—" *Per hypogastrium.*—There is a tumour in the hypogastric, umbilical, and inguinal regions, extending upwards as far as the umbilicus (*i.e.*, of the size of a six months' pregnancy), and farther to the left than the right side of the middle line. It reaches to about 1 inch from the left anterior superior iliac spine, and 2 inches from the right anterior superior iliac spine. It is more prominent on the left side. It is a rounded moveable mass, firm and elastic, without fluctuation. Its surface is smooth; no foetal parts or foetal movements are to be felt; nor does it contract on palpation. There is no tenderness on palpation. The tumour is dull on percussion, and dumb on auscultation. The rest of the abdomen is natural, resonant both in front and on the flanks. *Per vaginam.*—Cervix hard,

looking backwards. The lower part of the abdominal swelling felt chiefly in front of the cervix, freely moveable."

December 8.—Probe enters the uterus towards the left side of the tumour easily for 5 inches. On passing the probe, a good deal of blood came, as if it had been retained.

December 13.—Still losing a little; increased on getting up. Measurements—xiphoid cartilage to umbilicus, $5\frac{1}{2}$ ins.; xiphoid cartilage to symphysis, $17\frac{1}{2}$ ins.; girth at umbilicus, 32 ins.; girth over most prominent part of tumour, $35\frac{1}{2}$ ins.; right anterior superior spine to umbilicus, 6 ins.; left anterior superior spine to umbilicus, $7\frac{1}{2}$ ins.; symphysis to umbilicus, 12 ins.

December 16.—Electrolysis. Flexible intra-uterine electrode made positive. Sixteen cells. C.S. 160 m.a., rising to 176 m.a. when the electrode was withdrawn to the os.

December 22.—Not losing. Feels well. Up every evening. Electrolysis. Uterine electrode positive. Twenty-six cells, giving a C.S. of over 200 m.a. Time ten minutes. Lowest resistance, 182 ohms.

January 6, 1888.—Had some rise of temperature after last operation, and some slight loss. Feels well now. Electrolysis. Flexible uterine electrode positive. Potter's clay negative. Electrode entered $5\frac{1}{2}$ ins. Twenty cells. C.S. 160 m.a. Time ten minutes. Resistance, 200 ohms. Some oozing of blood during operation.

January 27.—Some slight rise of temperature after last electrolysis. Has also lost slightly at what would be her normal time. Electrolysis. Flexible electrode positive. Passed 8 inches. Twenty-four cells. C.S. 200 m.a. Time ten minutes.

January 28.—General tenderness over abdomen. Vomited several times during the night. Temperature slightly raised. This patient has albumen in her water.

January 31.—Is better. Temperature normal. Dr. Duncan thinks that the swelling is less.

Discharged February 4.

March 2.—Has been much better since she went home. No loss until yesterday. Thinks it is about her proper menstrual period. She thinks that the tumour is about the same size.

April 6.—Is much better. Lost slightly for one day on the 1st inst. Less pain in abdomen. Urine, sp. gr. 1006, acid; no albumen.

CASE XIV.—H. M., aged 42, single. Sent to me by Dr. Gell, December 22, 1887. About four years ago noticed a swelling about the size of a walnut on the left side of the abdomen. Has been gradually increasing. Catamenia regular about every

twenty-six days. Since the appearance of the tumour, flow has been more scanty and pale, accompanied with pain. Has suffered from great irritability of bladder during the daytime, sometimes passing water more than forty times a day. Has sometimes been unable to pass it. Not disturbed at night. Is better in the daytime when she lies down. Has had pain and cramps in her back, and a gnawing pain in her abdomen.

Present condition:—*Per hypogastrium*.—Abdomen enlarged by a tumour which reaches to the umbilicus. Upper part of tumour broad and flattened, notched slightly towards the centre. Dumb. *Per vaginam*.—Vulva congested. Nymphæ of a bluish tint. Cervix uteri tilted over to the patient's right; not involved in tumour. Uterus is felt to have solidity, with hypogastric swelling. Moveable. Sound could not be introduced beyond internal os. Measurements—xiphoid cartilage to umbilicus, 5 ins.; xiphoid cartilage to symphysis, 12 ins.; girth at most prominent part of tumour, 38 ins.; right anterior superior spine to umbilicus, $7\frac{1}{2}$ ins.; left anterior superior spine to umbilicus, $7\frac{1}{2}$ ins.; symphysis to umbilicus, 7 ins.

December 31.—Electrolysis. Flexible electrode entered 1 inch, made negative. C.S. 65 m.a. Patient could not bear more. Potter's clay electrode on abdomen was too thin. Time ten minutes. Fourteen cells were used.

January 4, 1888.—Firm uterine electrode used, made negative. Twenty cells. C.S. 90 m.a.

January 11.—Firm uterine electrode negative. Introduced $1\frac{1}{2}$ inches. Eighteen cells. C.S. 100 m.a. A thicker and firmer potter's clay electrode was used on abdomen.

January 18.—Electrolysis. Uterine electrode negative. C.S. 110 m.a.

February 4.—Electrolysis. Uterine electrode entered 2 inches, negative. Eighteen cells. C.S. 116 m.a. Time ten minutes.

February 18.—Electrolysis. Uterine electrode entered $1\frac{1}{2}$ inches, negative. Twenty cells. C.S. 125 m.a. Time ten minutes.

March 24.—Electrolysis. Uterine electrode passed $1\frac{3}{4}$ inches. C.S. 120 m.a. Time ten minutes.

April 18.—Electrolysis. Ten minutes. Electrode entered $1\frac{1}{2}$ inches. C.S. 80 m.a.

April 25.—Electrolysis.

May 2.—Electrolysis. Negative pole intra-uterine. C.S. 95 m.a. Time ten minutes. Has been better. Bladder not so irritable.

May 23.—Electrolysis. Uterine electrode entered $2\frac{7}{8}$ inch., negative. C.S. 75–100 m.a.

June 6.—Great pain after last application over lower part of abdomen and into right groin and thigh. Had great pain at monthly period. Electrolysis. Uterine electrode entered $2\frac{3}{8}$ inches, negative. Twenty cells. C.S. 130 m.a. Time ten minutes.

June 13.—Electrolysis. Uterine electrode entered 4 inches, negative. C.S. 125 m.a. Complained of great pain during application, which lasted afterwards for a day or two.

July 7.—Electrolysis. Uterine electrode passed $2\frac{1}{2}$ inches, negative. C.S. 120 m.a. Less pain.

July 18.—Electrolysis. Uterine electrode negative. C.S. 10 m.a. Ten minutes. Moving electrode in cavity of the uterus caused great pain. The tumour is very hard. A large pulsating vessel can be felt on the os.

August 1.—Electrolysis.—Negative pole internally. C.S. 85–95 m.a.

October 24.—Has been away for nearly two months. Bladder still troubles her. Pain sometimes down the right leg. Thinks the tumour is larger. Electrolysis. Uterine electrode would not enter more than half an inch, made negative. C.S. 56 m.a. Eight minutes.

CASE XV.—K. G., aged 39, single. Admitted into the Hospital November 24, 1887, under the care of Dr. Duncan, suffering from a fibrous tumour. Catamenia always regular every three weeks, lasting for seven days. Quantity lost large. For the last two years periods have lasted ten to fourteen days. No pain, but feels faint after exertion. Cramp in legs. Some yellow discharge lately. Short breath. Legs swell. Anæmic, weakly looking woman. Heart much enlarged; apex displaced outwards; epigastric pulsation. Loud systolic apex-murmur, not heard behind.

Dr. Duncan's note:—" *Per hypogastrium*.—In the hypogastric and left iliac regions is a hard, slightly tender swelling, dull on percussion, extending up to within two inches of the umbilicus. Projecting in the left iliac fossa is a hard nodule. Its presence was unknown to the patient. *Per vaginam*.—A hard mass is felt in front of cervix and on the left side, which moves freely with the mass in the abdomen."

December 23.—Has been losing a good deal since admission. Electrolysis. Apostoli's probe used on account of difficulty in passing the flexible electrode, but it did not enter the uterus well. Cervix points backwards. Probe made positive. The abdominal electrode was a pad consisting of pulverised carbon enclosed in flannel moistened with warm salt water. Eighteen cells used. C.S. 140 m.a.

January 6, 1888.—Electrolysis. Firm uterine electrode made positive. Used with speculum. Passed 2 inches. Potter's clay on abdomen. Twenty cells. C.S. 200 m.a. Resistance, 152 ohms.

January 27.—Temperature was raised a few days after last operation; one day as high as 103.6°. No loss now. No discharge. Feels well. Electrolysis. Firm electrode passed two inches made positive. Speculum used. Twenty-four cells gave a C.S. of 160 m.a., rising to 200 m.a. Time ten minutes.

January 31.—Temperature last night, 102°; this morning, 99.2°. No sickness.

February 6.—No further rise of temperature. Feels well. Is losing again, but not nearly so much as used formerly to be the case.

CASE XVI.—A. W., aged 52, single. Sent to me by Dr. Ranking of Tunbridge Wells. Admitted into the Grosvenor Hospital, January 23, 1888, suffering from several sub-peritoneal fibrous tumours of the uterus. First noticed three small swellings on her left side fourteen years ago. Two larger lumps in the centre of her abdomen three years ago. No pain. They cause her inconvenience when she stoops, and give her a tired, dragging feeling in the legs when she walks. Catamenia has appeared only three times since the beginning of 1887; before that was always regular. Has lost very profusely at recent periods.

February 4.—Electrolysis. Uterine electrode made negative. Entered 1 inch. Twenty-six cells used. C.S. 175 m.a. Time ten minutes.

February 9.—Electrolysis. Twenty-six cells. C.S. 130–155 m.a.

February 29.—Electrolysis. Intra-uterine electrode negative. C.S. 190 m.a.

March 7.—Electrolysis. Uterine electrode entered 2½ inches, negative. Twenty-four cells, thirty-six volts. C.S. 180 m.a. Resistance, 200 ohms.

March 24.—Electrolysis. Uterine electrode negative. Entered only 1¼ inches. C.S. 150 m.a. Ten minutes.

May 23.—Treatment has had to be suspended for a time, as patient has had an attack of peritonitis. Electrolysis. Uterine electrode negative; entered one inch. C.S. 120 m.a. for ten minutes.

June 6.—Electrolysis. Flexible uterine electrode entered 2½ inches, made negative. Eighteen cells. C.S. 160 m.a.

June 14.—Electrolysis. Uterine electrode negative. Twenty-six cells. C.S. 140 m.a. Time ten minutes.

June 20.—Electrolysis. C.S. from 145 to 180 m.a. Ten minutes.

July 7.—Electrolysis. Intra-uterine electrode negative; passed $1\frac{1}{2}$ inches. C.S. 135 m.a. Time ten minutes. The tumour on the right side has decreased in size, and is softer. The abdominal parietes are not stretched so tightly over the tumours, but contain more adipose tissue.

July 14.—Electrolysis. Intra-uterine electrode negative; entered about $2\frac{1}{2}$ inches. C.S. 155 m.a. Time ten minutes.

July 18.—Electrolysis. Uterine electrode negative; entered about 3 inches. Twenty-eight cells. C.S. 140 m.a. Ten minutes.

July 25.—Electrolysis. Uterine electrode entered about $1\frac{1}{2}$ inches only, made negative. C.S. 110 m.a. Some blood and brown-coloured discharge followed the removal of the electrode. Current passed for ten minutes.

August 4.—Electrolysis. Negative pole in uterus. Electrode entered about $1\frac{1}{2}$ inches, then somewhat suddenly passed in $3\frac{1}{2}$ inches. C.S. 130 m.a. The removal of the electrode was followed by profuse hæmorrhage. Patient rendered quite faint. Abdomen appeared collapsed after hæmorrhage. Tumours could be felt very distinctly. Vagina plugged. Lower end of bed raised on blocks.

August 5.—Plugs removed. Vagina syringed out with iodine and water. No recurrence of hæmorrhage. Patient to be kept very quiet and watched. Thirty minims of the liquid extract of ergot to be given every four hours.

August 6.—In consequence of foetid discharge, vagina to be syringed with bichloride of mercury solution (1 in 1000). Complained of some pain in abdomen. Temperature, 100° . Is still taking the ergot mixture.

August 7.—Last evening had another flooding. Arrested by plugging the vagina with strips of lint steeped in perchloride of iron and glycerine. Temperature, 100.6° . During the night had a rigor and was very sick. Temperature this morning, 101.4° . Looks very ill. About 11 A.M. plugs removed. No bleeding. To continue the syringing with perchloride of mercury solution. Had a slight rigor at 4 P.M. No more hæmorrhage.

August 8.—Summoned to patient about six this morning. At 2 A.M. had a return of the flooding. Vagina was plugged. During the night had great pain in the abdomen. At 5.20 A.M. bleeding came through the plugs. Plugs removed, followed by great gush of blood, which could not be arrested. Os dilated; clots protruding into vagina. Patient died about 6.20 A.M.

Post-mortem examination fifty-eight hours after death.—Abdo-

men only opened. A large multiple fibroid, adhesions on both sides to colon. Some purulent lymph on surface of tumours and adjacent intestines. One adhesion had ruptured, and there was about a teaspoonful of red blood in Douglas's pouch and some small clots. Vagina, bladder, and rectum removed with tumour. Both broad ligaments were very emphysematous. The anterior wall of the vagina and bladder was cut through, both intact. Os dilated, cervix thin. Cavity of uterus unequally enlarged. Four or five soft polypi in cavity of uterus attached to the fundus and posterior wall. A large vessel about the size of a crow-quill, about the position of the internal os, found open. The adjacent substance soft and blood-stained.

I have to thank Mr. Butler-Smythe for making the post-mortem examination and for the preceding notes.

The uterus was afterwards examined by Dr. W. S. A. Griffith at my request, and he has kindly favoured me with the following note:—

“The uterus itself is much enlarged by an intramural fibroid, and on its peritoneal surface hang numerous pedunculated tumours of various sizes. The cervical canal is patent, but the cavity of the body of the uterus is obstructed near the internal os by a fibroid projecting into it in such a way as to prevent the passage of any rigid probe into it. Immediately below this, at the upper end of the cervical canal, is a considerable ulcerated cavity containing blood-clot, and opening directly into this is a large vessel, which can be readily followed up the side of the uterus between the layers of the broad ligament, having the general direction of the uterine artery. The cavity appears to have been formed by the electrode, arrested at this point by the tumour blocking the canal.”

CASE XVII.—Mrs. W., aged 37, brought to me by Mr. Leigh of Treharris, South Wales. Has been married sixteen years; no children. Noticed an enlargement of her abdomen seven or eight years ago. Catamenia not regular. Sometimes profuse. Occasionally has dysmenorrhœa. Sometimes cannot pass her water. Tumour began on her left side, and is still most prominent in that situation. *Per vaginam*.—Hard swelling filling the brim of the pelvis, chiefly to the left of the uterus, and having solidarity with it. Os difficult to find.

August 4, 1887.—Electrolysis. Intra-uterine electrode made negative. Entered uterus 4 inches. C.S. 70 m.a. Five minutes.

August 22.—Electrolysis. Uterine electrode positive, entered to the left about $2\frac{1}{2}$ inches. C.S. 100 m.a. Ten minutes.

August 29.—Flexible electrode entered uterus easily, passed

7 inches. Interrupted current used for ten minutes. Tumour seems smaller.

September 5.—Electrolysis. Flexible electrode made negative. Introduced into uterus 7 inches. C.S. 110-120 m.a. Ten minutes. Complained of pain during and after the treatment, which passed down left leg.

September 12.—Has felt better since last application. Pain soon went off. Has been poorly; much less pain than formerly. Has not lost so much. Is smaller on left side.

September 26.—Has had a slight attack of peritonitis. (Sept. 15, temp. 100°; 17th, temp. 101°.) Abdomen poulticed. Attack lasted about a week. Patient returned home. Treatment to be suspended for at least two months.

October 18.—Report from Mr. Leigh, patient's medical attendant:—"I have seen Mrs. W. twice since her return. She is, I certainly think, better for the treatment she has undergone."

CASE XVIII.—H. D., aged 43, unmarried. Admitted into the Hospital under the care of Dr. Duncan, January 23, 1888, suffering from a fibrous tumour. Catamenia regular until 2½ years ago, when flow became profuse, and lasted three weeks out of every four for eighteen months. Was in the Hospital in January 1887, and was practically well for six months after leaving. Symptoms have now returned as bad as before. Uses eight diapers a day. Only free one week out of four. Not very anæmic.

January 26.—Dr. Duncan's note:—*Per hypogastrium*.—Nothing abnormal. *Per vaginam*.—Cervix uteri is in the hollow of the sacrum; in front of it is a globular swelling nearly filling the pelvic excavation.

February 17.—Electrolysis. Intra-uterine electrode made positive, introduced 3 inches into uterus. Potter's clay on abdomen negative. Sixteen cells. C.S. 144 m.a. Lowest resistance of circuit, 198 ohms.

February 24.—Electrolysis. Flexible probe made positive, passed 3½ inches. Sixteen cells. C.S. 144 m.a. Resistance, 191 ohms.

March 2.—Electrolysis. Firm insulated electrode positive; could not be introduced more than 1 inch. Sixteen cells. C.S. 140 m.a.

March 9.—Electrolysis. Flexible electrode positive, introduced 1¼ inches. Fourteen cells. C.S. 220 m.a.

March 16.—Electrolysis. Firm electrode positive. Passed 2⅞ inches. Eighteen cells. C.S. 172 m.a.

March 19.—Discharged to convalescent home, much better. Has not lost since February 14.

April 19.—Returned from Swanley better in every respect. Last period was normal in amount and duration.

July 20.—Sister of the ward heard from the patient this week. Improvement fully maintained.

CASE XIX.—E. C., aged 38, an out-patient under the care of Dr. Godson. Was in Martha Ward fourteen months ago for metrorrhagia, caused by a fibrous tumour. Until four years ago the catamenia was regular every month, and scanty; then the periods began to come at intervals of a fortnight, and she frequently lost for six weeks at a time. Passed clots. Cervix uteri found pointing to the patient's right.

March 6, 1888.—Electrolysis. Firm uterine electrode made positive, passed $1\frac{1}{4}$ inches. C.S. 150 m.a.

March 13.—Electrolysis. Uterine electrode positive. C.S. 144 m.a.

April 3.—Catamenia appeared on the 19th ult., a few days less than a month since the last time. Had not gone so long without losing for many months. Continued losing for a week. Passed several large clots. Some abdominal pain, but not more than usual. Electrolysis. Uterine electrode made positive. Sixteen cells. C.S. 180 m.a.

April 10.—Electrolysis. Firm uterine electrode introduced nearly 2 inches, and made positive. C.S. 120 m.a.

May 1.—Since last visit has had severe flooding. It occurred the day after she was last electrolysed. Was confined to bed for ten days. Lost clots and had considerable pain. Electrolysis. Firm electrode introduced 2 inches, and made positive. C.S. maintained at 180 m.a. It was raised to 200 m.a., but caused the patient such discomfort that it had to be reduced again to 180 m.a.

May 22.—Has had another menstrual period. Did not lose quite so much. Ceased on the 18th inst. Has had considerable pain recently. Electrolysis. Uterine electrode introduced nearly 4 inches, made positive. Sixteen cells gave a C.S. of 160 m.a., rising to 216 m.a. Patient bore this with some discomfort for about five minutes. Current then reduced to 188 m.a., which was maintained for another five minutes.

May 29.—Pain continues. Is not so severe, but of a dragging character. Has an offensive vaginal discharge. Electrolysis. Ten minutes. Electrode introduced 2 inches, and made positive. C.S. 180 m.a.

June 12.—Offensive discharge has continued. Complains of a bearing-down pain since last electrolysis. She thinks the tumour is as large as before the treatment commenced. Elec-

trolysis. Uterine electrode passed over 3 inches, made positive. Sixteen cells. C.S. 160 m.a., rising to 180. During the latter part of the sitting the resistance in the circuit diminished from 150 to 133 ohms.

July 10.—Has been in great pain, and has had flooding since last electrolysis. Is free now from loss for a month at a time; used formerly to lose every fortnight.

July 17.—Patient has been better during the last week, having neither had pain or loss. Electrolysis. Uterine electrode passed 2 inches, and made positive. C.S. 200 m.a.

August 3.—Patient has had another profuse period since last visit; lasted eleven days accompanied by severe pain and the passing of large clots. In bed for seven days. Electrolysis. Uterine electrode introduced $2\frac{1}{2}$ inches, and made positive. Fourteen cells. C.S. 220 m.a.

August 10.—Patient says that the last electrolysis brought on her period. Lasted three days. Not profuse; no clots. Patient felt well in herself, and can do her household work better. Electrolysis. Electrode entered 2 inches, and made positive. Twelve cells gave a C.S. of 196 m.a.

August 28.—Patient lost for eleven days after last electrolysis, passing a great many clots. Has now an offensive, watery, and profuse vaginal discharge. On examination a large mass was found protruding from the os uteri into the vagina. Was admitted into Martha Ward.

August 29.—Dr. Godson removed the fibrous polypus by the *écraseur*. There was very little hæmorrhage, and this was arrested by injections of water at 110° Fahr. The removed polypus was found on examination to be covered by unbroken mucous membrane, except at its base, where it was cut through by the wire of the *écraseur*. It was about the size of a cricket-ball, nearly round, and weighed $8\frac{1}{2}$ oz.

September 18.—Patient was discharged from the Hospital on the 3rd inst. She had considerable hæmorrhage after her return home, and now feels weak and ill. Has returned to the out-patient department under the care of Dr. Godson.

CASE XX.—K. L., aged 41, admitted into the Hospital April 6, 1888, under the care of Dr. Duncan, suffering from a fibrous tumour. Patient had been married twenty-four years. Four children, youngest fourteen. Two miscarriages, last twelve years ago. Catamenia regular until fourteen years ago. Always profuse. For fourteen years has rarely been more than a week free from loss of blood. For the last two years has lost blood daily. For the last twelve months has had a dragging pain in the

abdomen. Is anæmic. Lips, conjunctivæ, and tongue very pale. Tongue clean.

Dr. Duncan's note:—" *Per hypogastrium*.—The abdomen appears natural. Above the pubes is a rounded hardness of the size of a small orange. *Per vaginam*.—Cervix natural. Uterus moveable. The rounded hardness is found to be a tumour of the fundus.

April 13.—Electrolysis. Os high up. Uterine sound, made positive, entered 1 inch to the left. C.S. 170 m.a. Time ten minutes.

April 20.—Electrolysis. Electrode introduced $1\frac{1}{2}$ inches, and made negative. Time ten minutes. C.S. 180 m.a., rising to 200, with sixteen cells.

April 27.—Electrolysis. Uterine electrode negative, entered $1\frac{1}{2}$ inches. C.S. 180 m.a. Has lost no blood since the 12th inst.

May 18.—Patient underwent an operation for internal piles on the 1st inst. Hæmorrhage from the uterus began the next day, followed by some considerable loss. Had been free from any loss for three weeks. Is now very anæmic. Electrolysis. Firm electrode introduced a little more than an inch, and made positive. C.S. 168 m.a. Fourteen cells.

May 25.—Patient has had no loss since last application. Electrolysis. Uterine electrode introduced 2 inches and made positive. Speculum used for its introduction. C.S. 158 m.a.

Patient discharged from Martha Ward May 26th.

CASE XXI.—M. W., aged 48, a widow. Was admitted into the Hospital on March 28, 1888, under the care of Dr. Duncan, suffering from a fibrous tumour of the uterus, metrorrhagia, and mucous polypi. Had been married twenty-five years. Two children. Catamenia commenced at the age of 18. Regular every three weeks; lasted seven days; quantity normal until thirteen months ago; then began to lose much, and constantly since in small quantities, sometimes more with clots.

Dr. Duncan's note:—" *Per hypogastrium*.—Abdomen large and distended. *Per vaginam*.—Uterus enlarged. One mucous polypus protrudes from cervix, and another can be felt higher up." Dr. Duncan removed three polypi piecemeal. They were soft and friable, and could not be got away whole. No hæmorrhage followed.

April 13.—Electrolysis. Patient still losing. Os beyond the reach of the finger; a speculum was therefore used. Electrode made positive; introduced 1 inch. Eighteen cells. C.S. 112 m.a. Time nine minutes.

April 20.—Electrolysis. Patient has not lost since 15th inst. Uterine electrode introduced $1\frac{1}{2}$ inches without speculum, and made negative. Patient could not bear more than 120 m.a. Ten minutes.

April 27.—Electrolysis ten minutes. Flexible electrode introduced 1 inch, and made negative. C.S. 150 m.a.

May 18.—Electrolysis ten minutes. Firm electrode introduced 2 inches, and made positive. Sixteen cells gave 120 m.a., rising to 156 m.a.

May 25.—Electrolysis. Firm electrode introduced $3\frac{1}{2}$ inches, positive. C.S. 104 m.a. during the chief part of the time.

May 26.—Patient left the Hospital for the convalescent home at Swanley, greatly improved.

August 14.—Since the patient left the Hospital on May 26, she passed the first five weeks free from hæmorrhage, but has latterly been losing again as much as ever. She was readmitted into Martha Ward a week ago, but is to leave to-morrow, and attend as an out-patient at the Electrical Department. Electrolysis. Firm uterine electrode introduced 2 inches, and made positive. Twenty cells gave a C.S. of 120 m.a., rising to 164 m.a.

August 21.—Electrolysis as out-patient. Firm uterine electrode introduced $3\frac{1}{2}$ inches, and made positive. C.S. was maintained at about 110 m.a. for ten minutes.

August 31.—Has had a profuse menstrual period since last visit. Electrolysis. Firm uterine electrode introduced $3\frac{1}{2}$ inches, and made positive. C.S. 120 m.a.

September 7.—Electrolysis. Firm electrode passed 3 inches, positive. C.S. 120 m.a.

October 26.—Since last note has had no profuse loss. Continues better in every respect.

CASE XXII.—L. H., aged 52, an out-patient sent to the Electrical Department by Dr. Griffith, May 25, 1888. Single. Catamenia appeared at 16 years of age; was regular. Period lasted six days; interval three weeks. Period now lasts fourteen days, with an interval of a month. Has known of a swelling in her abdomen for the last twelve months. Until then had not lost excessively. Monthly loss has been increasing since. Now loses clots.

Dr. Griffith's note:—"Cervix high up, far back, and to left side; in front of it, and on right side, a hard, rather nodular, in places slightly elastic, moveable, spherical tumour, which can be felt bi-manually three fingers' breadth above the symphysis. Probe passes $3\frac{3}{4}$ inches into the uterine cavity, which lies behind and to the left of the tumour."

Electrolysis. Firm uterine electrode made positive. Introduced $3\frac{3}{4}$ inches. C.S. 180 m.a. Sixteen cells.

June 1.—Electrolysis. Uterine electrode positive. Passed 3 inches. C.S. 160 m.a.

June 8.—Electrolysis. Uterine electrode entered 2 inches, made positive. C.S. 180 m.a. At the end of seven minutes the current strength was gradually reduced, and the intra-uterine electrode made negative. The C.S. was again increased to 140 m.a., beyond which the patient could not bear it. The sitting altogether lasted ten minutes.

June 22.—Patient says she cannot now feel the tumour. Feels more comfortable and sleeps better. The os uteri is now so high up, it is difficult to introduce the electrode. Electrolysis for ten minutes. Electrode held against external os, made positive. Twelve cells. C.S. 120 m.a., rising to 180 m.a.

July 13.—Catamenia since last visit. Loss not so severe as formerly. Passed clots on one day. Period lasted five days. Has not been taking ergot since under treatment by electrolysis. Electrolysis. Uterine electrode passed with difficulty; entered 1 inch to the left, made positive. C.S. 150 m.a. Fourteen cells.

August 17.—Has had two periods since last visit. Passed one small clot on each occasion. Duration three or four days. Electrolysis. Firm curved electrode passed with considerable difficulty 1 inch through external os, and made positive. C.S. 100 m.a.

CASE XXIII.—F. L., aged 37. An out-patient under the care of Dr. Godson. Has suffered from metrorrhagia for $2\frac{1}{2}$ years. Period lasts nine or ten days. Passes clots, and has pain at those times. Has a blood-stained discharge during intervals. Dr. Godson's note:—"Uterus enlarged. Hard tumour felt in anterior fornix, having solidarity with cervix. Sound passes $3\frac{1}{4}$ inches in the normal direction."

June 5, 1888.—Electrolysis. Firm uterine electrode introduced, at first only into cervix; made positive. Eighteen cells gave a C.S. of 120 m.a. At the end of five minutes the electrode was passed on into the cavity of the uterus. The C.S. then rose to 168 m.a.

June 26.—Has been losing up to the present time since last visit. Has had no pain whatever, and on the whole feels better. Electrolysis. Firm uterine electrode introduced 3 inches, made positive. Sixteen cells gave a C.S. of over 200 m.a.

July 2.—After the last sitting she was better, the loss being less. On the 29th ult. she had a sudden gush, and passed one clot. The hæmorrhage was severe, and lasted two or three

days. To-day the loss is less again. Electrolysis. Firm uterine electrode introduced 4 inches, and made positive. Thirty cells of a Stöhrer's battery were used, with a water rheostat in the circuit. C.S. only 40 m.a., when the balls of the rheostat were half an inch apart; when the balls were nearly touching the C.S. rose to 120 m.a. This was the highest current strength that could be obtained under the circumstances.

July 24.—Patient has had a severe loss since last sitting. Ceased on 22nd inst. She complains of a thin watery discharge and great weakness. Electrolysis. Firm uterine electrode introduced 3 or 4 inches, and made positive. There was a slight hæmorrhage as the electrode passed the internal os. C.S. 140 m.a. Sixteen cells.

October 2.—Since her last attendance she has not been any better. Has lost profusely at each monthly period for about five days. Has lately been losing for three weeks.

CASE XXIV.—C. P., aged 40. Admitted into the Hospital on June 8, 1888, under the care of Dr. Duncan. Married fourteen years; no children. Catamenia commenced at 16 years of age; always regular until two months ago. Duration four or five days; interval one month. During the last six years the periodic loss has gradually increased. Lately has lasted from seven to fourteen days. During the last two months has been almost continuous. Has passed many large clots. Has had sharp pain in lower abdomen during the last three years. Has lost flesh and is getting paler. Dr. Duncan's note:—"Belly slightly distended uniformly. Occupying hypogastric, umbilical, left and right iliac regions, is a dense, prominent hardness, having on right side, about midway between navel and Poupart's ligament, a freely displaceable, rounded mass about the size of a walnut (probably an ovary). *Per vaginam*.—Cervix uteri is nearly in its natural position. It runs into a dense convex hardness, occupying the whole brim of the pelvis. Bi-manually this hardness is found to have solidarity with the hypogastric hardness, the tumour being only slightly displaceable." There are two smaller displaceable masses lying on the left side of the tumour. Girth, 30 inches at umbilicus.

June 15.—Electrolysis. Patient was still losing slightly. Flexible electrode made positive, was introduced 2 inches. C.S. 180 m.a. At the expiration of three minutes the flexible electrode was withdrawn, and a firm one substituted. This entered the uterus 3 inches. The current, rising to 200 m.a., was kept flowing for seven minutes longer. Resistance, 188 ohms. Eighteen cells were used.

June 26.—Electrolysis. Patient has had severe loss since last operation. To-day a firm electrode was introduced 2 inches, and made positive. C.S. 160 m.a. Twenty cells.

June 29.—Electrolysis. Patient still losing, but less abundantly. Firm electrode introduced 2 inches, made positive. Twenty-two cells, giving 176 m.a., rising to 200.

July 6.—Electrolysis. Firm electrode entered uterine cavity 4 inches, and made positive. C.S. 200 m.a. Patient is still losing slightly.

July 13.—Electrolysis. Firm electrode positive, introduced 2 inches. C.S. 240 m.a.

July 20.—Patient ceased to lose any blood for twenty-four hours after last operation. There is still some slight daily loss, but much less than it was. Is not so anæmic. Electrolysis. Firm uterine electrode introduced $2\frac{1}{2}$ inches, made positive. C.S. 188 m.a.

July 27.—Patient has had her monthly period since last sitting. Has lost considerably, but not to the same extent as she did a month ago. Is still losing a little. Electrolysis. Firm electrode introduced 4 inches, and made positive. C.S. 200 m.a.

August 3.—Electrolysis. Firm electrode introduced 4 inches, made positive. C.S. over 200 m.a.

August 9.—Electrolysis. Firm electrode introduced 4 inches, made positive. C.S. maintained at 200 m.a. for ten minutes.

Patient discharged a few days after the last electrolysis. She was still losing slightly, but had not the blanched, anæmic appearance she had on admission.

September 28.—Heard that the patient's condition had considerably improved. She had an attack of hæmorrhage after the railway journey home, but since that ceased she has been much better.

November 2.—Heard that the improvement had been maintained. During the last three weeks the patient has been able to attend to her household duties.

CASE XXV.—S. F., aged 47. Admitted into the Hospital June 23, 1888, under the care of Dr. Duncan. Has been married twenty-six years. Seven children; seven years since the last. Five miscarriages; four years since the last. Catamenia began when 16 years old. Always regular up to marriage. Loss not profuse. Duration one week. Interval one month. No pain. Since last miscarriage she has been losing more, for the last $2\frac{1}{2}$ years continuously. Has always worn a diaper. Often passes clots. Severe flooding on June

15. Has kept her bed since. Complains of pain of a dragging character in her left side, and has a lump in her abdomen. Does not know when the lump first appeared; has only noticed it for the last two or three months. It is getting larger. For the last six months there has also been a watery discharge. Is getting thinner and has lost her appetite.

Per hypogastrium.—A firm, hard, spherical, uniform mass, reaching 3 inches above the umbilicus and about 4 inches on each side, traced down to the pelvis. About the size of a fifth-month pregnancy. There is a pretty fair resonance all over it. Abdominal walls move freely over it. There is a souffle heard in the right lumbar region on pressure with the stethoscope.

Per vaginam.—Cervix high up, on a level with the symphysis. Bi-manually found to descend readily on pressure on the tumour, as if having solidarity with it. Tumour is felt to vary in hardness and distinctness from day to day.

June 29.—Electrolysis. Firm uterine electrode made positive. Entered uterus towards the right $6\frac{1}{2}$ inches. C.S. 230 m.a.

July 6.—Electrolysis. Firm electrode entered uterine cavity $6\frac{1}{2}$ inches, made positive. C.S. 184 m.a.

July 13.—Patient has lost very little indeed since last electrolysis. Is taking half-drachm doses of ergot three times a day. Electrolysis. Firm electrode introduced $4\frac{1}{2}$ inches, made positive. C.S. 200 m.a.

July 14.—Patient discharged from Hospital. Much better. Not losing. Temperature has remained normal after each electrolysis.

July 24.—Treatment resumed as an out-patient. Improvement has been maintained. Electrolysis. Firm electrode introduced 6 inches to patient's right and made positive. C.S. 220 m.a. Eighteen cells. Resistance, 143 ohms.

August 28.—Heard that the patient had not been so well since last journey to and from the Hospital. Has been losing nearly every day. Is losing severely now. Cannot come as an out-patient, and cannot be admitted for want of beds.

September 28.—Has been to the Hospital once or twice, but journey generally brings on hæmorrhage. Treatment by electrolysis has not been resumed, as she is hardly fit to attend as an out-patient.

CASE XXVI.—S. P., aged 39. Admitted into Martha Ward, June 1888, under the care of Dr. Duncan. Married seventeen years. No children. One miscarriage soon after marriage. Catamenia began at 15 years of age. Regular until four years ago; periods lasting six or seven days; intervals of one

month. Four years ago periods began to last longer and more loss took place. Gradually grew worse. Last period, which ended June 24, had lasted three weeks. Had been confined to her bed. Always loses blood in clots between her periods. Is never free from pain. Has lost flesh, appetite, strength, and colour. Is now extremely anæmic. Yellow tinge well marked. Has an offensive discharge.

Dr. Duncan's note:—"Per hypogastrium.—Hardness felt in hypogastric region. Per vaginam.—Cervix deep in the hollow of the sacrum and in front, and connected with it is a rounded, mobile, hard mass the size of an orange."

June 29.—Electrolysis. Firm uterine electrode made positive; was introduced $1\frac{1}{2}$ inches. C.S. 140 m.a. Ten minutes.

July 20.—Patient had some rise of temperature for some days about a fortnight ago, which prevented a repetition of the electrolysis. Temperature has now been normal for four days. Electrolysis. Firm electrode introduced $1\frac{1}{2}$ inches, and made positive. C.S. 120 m.a.

July 27.—Electrolysis. Intra-uterine electrode positive. C.S. 160 m.a.

July 28.—Discharged from Hospital much improved. To continue treatment as an out-patient.

August 3.—Has been feeling well since she returned home. No loss. Electrolysis. Firm electrode passed $1\frac{1}{2}$ inches, made positive. C.S. 160 m.a.

August 17.—Has passed through a menstrual period since last visit. More normal in duration and amount of loss than has been the case for the last five years. Electrolysis. Uterine electrode positive. C.S. 100 m.a.

August 24.—Electrolysis. Uterine electrode positive. C.S. 115 m.a.

August 31.—Has lost slightly since last visit. Electrolysis. Uterine electrode positive. C.S. 100 m.a.

September 7.—Electrolysis. Uterine electrode positive. C.S. 150 m.a. Ten minutes.

September 14.—No loss and no discharge. Her period is now a week late. Patient can only sometimes feel the tumour now through the abdominal walls; generally she cannot do so; formerly she could feel it easily. Says her girth is much less, and that clothes, which are now loose, were formerly quite tight over the abdomen.

September 28.—Last menstrual period almost normal. Electrolysis. Firm uterine electrode made positive. C.S. 130 m.a. Patient discharged as improved.

October 5.—Heard that improved condition was maintained.

CASE XXVII.—E. N., aged 42. Seen with Dr. B. Arche-dechne Duncan, June 27, 1888. Has noticed a swelling in her abdomen for the last four or five years. Has only given her trouble during the last twelve months. Menorrhagia at monthly periods. There is a well-marked uterine souffle, heard loudest over the left side of the tumour. Girth round the most prominent part of the tumour $39\frac{1}{2}$ inches.

June 29.—Electrolysis. Intra-uterine electrode positive, entered 1 inch. Eighteen cells. C.S. 45 m.a. Patient could not bear a stronger current. Time ten minutes.

July 5.—Electrolysis. Rheostat used with the battery. Intra-uterine electrode passed $1\frac{1}{2}$ inches, made negative. Thirty cells in circuit only gave a current strength of 45 m.a. Rheostat removed from circuit when the C.S. rose to 100 m.a.

July 23.—Has been better. Last period lost only for four days, not profusely. Electrolysis. Firm uterine electrode passed 1 inch, made negative. Rheostat used with a pinch of salt in the water. Thirty cells used, and regulated by the rheostat. C.S. 158 m.a. Time ten minutes. Electro-motive force of battery 50 volts; therefore the whole resistance of the circuit was about 316 ohms.

July 28.—Electrolysis. Uterine electrode introduced $1\frac{1}{2}$ inches, and made negative. C.S. 130 m.a.

August 2.—Electrolysis. Firm uterine electrode would only pass 1 inch; made positive. C.S. 160 m.a. Time ten minutes.

August 6.—Electrolysis. Uterine electrode entered about 1 inch. C.S. 140 m.a. Ten minutes.

August 21.—Lost rather freely at last menstrual period. Electrolysis. Uterine electrode passed about $1\frac{1}{2}$ inches; always arrested at about the same spot. C.S. was, therefore, not raised above 100 m.a. Time ten minutes.

August 30.—Electrolysis. Tried to pass electrode with the patient on her left side; did not pass any better than when in the dorsal position. Passed $1\frac{1}{2}$ inches, made positive. Application lasted ten minutes.

September 14.—Patient did not lose so much at last period. Is feeling better. Tumour is smaller and harder. Less pain over abdomen. Electrolysis. Flexible electrode used. End tilted by finger into os. Passed 7 inches, made positive. C.S. for part of the time 60 m.a., afterwards 115 m.a. Time fifteen minutes.

September 25.—Electrolysis for ten minutes. C.S. 100 m.a. Uterine electrode entered 4 inches.

October 11.—Tumour is smaller, especially on the left side. Electrolysis. Flexible electrode passed 4 inches, made positive. C.S. 110 m.a. Time ten minutes.

October 31.—After last application patient had a rise of temperature for a few days. On October 15 it was 102°. Afterwards subsided.

CASE XXVIII.—E. C., a widow, under the care of Mr. Z. Mennell, has been suffering from a fibrous tumour of the uterus for some years. It is increasing in size. The monthly periods are accompanied by great loss. The patient is a very nervous and sensitive woman. She had been seen by a surgeon with a view to operation, but hers was not considered a suitable case. It was decided to try electrolysis.

Per hypogastrium.—A large globular swelling is felt, reaching to above the umbilicus. Girth at most prominent part of the tumour, 36½ inches. *Per vaginam.*—The os is reached with the greatest difficulty. It is situated high up, above, and behind the pubes, to the left side of the patient. A sound can only be introduced when firm pressure is made on the tumour from above through the abdominal wall. It enters 4 inches.

July 27, 1888.—Electrolysis. The patient was placed under the influence of an anæsthetic. Firm insulated electrode introduced with great difficulty, passed 4 inches to the patient's right, and made positive. C.S. 150 m.a. Ten minutes. Resistance, 320 ohms. The galvanometer and rheostat were in the circuit. Thirty cells of Stöhrer's battery were used with an electro-motive force of 48 volts.

August 1.—Electrolysis. Uterine electrode positive, entered 4 inches. C.S. 150 m.a. The electrode was moved about over the cavity of the uterus. Time ten minutes. The current was not used stronger because the patient was under the influence of an anæsthetic, and was not able to say whether she experienced pain internally or on the abdomen during the passage of the current.

August 8.—Has been very well since the last application, but the tumour does not appear to be smaller. Electrolysis. The patient was again placed under the influence of ether. Firm electrode passed with more difficulty. The os could only be reached when the tumour was pressed firmly down from the abdomen. Electrode made positive. C.S. 150–160 m.a. Ten minutes.

August 19.—Patient refused any further treatment by this method.

CASE XXIX.—L. R., aged 43, came under my care on July 28th, suffering from a fibrous tumour of the uterus, which has been present during the last eleven years. Suffers from pain

and discomfort for a week before menstrual periods. Loses profusely; passes clots. Period lasts for five or six days.

Per hypogastrium.—A large uniformly globular tumour rising to 3 inches above umbilicus. *Per vaginam*.—Os easily felt. Tumour has solidarity with uterus. Moveable. Sound enters 4 inches.

July 31.—Electrolysis. Uterine electrode positive; entered 4 inches. C.S. 130 m.a. Resistance, 346 ohms. Rheostat used.

August 6.—Electrolysis. Uterine electrode entered 4 inches, made positive; passed to patient's right. C.S. 180 m.a.

August 11.—Electrolysis. Uterine electrode positive. Entered to-day to the right; passed 7 inches. No pain in abdomen complained of. C.S. 140 m.a.

August 21.—Has menstruated since last application. Loss less. Electrolysis. Firm uterine electrode passed 6 to 8 inches, made positive. C.S. 150 m.a.

August 29.—Tumour appears to be a little smaller. Electrolysis. Uterine electrode entered to patient's right 6 or 7 inches; made positive. C.S. 140 m.a. Time ten minutes.

September 19.—Heard from patient, who had returned to her home in the country, that her doctor was quite satisfied with the improvement that had taken place. He considered that the tumour had decreased about one-fifth. The last period caused no trouble, and the loss was very slight.

CASE XXX.—E. B., aged 40, single, was admitted into Martha Ward in August 1888, under the care of Dr. Godson. Catamenia commenced at 13 years of age, regular; loss one week in duration; interval three weeks. Loss moderate until five years ago. About five years ago had pain in the rectum, supposed to be due to hæmorrhoids; six months later had, during a menstrual period, sudden hæmorrhage per vaginam; profuse loss, lasting two weeks. Since then has always had menorrhagia. Loss has generally been for ten or twelve days, and the interval uncertain; generally less than three weeks. Has passed clots, and had to use twelve to twenty diapers a day. The loss has not been getting worse lately, but has been about the same for the last three years. Has been at times constipated; occasionally has had trouble in passing her water. She has become much paler and weaker.

A firm rounded tumour can be felt in the hypogastrium, about the size of a cricket-ball. It is just displaceable, not tender. To the left of it is a small tender swelling, about the size of a walnut, and quite moveable (apparently an ovary).

Dr. Godson's note:—"*Per vaginam*.—The cervix is displaced

somewhat to the left. A rounded firm swelling occupies the pelvis, chiefly behind and to the right side, which is found to be the lower part of the hypogastric swelling, participating in all its movements.

August 9, 1888.—Electrolysis. Firm electrode introduced 1 inch, made positive. C.S. 194 m.a. Ten minutes.

Measurements—

	August 9. Inches.	October 16. Inches.
Umbilicus to symphysis	7 $\frac{1}{2}$	7 $\frac{1}{4}$
Symphysis to highest point of tumour	5 $\frac{1}{2}$	4
Umbilicus to highest point of tumour	2	...
Across tumour	7	5 $\frac{1}{2}$
Greatest width (with calipers)	4 $\frac{3}{4}$	3 $\frac{3}{8}$
Greatest length (with calipers)	4 $\frac{3}{4}$	...
Cavity of uterus	2 $\frac{1}{4}$	2 $\frac{1}{2}$

August 17.—Electrolysis. Curved firm uterine electrode introduced 1 $\frac{1}{2}$ inches, and made positive. Twenty cells, giving a current strength of over 200 m.a.

August 24.—Menstrual period since last note; five days' duration. Lost very much less at this period than previously, and it has been of shorter duration. Dr. Godson stopped the medicine (tinct. hydrastis canad.) she was taking, in order to eliminate it as a factor in the progress of the case. Electrolysis. Firm electrode passed 1 $\frac{1}{2}$ inches, made positive. C.S. 198 m.a.

September 14.—Patient has been away from the Hospital during the last three weeks. Returned yesterday. Has had another almost normal menstrual period during her absence. Electrolysis. Firm uterine electrode entered 1 inch, made positive. C.S. above 200 m.a. (about 240; galvanometer was only graduated to show 200).

September 28.—Patient's period occurred on 22nd inst.; the loss was slight; lasted one day only, and was preceded by the usual pain in her back and subjective symptoms. Electrolysis. Firm uterine electrode introduced one inch, and made positive. Twenty-six cells. C.S. 190 m.a.

October 5.—Electrolysis. Uterine electrode positive. C.S. 140 m.a. Ten minutes.

October 16.—Dr. Duncan's sound enters cavity of the uterus 2 $\frac{1}{2}$ inches. The electrodes are arrested at a little over 1 inch. The sound slips in easily, but is much smaller in diameter than the electrode. Electrolysis. A smaller electrode was used. It entered 2 $\frac{1}{2}$ inches; was made positive. C.S. 180 m.a.

November 2.—During the last week patient has had a profuse loss, using as many as forty diapers in three days. Is now better. Tumour remains smaller. Is to leave the Hospital for

a short time to regain her strength, and to return for future treatment if thought desirable.

I have had several cases with other medical men in which the patient has not been so entirely handed over to me for treatment, and they may intend to report them; they are, therefore, not included in this list. One case is omitted the notes of which I am not sure I am at liberty to publish, and several cases have come under my care so recently that no opinion can as yet be formed as to the benefit they are likely to derive.

One case was treated entirely by the interrupted current. The interrupted current was employed only once or twice in the other cases. In all, 235 applications of the continuous current were made, each application occupying at least ten minutes. In 124 applications the intra-uterine electrode was positive, in 87 it was negative; in 22 applications no note was made of which pole was used internally, and on two occasions the pole was reversed during the time of the application.

In eight cases the result may be described as very good, the patients having greatly improved and the tumours diminished in size. Fifteen others may be said to have improved, the symptoms being relieved; in one of these cases the tumour was larger at the end of a year, but the distressing and exhausting symptom of loss of blood, for which treatment was primarily sought, was relieved and has not recurred. Two cases of the 15 were improved at the time they left the Hospital, but we have not since heard of them. In one case the tumour was extruded from the os and removed by the *écraseur*. In one case the occurrence of pneumonia cut short the treatment. In four other cases no improvement took place. Two improved while under treatment, but relapsed. One case ended fatally by ulceration into a large vessel. Such a catastrophe could hardly be anticipated or guarded against, but the possibility of its occurrence must be taken into account when weighing the relative value of this mode of treatment.

Uterine fibroids resent interference. In more than one case already reported, enucleation has been favoured—not altogether an unfortunate occurrence if the termination is satisfactory; should the reverse be the result, the electricity has to bear all the blame of the misfortune. I have had one or two fortunate escapes. One case was handed over for electrical treatment, but before the treatment was commenced spontaneous enucleation took place. The woman was very ill. Had even one application only of the battery been made, the danger in which the woman's life was placed would have been put down to the elec-

trolysis. In another case treatment was deferred on account of the continued high temperature of the patient. The patient became very ill, and was supposed to be suffering from typhoid fever. There was always some doubt about the diagnosis, as no spots were detected; and I believe that some other of the usual symptoms of typhoid fever were absent. Had electrolysis been tried, a ready explanation would have been afforded for an otherwise obscure case. In a third case the passage of a sound up the right Fallopian tube resulted in some disturbance, followed by a swelling which was noticed before the electrolysis was commenced, otherwise it would have been attributed to it.

The results of the cases reported are not as brilliant as could be wished, and the treatment is not altogether free from danger, as shown by the fatal case; but compared with other methods, it is probably the best short of actual removal by operation. Whether the advantage, which is small, is worth the extra trouble and time involved, it is difficult to say; this point can possibly only be decided by reference to the circumstances connected with each case. It would seem that Dr. Apostoli has not found it so uniformly successful as at first he believed, for he has recently advocated the treatment of uterine fibroids by the interrupted current. The tumours do not decrease much in size, but in the thirty cases recorded only two have increased. Galvano puncture was not employed. Hæmorrhagic myomata are those most favourably influenced by the treatment. The best results follow when the electrode can be passed well into the cavity of the uterus. Patients are chiefly benefited by the relief of symptoms. The symptoms relieved in one or other of the foregoing cases are amenorrhœa, dysmenorrhœa, menorrhagia, difficulty in defæcation, frequency of micturition and irritability of the bladder, difficulty in progression and feelings of weight and pressure.

VOMITING IN PHTHISIS,

WITH

SPECIAL REFERENCE TO THE ASSOCIATION OF THIS
SYMPTOM WITH LEFT APEX-DISEASE.

BY

S. HERBERT HABERSHON, M.D.

The occurrence of vomiting, although it is so important an accessory symptom of phthisis, has received comparatively little attention from medical authors. The wasting and loss of nutrition in tubercular disease are its most prominent features, and as long as the digestive functions remain unimpaired and the appetite good, the advance of the disease may be resisted, and its development retarded or even arrested. The onset of vomiting, however, is a secondary event, which frequently hastens the progress of the lung disease, and may even hurry the fatal termination.

It would not be possible within the scope of this paper to treat of the whole subject of the causes and pathology of vomiting in phthisical patients.

I propose only to inquire into the truth of a statement that has sometimes been made, that disease of the left apex is peculiarly associated with this symptom. The inquiry may not perhaps be a very fertile one, but it is not without interest, and whenever an impression exists, based, as it often is, on the evidence of a few cases only, it is always of value to balance the results derived from a larger number. In doing so, I must briefly refer to the physiology and causes of vomiting in so far as they affect this question, and in order to eliminate from the inquiry all causes which do not bear upon the subject.

Vomiting¹ is a reflex and spasmodic movement consisting of two main factors—(1) the contraction of certain muscles by which the stomach is forcibly compressed (chiefly the abdominal

¹ Dr. Lauder Brunton : Practitioner, 1874 ; Dr. Michael Foster : Physiology.

muscles and the diaphragm); (2) the active dilatation of the cardiac end of the œsophagus, the so-called cardiac sphincter of the stomach. Both of these factors are essential; when the former alone is present, retching is the result. For the co-ordination of the movements of these various muscles nervous influence is required, and the nerve by which efferent impulses descend from the vomiting centre in the medulla is the pneumogastric. The act of vomiting may be produced by direct irritation of the neighbourhood of the centre itself (as in tubercular meningitis); the trunk of the pneumogastric in the thorax may be irritated by the pressure of enlarged glands; or, lastly, a reflex effect may be produced by impulses reaching the centre through a variety of afferent paths. According to the part of this nervous mechanism involved, vomiting in phthisis may be divided into:—

1. Central vomiting, *e.g.*, tubercular meningitis.
2. Vomiting from pressure upon the pneumogastric trunk (the tracheo-bronchial adenopathy of the French writers).
3. Peripheral or sympathetic vomiting, including—(a.) Gastric vomiting proper, from irritation of gastric branches of the vagus, *e.g.*, gastric catarrh or ulceration. (b.) Irritation of pulmonary branches of the vagus in the lungs. (c.) Pharyngeal or laryngeal irritation (*i.e.*, of the pharyngeal branches of the glosso-pharyngeal or the branches of the vagus to the epiglottis, &c.).
4. Mechanical vomiting (the commonest cause), or vomiting with cough. This, as its name implies, is more or less independent of the nervous mechanism, though in many of the cases there is evidence of pharyngeal irritability, and frequently of excessive irritability of stomach.

There are other possible causes for vomiting in phthisical patients which have nothing to do with the disease, such as the coincidence of ulcer of the stomach or alcoholism. Others, again, such as amyloid disease, do not occur frequently in out-patient practice. Where these have occurred, I have omitted the cases. With the question of anæmia and uterine irritation, as possible sources of the symptom, I shall deal presently.

In analysing the statistics derived from my cases, I shall have again to refer to some of the above causes, but it is obvious that most of them are entirely independent of the seat of the lung disease. I shall confine myself to the discussion of the two classes of cases which affect the question, namely, those of compression of the trunk of the pneumogastric nerve in the thorax, and those of sympathetic vomiting produced by irritation of its pulmonary branches.

I. Tracheo-bronchial adenopathy.¹

By this term is meant the enlargement of certain of the mediastinal glands, which produces pressure upon the trunk of the pneumogastric nerve.

It has long been recognised that in phthisis the lymphatic glands in the neck and the neighbourhood of the bronchi are peculiarly subject to tubercular infiltration and enlargement. They have been specially observed in children and young people. Various symptoms have been described as due to the compression of the bronchi and great vessels in the thorax (especially by Lalouette in 1780 in his work on "Scrofula," and by Barthez and Rilliet in "Pathological Researches on Tubercle of the Bronchial Glands in Children," 1840 and 1842); but in the early part of this century (1826) Becker of Berlin, in a paper upon the lymphatic glands of the thorax, described a set of symptoms which he had found associated with the pathological condition, of which vomiting and distaste for food were the chief, and he attributed the cause to compression of the pneumogastric nerve.

Albert of Bonn in 1827, in his "Pathology of the Pneumogastric Nerve," cites a case of a patient seized with attacks of vomiting and dyspnoea, in whom, after death, he found the left cervical pneumogastric nerve enlarged and disorganised. In England, Ley in 1834 affirmed that pressure exerted by the bronchial glands upon the pneumogastric and recurrent nerves produces a peculiar cough which resembles whooping-cough, but he makes no mention of vomiting.

According to Fagge, the suggestion was made many years ago by Mr. Hilton that vomiting was sometimes due to interference with the trunk of the pneumogastric nerve by tuberculous bronchial glands.

Dr. Guéneau de Mussy (to whom and to Simmoneau is due much of the above history) is the most recent authority on this subject, and his views have been maintained by his pupils MM. Baréty, Varda, Simmoneau, and others. De Mussy in 1868, and more fully in 1874 in his "Clinique médicale," confirms the existence of what he describes as "l'adenopathie tracheo-bronchique" in the adult as well as in children. He expresses himself as follows:—"I am disposed to attribute to this cause the vomitings which are so frequent a complication of several diseases, as whooping-cough and tuberculosis." He admits, however, the uncertainty of always diagnosing the condition on account of the multiple conditions under which vomiting in phthisical patients may occur. He remarks, however: "When I have observed in the tuberculous repeated and very obstinate

¹ Guéneau de Mussy: Clinique médicale, 1884, vol. iii.

vomiting, out of all proportion to the violence of the cough, I have always established a very pronounced engorgement of the tracheo-bronchial glands.”

His view is, on physiological as well as clinical grounds, that cough, by its compression of the stomach, is not alone sufficient to cause vomiting; but that the cardiac or œsophageal sphincter must be actively relaxed by stimulation of the vagus, or it must be paralysed and dilated (such as occurs in an animal if the vagus in the neck is divided), before the contents of the stomach can be rejected.

According to the same author, the vomitings in these cases are usually preceded by an access of dyspnœa or by a paroxysm of coughing, coming on suddenly in subjects who do not habitually cough.

Among the symptoms which are attributed to compression of the pneumogastric are—

1. Pain referred to the situation of the manubrium sterni or the first two costal cartilages and the neighbouring intercostal space, or in the back to the position of the fourth or fifth dorsal vertebra and its neighbourhood.

2. A spasmodic and frequently a laryngeal cough, in many of the cases partaking of the character of whooping-cough (*toux coqueluchoïde*), more rarely aphonia.

3. Vomiting, and occasionally dyspepsia, associated with gastralgia.

4. Congestion of the base of the lung of the corresponding side.

It has been contended that the mediastinal glands, and especially those at the root of the lung, are so commonly enlarged in tubercular disease without producing the symptom of vomiting (even though they occur in the neighbourhood of the vagus nerve), that it is impossible to attribute this symptom merely to compression of the nerve, otherwise it would occur in a much larger number of cases. From the numerous examples of the disease now recorded, and the careful post-mortem observations made by competent observers, there is little room for doubt that the affection does exist, and that if the vagus is compressed it must produce reflex symptoms.

De Mussy publishes several cases in confirmation of his views. Professor Potain in 1861 published a case in which, after death, the vagus was compressed against the root of the right lung by a hypertrophied bronchial gland, and thereby disorganised. Others also are recorded by Peter and Simmoneau.

It has been asserted that vomiting is more frequent when the left pneumogastric is affected than when the right is compressed. In 1849 Legroux¹ recorded this observation. De Mussy con-

¹ Legroux : Bulletin de l'Académie de Médecine, t. xxi. p. 493.

firm the same view from his own experience :—"In the adeno-pathy which accompanies tuberculosis in particular, the vomitings have appeared more frequent, more repeated, and obstinate when the glandular affection existed or predominated on the left side, and irritated in consequence the pneumogastric of this side." He adds: "This result of clinical observation has struck me without any preconceived idea."

More recently¹ M. Simmoneau has collected a number of published cases in which vomiting has been attributed to compression of the pneumogastric by enlarged glands. He observes that out of thirteen such cases no less than ten occurred on the left side.

De Mussy attributes this coincidence to the anatomical distribution of the nerve, and observes that the larger part of the supply of the muscular fibres of the stomach is obtained from the left vagus, while the right contributes more to the constitution of the solar plexus. Some physiologists, however, contend that the right nerve, rather than the left, is concerned in this action upon the stomach. Claude Bernard² divided the pneumogastriacs in the neck of an animal, and found that stimulation of the central end of the right nerve produced a reflex vomiting and retching when the left nerve was intact, but that the vomiting was far more difficult to produce, and sometimes did not occur, when the experiment was reversed and stimulation applied to the central end of the divided left nerve. De Mussy does not consider that this precludes his view on clinical grounds, for he adds: "In an action so complex, the reflex actions and the direct actions are combined in such a manner that one can formulate no absolute rule." It is quite possible that section of a nerve is itself a stimulus applied to the distal as well as to the central end; and at any rate, the experiment is open to two interpretations.

2. The cases of the second class illustrate a cause of vomiting which bears especially upon the question under discussion. Vomiting of this kind occurs in the early stages of phthisis, when it is not only a conspicuous, but the main symptom, and frequently masks the disease of the lungs. To these cases Latham's remark is peculiarly applicable when he says that those who are ignorant of the real cause of the malady will frequently affirm that the disease is "all stomach." Laennec, whose work on "Auscultation of the Chest" has produced so great a revolution in our power and accuracy of diagnosis, died

¹ Simmoneau : Thèse de Paris, No. 115, "Des vomissements chez les phthisiques," 1881.

² Claude Bernard : *Physiologie de Système nerveux.*

of phthisis in 1826, but eight years previously his health broke down, and his symptoms, as recorded by his son, were dyspepsia and anorexia without redness of the tongue, nausea, vomiting, and diarrhœa, with great muscular debility. The disease of his lungs was not detected until a similar break-down occurred a few months before his death.

The following case is an excellent example, and will illustrate the main features better than a description. It occurred during my house-physiciancy, and Dr. Andrew has kindly given me permission to publish it:—

G. W., aged 41, admitted to Mark Ward, September 5, 1885. Sent in for supposed gastritis. He was quite well three months ago. There had been no previous illness, but he had occasionally suffered from coughs. He denied cough, but it was elicited after persistent inquiry that he believed he had a dry cough for not more than three months. He never had hæmoptysis, but was subject to night-sweats.

Vomiting came on seven or eight weeks ago, usually in a quarter to half an hour after meals. It was not accompanied by pain, though he complained of soreness from retching. He had never vomited blood.

On admission, the patient appeared fairly well nourished, slightly anæmic, without any definite signs of disease. The breathing at both apices was observed to be rather coarse, but no râles were heard. There was a faint trace of albumen in the urine. The tongue was clear. No tenderness or pain at epigastrium. The vomiting continued until the 8th inst. On this date it was observed that a few moist sounds had appeared at both apices behind.

On the 9th the note is: "Vomited shortly after tea last night. The physical signs in the lungs have still further increased. There is no dulness, but the voice resonance is now more marked at the left apex than at the right (the reverse was the case on admission). The breath sounds are harsh, with prolonged expiration at both apices in front, the expiration being higher pitched at the left. Abundant mucous râles with rhonchus at the left apex. At the back there is soft bronchial breathing, with abundant small mucous râles after cough."

On September 12 the physical signs were better marked; at the left apex rapid advance. Dulness, bronchial breathing, and bronchophony, with a shower of soft subcrepitant râles after cough. At the right apex the signs remained stationary. Rough breath-sounds, with prolonged expiration and rather exaggerated voice-resonance.

The temperature was uniformly raised at night to 100° or

101°, and in the day was never lower than 99.4°. The respiration varied from 30 to 36, and pulse from 90 to 104 beats per minute.

The patient was discharged on September 13. I have since heard that his disease made rapid progress, and that he died in January 1886 of pulmonary phthisis.

The cause of vomiting in this class of cases is probably reflex. It cannot be attributed to the cough, for, as in this case, it is often scarcely noticeable, and frequently alternates with the vomiting or increases when the vomiting stops. It is also impossible that it can be due to gastric catarrh; the clean tongue, natural appetite, and absence of pain or tenderness would preclude this. The absence of anæmia in many of the cases leads us to seek a further cause for the symptom. The most plausible explanation is that the early deposit of tubercle irritates the peripheral terminations of the branches of the vagus in the lungs, and produces a reflex effect through the medullary centre. With the softening of the tubercle, as shown by the development of moist râles and other signs, the pressure upon and irritation of the vagus fibres is relieved and vomiting ceases.

David Craigie¹ in 1840 remarks upon this disappearance of the vomiting in the early stages of phthisis. He attributes the symptoms, however, to the rigors and fevers which he says are present, but adds: "The appetite, nevertheless, is not much impaired, and the patient often takes food with much eagerness and enjoyment. The tendency to vomit vibrates, and finally ceases as the progress of the distemper advances from the inflammatory to the softening stage."

In his Lumleian Lectures for 1876,² my father remarks: "The irritation of the pulmonary branches of the pneumogastric is a common cause of disturbance of the stomach, and constant vomiting is the result." He adds that "it will often be found that when the disease in the chest has advanced the vomiting ceases, but only to reveal disease of the lungs which has made insidious progress during the time when treatment of the thoracic disease might have been most efficacious."

These two forms of vomiting in phthisis are perhaps the most interesting because the most obscure.

In the former variety I have given the evidence of writers on the subject to show that when it occurs on the left side vomiting is more frequent.

Of the latter form I have not had the opportunity of observing many cases in so early a stage, or so typical as the case

¹ David Craigie: *Practice of Physic*, vol. ii, p. 996.

² Habershon on the Pathology of the Pneumogastric Nerve, 1876.

reported; but I can affirm as a general statement, that there is a tendency to sympathetic irritation of stomach in a far larger proportion of left apex cases of phthisis than in the right-sided disease. I have tabulated all the cases of phthisis that have come under my observation during two and a half years of out-patient practice. Of 360 consecutive cases, 107 occurred in which the left apex alone was affected, 115 of right apex disease, and 138 with physical signs in both lungs. All doubtful though suspicious cases have been eliminated.

The following number of cases of vomiting (from all causes) occurred respectively in each of the three groups, viz. :—

- 72 cases of vomiting out of 107 cases of left apex disease.
- 32 cases of vomiting out of 115 cases of right apex disease.
- 52 cases of vomiting out of 138 cases of disease of both lungs.

Or, taking the percentage of each—

- 67.3 per cent. of cases of left apex disease presented the symptom.
- 27.8 per cent. of cases of right apex disease presented the symptom.
- 37.7 per cent. of cases of disease of both lungs presented the symptom.

These figures give the impression that left apex phthisis presents a stronger tendency to the symptom of vomiting than any other; but it is obviously unfair to draw any conclusion from these numbers alone without analysing them further.

I divide the cases into four classes, including mechanical vomiting, gastric catarrh (acute or chronic), laryngeal irritation, and lastly, sympathetic vomiting (presumably from the pulmonary irritation).

I have taken as the index of the mechanical form the presence of a violent fit of coughing culminating in vomiting, *i.e.*, apparently produced directly by the cough. This occurs most frequently in the early morning before breakfast, or at night some hours after food. I regard as the signs of a sympathetic irritation of stomach (from the lung disease), first, the absence of all other causes which might induce vomiting, including violent cough; and, secondly, the ease with which vomiting occurs, commonly a short time after a meal, and preceded by a sense of suffocation and sometimes slight cough (but never a fit of coughing). In the latter class most of the patients state that unless they sit still or lie down after taking a meal they are sick.

I have defined the grounds on which a separation of these cases should be made, because I feel that there is danger of allowing a preconceived impression to colour the results. However, I have endeavoured to separate the causes as fairly as possible, and I believe that the above is a just distinction.

The following table represents the results :—

	I. Mechanical Vomiting, or vomiting with cough.			II. Gastric Catarrh, evidenced by pain after food, epigastric tenderness, furred or red tongue.			III. Pharyngeal or Laryngeal Vomiting, including cases of irritable throat, long uvula, tubercular laryngitis.			IV. Sympathetic Vomiting. Absence of pain or violent cough; no great anæmia.		
	Right Lung.	Left Lung.	Both Lungs.	Right Lung.	Left Lung.	Both Lungs.	Right Lung.	Left Lung.	Both Lungs.	Right Lung.	Left Lung.	Both Lungs.
Males.	16	25	25	1	2	2	3	4	4	1	19	1
Females.	6	12	14	2	5	3	...	4	1	3	11	2
Total.	22	37	39	3	7	5	3	8	5	4	30	3

This preponderance in left apex cases is, therefore, very strongly marked; but I find, on reference to my notes, that in Classes I. and IV. the left apex cases present the symptom with more severity. In Class I. I have noted that in 13 out of the total of 37 of left lung disease, vomiting with cough is not an occasional event only, but occurs frequently, that is, usually morning and evening, and sometimes three or four times a day, whereas the same is remarked of only four out of the 22 cases of right lung phthisis.

In Class IV., also, among the 30 cases of the left apex, vomiting occurs daily in 13 of the number, and in 10 others from the same total it is incessant—that is, after every meal. In none of the other cases in Class IV. does this occur.

The matter cannot be satisfactorily disposed of, as far as these statistics are concerned, unless some reference is made to the influence of uterine irritation as a reflex cause, and to anæmia.

A glance at the above figures will show that the proportion of cases of vomiting in men, where the disease is limited to the left lung, is even greater than in the women. Still it is possible that among the latter, when the menstrual function has been suspended, there may be a stronger tendency to reflex vomiting. This occurs, however, frequently among women affected with phthisis who are not subject to vomiting, and therefore I do not lay much stress upon it.

Lastly, many of the patients are anæmic, and it is open to question whether this may not be a cause of vomiting in some at least of the patients. Anæmia undoubtedly occurs to some extent in a considerable number of the cases, but I cannot find that it was extreme in more than a few of them. Several of the

cases of gastric catarrh, and three of the cases with ulceration of larynx and of soft palate, were observed to be very anæmic. In about 300 of my cases, anæmia was present to a marked degree in 26, and of these only nine were the subjects of vomiting. Anæmia will not therefore account for the symptom in many cases. It may be worthy of mention that in pneumonia no such connection between the left-sided disease and the symptom of vomiting appears. Of 50 cases taken from the Hospital notes, the number of cases of vomiting occurring at the onset is almost equally divided between affection of each lung. I have also added up the proportion in 1000 cases taken from the record of the Collective Investigation Committee on pneumonia, and find that the symptom occurs as frequently in right as in left lung affection. In pneumonia, however, other conditions are introduced which are not present in phthisis, at least in the early stages. The extreme constitutional disturbance with high temperature is of itself a sufficient explanation, and the change in the lung seems rather to be a secondary than a primary lesion, whatever be the view that is taken of the nature of pneumonia. Still I cannot regard the absence of any such connection between the part of lung affected and the occurrence of vomiting as weakening the evidence that I have given in cases of pulmonary phthisis.

ON
CROUP IN ITS RELATION TO TRACHEOTOMY.

BY
W. H. HAMER, M.B.

There are few questions on which medical opinion is more unsettled than on that of the degree of severity of symptoms in the acute laryngeal dyspnoea of children which calls for surgical interference. The subject has been discussed over and over again; fashion has succeeded fashion, and the orthodox view of one generation has been superseded in the next by one perhaps diametrically opposed to it. The question is, however, one of essential importance to the house-physician, and I venture therefore to tread once more over the old ground, taking as my text the cases which occurred in Dr. Church's wards during the year 1887-88, together with some few that have come under my care since that time.

I would first, by way of clearing the ground, allude to two topics, the one dealing with the character of the cases I propose to speak of, the other with their prognosis.

Croup I take to mean simply laryngeal dyspnoea, but I shall only allude to certain varieties of the cases presenting the symptom croup. I may dismiss at once the conditions of foreign body in the air-passages and of laryngismus stridulus, both of which give rise to acute laryngeal dyspnoea, but the one (while it should always be borne in mind) is differentiated by the history or by the suddenness of onset of symptoms, and the other is a complaint of so transitory a nature that it is practically limited to out-patient practice, and the opportunity of being an actual witness of an attack rarely presents itself. A third condition is described by writers, that in which, after slight premonitory loss of voice, sudden dyspnoea supervenes, usually in the night-time, and, after lasting half an hour or more, passes away, to be succeeded perhaps by another attack on the following night. This

spasmodic croup, or "laryngitis stridula," I shall also make no further reference to; nor shall I speak of acute supervening upon chronic disease of the larynx. The cases which remain form the large bulk of the examples of acute laryngeal dyspnoea, and they present the following characters:—

At first there is languor, feverishness, slight hoarseness, and the cough has that peculiar character to which the adjective "croupy" has been applied. Then upon these symptoms dyspnoea supervenes. The up and down movements of the larynx are exaggerated, and the characteristic furrow of inspiratory recession is produced (a depression affecting the front part of the chest, at the level of the xiphoid cartilage), the supraclavicular spaces are also sucked in with each inspiration. The breathing is not rapid in uncomplicated cases; it is laboured rather than hurried. At their commencement the attacks of suffocation are usually paroxysmal, and succeeded by periods of comparative ease; but as time goes on, these respites become more brief and less pronounced; restlessness increases; the imperfect aeration of the blood manifests itself in blueness of the face and extremities; and finally, if no change for the better occur, lividity increases, there is diminution of restlessness, and these are followed by a leaden pallor of the features, coma, and death.

The duration of the above symptoms is from a few hours to a few days.

Now cases presenting these characters have been divided and classified in all sorts of ways. The catarrhal and membranous varieties are those most commonly admitted. Again, diphtheritic and non-diphtheritic sounds a very plausible division. Croupous and simple laryngitis are terms now well nigh obsolete, the term croup being taken (in accordance with a recommendation of a committee of the Royal Medical and Chirurgical Society) to be descriptive of a series of symptoms, those, namely, of laryngeal dyspnoea, and no longer applied to express any particular pathological condition underlying those symptoms.

These questions of classification involve many debateable points, *e.g.*, whether all membrane is diphtheritic? whether diphtheria is necessarily associated with the presence of membrane? and the like, upon which subjects the most diverse views have been held.

Thus Bretonnean and Trousseau speak of non-membranous laryngitis as a trivial and transitory complaint, and never seem to entertain the idea of its causing tracheotomy to be resorted to. Dr. G. Johnson, and Sir T. Watson after him, describe an "infantile laryngitis" or "inflammatory croup" (*i.e.*, a non-diphtheritic affection), as a disease which proves fatal sometimes

within twenty-four hours, and often within forty-eight hours, and which may continue for five or six days before it terminates. Two American authorities say: "However it may be in other places, idiopathic non-diphtheritic croup is very rare in Boston." Fagge speaks of there being only one non-membranous fatal case of progressive laryngeal obstruction recorded in the post-mortem books at Guy's, but he adds that in at any rate a large proportion of the non-fatal cases no evidence of the presence of membrane is forthcoming.

Luckily these vexed questions have but little bearing upon the advisability of operative interference in any particular case, and for this simple reason, that the distinctions drawn, whether they be valid or not, are not in the majority of cases verifiable clinically at all, but only in the post-mortem room. This is a fact which, though pretty generally accepted, is not perhaps emphasised as it deserves to be. To take the 23 cases of which I have notes, in only seven of them was there evidence of membrane prior to the time when the question of tracheotomy arose, and three of these were examples of membranous laryngitis consecutive to measles, and two of the remaining four were patients who happened to be under observation for several days before they had any dyspnoea at all.

Thus children who are brought to an hospital with "croup," would seem only rarely to present the evidence which renders it possible to pronounce positively that the croup is due to diphtheritic laryngitis. Practically, then, in such cases, the judgment with regard to operation is but little influenced by the pathological condition which is at the root of the mischief. Tracheotomy has to stand or fall on the degree and severity of the symptoms of laryngeal obstruction present.

To turn now to the question of prognosis. The results of early tracheotomy in practised hands are fairly well ascertained to be pretty much those of Trousseau, the first great tracheotomist, namely, from 20 to 25 per cent. of recoveries. The 23 cases I have alluded to are interesting from another point of view, as in none of them was an early tracheotomy performed, and in all but three (in which the operation was done when the dyspnoea had only reached an intermediate degree of severity), the more extreme symptoms were allowed to develop before calling in surgical interference. The three cases of only moderately late operation happened to be fatal ones; of the remaining 20, only 18 are consecutive (the other two of recovery without operation after long-continued severe dyspnoea I must, of course, dismiss for the present). The 18 cases then comprised three complete recoveries after operation;

one recovery from the operation, with death two months after removal of the tube, from dyspnoea, possibly connected with the cicatrix; and three recoveries without operation. These latter were of special interest, as proving that severe and prolonged dyspnoea is not incompatible with natural recovery; two of them were under observation for some days before the croupy symptoms developed, and were undoubted examples of laryngeal succeeding upon pharyngeal diphtheria. Of the fatal cases, two died on the table (two hours and one hour respectively after they were first seen in the surgery); two others were examples of membranous laryngitis consecutive to measles, and complicated by broncho-pneumonia, and in them it was held that tracheotomy held out no prospect of benefit; in the rest, the trachea was opened, and the immediate shock of the operation recovered from, but the children succumbed, in most cases on the third or fourth day, from extension of disease to the lungs.

The above cases, then, present no very discreditable record as the result of late tracheotomy. I will briefly allude to the following points in regard to them, as being of interest in their bearing on prognosis.

(a.) *Age.*—The average age of the children who died was slightly in excess of that of those who recovered. In this connection it must be remembered that while the prognosis is grave in children under two, it also becomes serious after a certain limit, in proportion as patients approach adult age. Trousseau explains this by saying that in an adult, by the time that the symptoms of croup declare themselves, the diphtheria has had time seriously to compromise the ramifications of the bronchial tubes.

(b.) *Presence of Membrane on the Fauces.* taking all the 23 cases, was noted in three of the nine recoveries and in five of the 14 deaths. In the 15 remaining cases it was looked for and not seen. The children in whom membrane was seen were (with one exception) in the Hospital at least a day, and in five instances at least three days before severe dyspnoea manifested itself. Hence, had their throats been examined only at the time when the question of tracheotomy arose, it is quite likely that membrane would not have been noted as present there.

(c.) *Condition of Urine.*—A distinct cloud of albumen was present in three of eight recoveries, and in all the six deaths in which an opportunity of testing the urine occurred.

(d.) *Duration of Symptoms.*—This seems to be the most important point. Six children admitted with such advanced dyspnoea as to call for tracheotomy within twenty-four hours all died, while six of the nine recoveries spent the forty-eight hours

preceding the acme of their symptoms in a steam-tent in the Hospital wards.

The two main conclusions I have endeavoured to substantiate thus far are—first, that in the majority of cases it is impossible, at the time when the question of tracheotomy arises, to distinguish between diphtheritic and non-diphtheritic laryngeal obstruction; and secondly, that while it is admitted that many of the latter tend to natural recovery, it is also true that in no mean percentage of the former restoration to health may occur without the performance of an operation.

It will now be interesting to briefly sketch the history of opinion with regard to tracheotomy during the last sixty years.

To Bretonneau in 1825 is due the honour of performing the first successful tracheotomy in diphtheria; 1833 is the date of the second, the operator in this case being Trousseau, and that great physician from that time forward, at first with somewhat of doubt, and then with gradually increasing confidence, continued to interest himself in the subject, until in 1851 we find him maintaining that “the earlier the operation is performed the greater are the chances of success.”

Through Trousseau’s influence early tracheotomy became a recognised thing in France. In England the case was different. Up to 1850 it was regarded with the greatest dislike; of late years, however, a change of front has taken place, and if the leading authorities of to-day be consulted, they will be found to present on the whole a leaning towards the early operation.

Perhaps the boldest attitude is that assumed by Dr. Dickinson, whose dictum that “if membrane be present and in the larynx, there is little hope but in tracheotomy, which, therefore, there is no reason to delay,” is quoted with approval by Mr. R. W. Parker, one of the most successful of operators. Sir M. Mackenzie gives “marked recession of the sternum and chest walls” as the indication for interference. Meigs and Pepper go a step further, saying the operation is only indicated “when the paroxysms become more and more frequent, and when the dyspnoea is persistent rather than paroxysmal, with turgid or pale lividity.” Lastly, Dr. Goodhart declares that “the operation of opening the windpipe should be delayed to the latest possible limit.”

Now no doubt a very fine case can be made out for early tracheotomy if the percentage of successful early operations be compared with that of the successful late ones; but of course such a comparison would be eminently unfair and beside the point. Together with the latter group of cases must surely be placed those, in which symptoms of croup have supervened, in which obstruction has progressed until the chest walls begin to

be sucked in with inspiration, and in which, the surgeon holding his hand, recession (after perhaps reaching a most alarming degree of severity) has passed away, and recovery has taken place without the performance of any operation at all. Thus Trousseau's statement that "the earlier the operation is performed the greater are the chances of success" would be readily admitted to be true by the most fervent believer in late tracheotomy; but then the interest of any particular patient, and the chance of adding to the list of recoveries after tracheotomy, would be declared by him to be two distinct things.

It is impossible to deny that an early tracheotomist must, of necessity, operate on cases which would have recovered without any operation at all; and therefore, in gauging the success of any operator, it is a most important point to consider the degree and severity of the dyspnoea he was in the habit of stepping in to relieve.

Trousseau says, "When it is well executed, the operation is not in itself a source of danger;" but in the light of the statement of an authority like Billroth, that tracheotomy in a young child may be a more difficult operation than any in the whole range of surgery, it must be admitted that the phrase "well executed" involves more than might at first sight appear; besides this, putting aside death on the table, faulty position of the wound, with its attendant dangers, and the like, and supposing the immediate shock to be recovered from, there are the complications of tracheotomy to deal with; among which, to mention only the most important, a sloughing condition of the wound, irritative changes due to the presence of a tube, and difficulty in the permanent removal of the tube, are by no means unfrequently met with.

But now it may be urged, admitting tracheotomy to involve a certain risk, is not that risk compensated for by the advantage gained? It is said by some that by operating early the formation of membrane can be arrested. Goodhart comments upon this opinion to condemn it. He says, "Upon this ground alone, that of the more thorough application of local remedies to the larynx, does an early operation admit of advocacy." But then he adds, "We have at present no such local application which holds out any encouragement to us to adopt this line of practice. Should such an application be discovered, tracheotomy would stand on a very different basis to what it does at present."

Another argument often used by the early tracheotomist is that the intense suffering of the struggle for breath is obviated, and that, even if the operation is followed by the death of the patient, it converts a most painful and distressing form of death

into a comparatively peaceful one. In the majority of fatal cases, however, those arising from extension of disease to the lungs, it is questionable whether the very reverse of this is not the case, and whether a fairly rapid form of dyspnoea is not converted into a much more lingering and distressing one. The pronounced immediate relief afforded by tracheotomy is apt to make a deep impression on the mind, and in a hospital there are far more spectators present when the operation is performed than there are to witness the termination of 75 per cent. of the cases thirty-six or forty-eight hours afterwards. As Trousseau says, "Diphtheria is a disease which, though it occasionally grants a respite, does not as readily bestow a pardon."

Now one other argument. It is said early operation husbands the patient's strength; by saving the child from the exhaustion caused by severe laryngeal dyspnoea, it has a better chance of holding out until the brunt of the disease has passed by. Lovett and Munro, in a paper advocating early tracheotomy, say, "Perhaps the most important question of all is the influence of early or late operation as it affects recovery, as it is one of the very few conditions under the control of the surgeon." And they give the following recovery rates in cases operated on within one, two, three, and four days after the beginning of the obstruction to respiration:—1st day, 32.5 per cent.; 2nd day, 28 per cent.; 3rd day, 25.3 per cent.; 4th day, 14 per cent.

It is certainly matter for surprise that the disparity was not greater. Considering that the difference of condition caused by delaying operation from the first to the third day of dyspnoea only causes the percentage of recovery to fall from 32 per cent. to 25 per cent., and remembering that this has to be discounted by the fact that a certain number of cases operated on on the first day would never have come to tracheotomy at all if they had been left until the third day, it would seem that these statistics go a long way towards damaging, rather than enforcing, the case for early tracheotomy.

For these reasons then, in conclusion, that the prognosis of laryngeal obstruction is by no means absolutely bad; that it is generally impossible, at the time when such information is most needed, to differentiate the cases in which recovery is likely to take place from those which are necessarily fatal; and that the operation of tracheotomy introduces a distinct additional risk,—for these reasons, it is not wholly absurd to maintain that the surgeon should hold his hand, until lividity begins to be marked, recession is extreme, restlessness is diminishing, and paroxysmal attacks are becoming replaced by continuous dyspnoea. Should he refrain until this state of things becomes established, he will

undoubtedly do fewer tracheotomies, and his average of successes will not be quite so good as that of a man of equal skill who operates early, and therefore sometimes of necessity, in cases which would have recovered if left without surgical interference; but—and this after all is the most important point—he will be able to show a better result when all the cases are considered, those operated on and those not operated on, than can the most skilful advocate of early tracheotomy.

THREE CASES OF PERITONITIS.

BY

NORMAN MOORE, M.D.

It is curious that while there is much exact knowledge of the causes and treatment of pleurisy, and of the diagnosis, if not of the treatment, of pericarditis, far less is known about inflammation of the peritoneum. The practice of cleaner methods in surgery promises indirectly to effect as much for the study of the peritoneum as auscultation and percussion have for the pleuræ and pericardium. In view of the fast diminishing hesitation with which the peritoneum is opened, it seems important to describe every variety of peritonitis, and each of the three cases in this paper presents some features worth attention from their bearing on the treatment of peritonitis.

Relief of Pain after Opening the Peritoneum.

The patient, an office-boy, aged 16 years, was seen by me at his home on Saffron Hill with Mr. Reilly, who had attended him from the beginning of his illness. He had been seized on August 9 with severe pain in his abdomen, vomiting, and profuse sweating. He nevertheless went on working till the evening of the next day, when he took to his bed. His temperature was then 103°. I saw him on the afternoon of August 20. His abdomen was then very greatly distended and extremely tender to the touch. He looked in extreme pain, and was often sick when given liquid food. He had had a continued high temperature, no fæcal vomiting, and no diarrhoea. Enemata had produced solid motions in the first week of his illness. He had had some castor-oil and no solid food. His pulse was about 160 and thread-like, and his temperature 104°. The auscultation and percussion of his chest showed nothing abnormal as regarded his heart and lungs. His face was pinched and he was very lean.

His tongue was dry and coated with hard brownish fur. His urine was normal, and he had no pain in passing it.

There was no family history of phthisis, and though the room was small and rather dark, the boy had been admirably nursed by his parents.

In view of the great uncertainty as to the cause of the peritonitis and of the raised temperature, I was opposed to opening the peritoneum, and advised the application of belladonna liniment to the abdomen. On September 7 the boy was still suffering so much pain that his parents were anxious that he should be admitted to the Hospital, and that the question of operation should again be considered. His abdomen was as much distended as before, but his temperature was normal.

He was admitted to Luke Ward, September 8, 1888.

On admission, he was thinner than on August 20, seemed in nearly as much pain, and had the same degree of distension of the abdomen, which was much distended, tympanitic, and very hard. He lay with both legs drawn up. There was dulness in both flanks, rather more in the left than in the right. Tympanitic resonance extended upwards on both sides to the fourth intercostal space. The heart's apex-beat was in the third interspace, a little higher up than the left nipple, and just outside it.

The breathing sounds and heart-sounds were normal. His respirations were 32, and entirely thoracic, and the movements of his chest were symmetrical. His pulse was 104, small and weak; his tongue was thickly furred; he passed urine without pain; its specific gravity was 1022; it was acid and without albumen. He had 5 minims of laudanum every hour at first, and afterwards every three hours, and was given a hypodermic injection of morphia at night, after which he slept. He had frequent attacks of pain in the abdomen, and vomited a good deal.

September 9.—He had several severe attacks of pain, but fewer of them this day, and only vomited very little. His abdomen remained unaltered. Temperature—morning, 99.5°; evening, 98.6°.

September 10.—He had no vomiting, and was able to lie on his side, but sometimes lay with his legs drawn up. His bowels acted several times (the motions being clay-coloured and semi-solid). On the left side, from the costal arch downwards, there was slightly more resistance than on the right. The abdomen was greatly distended. Mr. Willett saw him in consultation with me, and was willing to open the peritoneum in view of the probability of the presence of fluid, and of his continued wasting and abdominal distension. He had a fair night.

September 11.—He still had some attacks of pain, but fewer, and had no vomiting. His abdomen was somewhat less distended and less tender. An enema removed a large semi-solid

motion. After an anæsthetic, Mr. Willett made an incision into the peritoneal cavity in the middle line of the abdomen, between the pubes and the umbilicus, about two inches long. No fluid came out. Some slight adhesions between the coils of intestine were felt and some broken down. On the surface of a piece of small intestine there was a small shred-like, partially organised piece of fibrin, but no sign of tubercle. He had a good night after the operation, and but little pain in the abdomen. He said he felt better. He had no vomiting and his temperature was normal.

September 12.—The temperature was normal. He had very little pain and had slept well.

September 13.—He took food well and was obviously better.

September 14.—The distension was obviously less than before the operation. Temperature normal.

September 15.—Bowels acted naturally.

September 17.—Temperature has continued normal. Pain and distension are much less. He sleeps well. Bowels opened.

September 22.—Wound quite healed. Abdomen is soft and free from distension and from pain.

October 4.—He was able to get up this day, and has begun to gain flesh.

He steadily grew stronger, and was sent to the Convalescent Hospital at Swanley, October 19, 1888.

Acute Peritoneal Effusion Cured by Tapping.

The patient was a girl aged 13 years, who came to my out-patient room, September 3, 1888, and was admitted into Mary Ward. She had been pale and out of sorts for a fortnight, and on August 29 her mother noticed that the child's abdomen was swollen, and stated that the swelling had steadily increased since first noticed. The catamenia first appeared two months ago, and had recurred twice.

The patient was somewhat anæmic. Her skin was moist, and her evening temperature was 100°. Pulse 96. Tongue furred. The heart-sounds and breathing-sounds were normal. There was some dulness at the base of both lungs behind. The abdomen was distended, the skin white and shining, the superficial veins somewhat full. There was dulness up to the umbilicus and in both flanks. Well-marked fluctuation was felt. No anasarca was present. Urine, sp. gr. 1015, acid; no albumen. No distinct local tenderness.

September 4.—Temperature—morning, 99.1°; evening, 100.5°.

September 5.—She had had a restless night and had vomited once.

September 6.—Temperature—morning, 99°; evening, 99.4°.

September 7.—Bowels, which had been constipated, opened by enema. Slightly more resistance on the left than on the right side of the abdomen. Temperature normal, morning and evening.

September 8.—The distension of the abdomen seemed slightly increased. The temperature was normal. The chest was re-examined and found normal.

The sudden onset of the ascites, the absence of any distinct tumour in any part, and the normal temperature made it possible that the case was without local cause, and comparable to an acute pleural effusion. The well-known frequency of tubercular peritonitis with varying symptoms in children suggested the probability of its presence in this case.

I decided to tap the peritoneum, meaning to have it washed out should the effusion prove to be purulent. On the afternoon of the 8th Mr. Rivers, the house-physician, tapped the abdomen 3 inches below the umbilicus with a fine trocar, and five pints of clear alkaline albuminous fluid, of sp. gr. 1027, were drawn off.

September 9.—The temperature was sub-normal. There was no pain, and the abdomen was but little distended. It did not fill again, and on September 21 there was no abnormal sensation on palpation, except a slight resistance a little to left of the umbilicus. This was difficult to define, and I am not certain whether it was in the abdominal wall or in the cavity of the abdomen.

October 4.—This resistance was a little more distinct.

October 15.—She got up.

October 20.—The resistance was still to be felt.

Some constipation continued throughout, and was relieved by enemata. The temperature continued normal. Her medicine was the nitro-hydrochloric acid draught of the Hospital from September 6 to October 22, and thence forward till her discharge on October 30, cod-liver oil and syrup of phosphate of iron. She gained flesh and colour, and was sent to a convalescent home at Norwood.

Death in Enteric Fever due to Strangulation of the Intestine by an Adhesion being formed during the Fever.

The patient, a woman aged 26 years, in Mary Ward, came under my care while on duty for Dr. Gee.

The clinical notes are those of Mr. Rivers, the house-physician, whose attention to this difficult case, as to all others in the wards, was unremitting.

Jane S., aged 26; unmarried. Was admitted into Mary Ward on July 30, 1888. She had been ailing for six weeks,

and had been worse for three weeks. For a fortnight she had suffered from slight diarrhoea and pain in the back, with occasional vomiting and shivering. She had been deaf since childhood, but the deafness had increased greatly during the last week.

On the morning of admission she had passed blood in her stools. She looked very ill and was extremely deaf.

Her skin was hot and moist, her tongue slightly dry and furred. Pulse, 120, weak; respirations, 40; temperature, normal on admission, but rose to 103° in the evening.

Some sibilus was heard over the chest.

The abdomen was slightly distended, not tender; the spleen could be felt, but there were no spots.

There was slight œdema and some ecchymosis of both legs.

Urine, sp. gr. 1015, neutral; cloud of albumen.

For several days after admission she passed liquid stools, containing a good deal of bright blood. Her temperature varied between 101° and 103°.

On August 3rd she was a good deal worse than on admission, lying always on her back, with sordes on her lips. Her abdomen was somewhat distended.

On the following day improvement set in, the temperature falling and becoming normal on the 10th, when the patient seemed to be convalescent.

On the 13th the temperature again rose to 102.2°, and she began to vomit. The fever and vomiting continued, but there was no diarrhoea, and no spots appeared.

On the 15th she became slightly jaundiced, and the urine was found to contain one-fourth albumen.

On the 20th there were two large hæmorrhages from the bowel, which left the patient in a very weak and exhausted state, while the vomiting, which had continued on and off since the 13th, became worse.

During the next few days she remained very prostrated, and had occasional attacks of alarming collapse. Bowels open once a day.

On the 24th there was a little blood passed per rectum, and the vomiting had almost ceased.

On the 27th the temperature ran up from 100° to 105.6°, and the vomiting was again very urgent. She became much jaundiced, the motions remaining dark and semi-solid.

Her abdomen became slightly distended and tender.

The vomiting continued obstinately, and she remained in a very weak and collapsed condition till her death on the 30th.

The post-mortem was made by Dr. Herringham. There was purulent peritonitis, the peritoneum containing a few ounces of purulent fluid.

A soft, organised, and apparently recently formed band reached from the outer part of the small intestine at the ileo-cæcal valve to a point 6 inches up the bowel, and another adhesion existed between two folds of intestine 6 inches higher up.

At both places the intestine was nipped, and was of a deep blue colour, as if becoming gangrenous, and at the upper place there was a small perforation.

There were typhoid ulcers at the ileo-cæcal valve, apparently healing, and above the constrictions were others nearly healed.

The adhesions corresponded to the floors of two ulcers.

The large intestine presented no abnormal appearances.

The spleen was large and soft.

There were two abscesses close to each other in the right lobe of the liver, about the size of a walnut and of a pea respectively.

The kidneys were large and soft, with adherent capsule and some swelling of the cortex.

I have never before seen a case of enteric fever in which death was due to intestinal obstruction caused by an adhesion band formed during the fever. The precise date of the beginning of the fever was somewhat uncertain, but it is probable that death took place between the fortieth and fiftieth day. The obstinate vomiting was probably due to the obstruction caused by the adhesion band.

These three cases of peritonitis suggest the following conclusions:—

1. That where there is great pain and distension of the abdomen, and the temperature is not high and the presence of fluid is uncertain, relief may follow incision and exploration even though no fluid be let out. This is perhaps due to the breaking down of slight adhesions.

2. That in acute peritonitis with large serous effusion, tapping is a more rapid and secure method of treatment than repeated purgation, while it has the further advantage of deciding the nature of the fluid, and whether further operative procedure is desirable.

3. That after the fortieth day in enteric fever it deserves consideration whether, when obstinate vomiting and some peritonitis are present, the peritoneum might be opened near the ileo-cæcal valve and washed out.

This last proposition certainly requires further evidence to support it, but in the one case here recorded the patient was exhausted by continued vomiting which could not be checked, and I think that her chances of life might have been increased, and could not have been diminished, by opening the abdomen in a region where the peritoneal inflammation was almost certain to be found, and at a time when active ulceration had probably ceased.

A CASE OF DISSEMINATED SCLEROSIS.

BY

J. A. ORMEROD, M.D.

The patient of whose case I here give the notes was under my observation for about three years, and I was able to obtain the spinal cord for examination post-mortem.

Frederick W. H., æt. 24, formerly a footman, first came to me in the out-patient room at the Queen Square Hospital on July 31, 1883.

He was a spare, rather slightly built man, complaining chiefly of difficulty in walking. He walked with his body bent forward at the hips, dragging both legs, but especially the right.

History.—He ascribes his complaint to sleeping in a damp bed in 1879. In 1880 his R. arm became a little numb, and he used to drop things from that hand. In September 1881 he used to feel numbness in the R. leg, and subsequently had difficulty in walking. Gnawing pain in the small of the back developed about the same time. He has been worse the last twelve months. Sight of R. eye said to be impaired since January 1883. He complains also of difficulty in commencing to micturate. No history of syphilis.

Examination showed (in addition to the spastic gait) slight rigidity of the R. leg, patellar tendon-reaction + on both sides, ankle-clonus on both sides, R. side more marked than L. Spinal column normal.

No tremor of arms.

No nystagmus.

Vision: R. eye reads $3\frac{1}{2}$ Snellen, but only just. L. eye reads $1\frac{1}{2}$ easily. R. optic disc a dull greyish colour as compared with L.

Hearing power, as tested by watch, normal.

I had the advantage of the opinion of Dr. Pierre Marie, who was present in the out-patient room, and we agreed that the history of slight sensory affection in the R. arm and R. leg, the

difficulty of micturition, and the changes in the R. optic disc, made it probable that the disease was something more than pure lateral sclerosis,—most likely disseminated sclerosis.

On August 21 he became an in-patient under Dr. Ramskill. No fresh symptoms were noted on admission, except that there was thought to be some loss of power in the R. arm; and although no diminution of cutaneous sensibility could be made out by examination, he could not properly feel small objects between the fingers (*e.g.*, a pen).

The superficial reflexes were increased, especially on the R. side.

Further, no family history of nervous disease could be obtained.

While in the Hospital (November 26) he once had a peculiar sensation of seeing “flashes” towards his left, followed by sharp pains on the right side of his head.

Discharged January 1884, his powers of walking being much better than on admission.

February 26, 1884.—He came again as out-patient, complaining of no new symptom; but I noticed slight lateral nystagmus on fixing to L., and still more to R. (This seemed to confirm the diagnosis of disseminated sclerosis.) The L. optic disc began to look grey like the R. In the next few months his legs got worse again, and he lost appetite.

In April had a “sudden attack of loss of sight” in both eyes. Examined ten days later: R. eye read a few letters of Jæger 14, or Snellen $6\frac{1}{2}$; L. eye read a few letters of Jæger 4, or Snellen $1\frac{1}{2}$ (the latter with difficulty). R. disc sharply cut, somewhat stippled grey appearance; arteries small. L. disc the same, but changes less marked.

July 15.—General health better after going to seaside; paralytic condition as before. On looking to R., objects seem to move (nystagmus takes place then); on looking quickly to L., he sees “lights” towards his L. hand. During the rest of 1884 his walking got worse, and he had some severe falls. His R. hand felt cold (subjectively) and the fingers weak.

In February 1885 he told me he had noticed a little shaking of the L. hand on lifting a cup of tea. I could not myself substantiate this, and it was the only time he ever mentioned anything of the kind. During the first half of this year his eyesight failed so much, that in June he had difficulty in counting the fingers at 3 or 4 feet distance.

Early in 1886 I was told he had “bronchitis” and a copious hæmoptysis. The hæmoptysis was repeated, and on 1st June there was slight dulness under the right clavicle, with faint moist râles at both apices.

From the end of June till September 14 he was an in-patient under my care at Victoria Park Hospital. Signs of phthisis were present, principally at the R. apex. It did not progress much; there was slight and occasional hectic. He had frequent dyspeptic trouble. As to the nervous disease, there was the same weakness of the legs, most marked in the R. leg, in which there was also some rigidity. The grasp of the R. hand was noted as much weaker than that of the L. The R. fore-arm and arm was smaller than the L. Sensation in the limbs was normal. The eyesight had improved at least in the L. eye; for it is noted that he could read good print with this eye easily at 9 or 10 inches. Ophthalmoscopically, there still appeared some atrophy of the discs.

During his stay he complained occasionally of jumpings of the R. leg.

On the whole, however, his paralytic symptoms improved a little; he made a better attempt at walking; the stiffness of the legs diminished somewhat, and the grasp of the R. hand is noted as having much improved (September 2).

October 17, 1886.—He came to Queen Square again. He was wheeled into the out-patient room. His legs, he said, were as weak as ever, but not so stiff. Ankle-clonus now well marked on L. side, slight on R.; patellar tendon-reactions exaggerated as before. The first dorsal interosseous muscle of the R. hand was distinctly smaller than the L. Still difficulty in micturition. Diarrhœa and abdominal pain.

He could not come again, but he wrote me several letters, complaining chiefly of feverishness, dyspepsia, and intestinal trouble. It is noteworthy that these are in a perfectly legible non-tremulous handwriting.

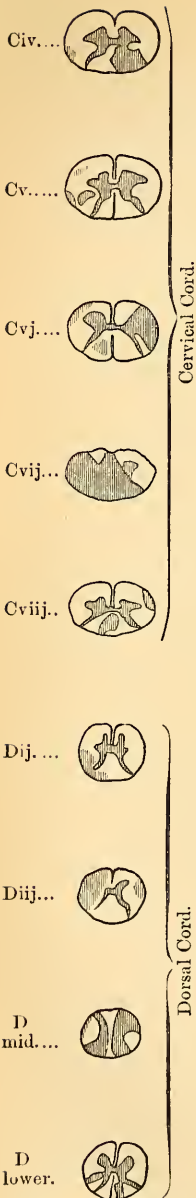
In February I was told he was much worse; he had lost the use of his legs entirely, and passed his motions under him.

He died on March 12, 1887.

I made a post-mortem about twenty-nine hours after death, but was only permitted to examine the spinal cord.

The bones and meninges were quite normal. On laying open the dural sac from behind, there came into view two grey somewhat translucent patches upon the surface of the cord; the one on the lower cervical region about an inch in its long axis, and on section occupying the whole area of the cord except the anterior part of its R. half; the second, a smaller one in the dorsal region. Their appearance looked quite characteristic of insular sclerosis. On making sections of the cord, numerous other irregularly distributed patches were seen.

In the lower dorsal region there appeared to be a grey dis-



TRANSVERSE SECTIONS OF CORD FROM CASE OF DISSEMINATED SCLEROSIS.

colouration of the postero-lateral columns, more systematic in distribution, but this I was unable to verify by subsequent microscopic examination. After prolonged hardening in Müller's fluid, sections were cut and stained, some in picro-carmin, some according to Weigert's logwood method.

The illustrations are taken from tracings of the Weigert specimens, and the following is a brief description of them:—

Civ. (fourth cervical segment, or thereabouts).—A patch of intense sclerosis occupies the R. posterior column, and transgresses the middle line into the L. column of Goll. There is a small and slighter patch on the periphery of the L. lateral column.

Cv.—The last-mentioned patch in the L. lateral column is more intense and more deeply seated. It reaches inwards and forwards nearly to the anterior grey horn. Another (slight) patch at periphery of L. antero-lateral column. Commencing sclerosis, visible only to the microscope, to the inner side of R. posterior grey horn, near the grey commissure.

Cvj.—The patch in the L. antero-lateral column is rather larger and more intense. Another covers most of the area of the L. posterior column. There is also intense sclerosis of the R. lateral column from the posterior to the anterior grey horn, and involving a considerable extent of the anterior horn.

Cvij.—A large and intense patch of sclerosis involves almost the whole area of the cord, leaving unaffected only a small piece of the L. anterior column, and on the R. side a larger area, viz., the part lying outside a line drawn obliquely backwards from the commencement of the anterior fissure through the neck of the anterior grey horn. The shape of the cord is altered in this section by flattening antero-posteriorly.

Cvijj. — Sclerosis of posterior columns, chiefly in their median parts, and near the

central canal. Slight sclerosis in periphery of R. antero-lateral column.

Dij. (about second dorsal segment).—Is practically normal. An inequality of staining in the L. lateral column appeared, naked eye, to indicate sclerosis; but this could not be verified microscopically.

Dij.—Sclerosis of almost the whole L. antero-lateral column, and to a slighter degree of parts of the posterior columns, the L. especially, and of a little place in the R. antero-lateral column.

Mid-Dorsal.—Sclerosis of R. anterior column and anterior grey horn; also of the posterior columns, and of grey matter near the central canal.

Lower Dorsal.—Some streaks in the posterior columns, the best marked being along the junction of the R. postero-median and postero-lateral columns.

[The sections here were not satisfactory, being very difficult to cut.]

The lumbar cord was normal.

Two facts are very evident from this description—firstly, the extremely irregular distribution of the lesions; secondly, the absence of secondary degeneration, in spite of the intensity and extent of some of the sclerotic patches. (Thus in Cvij. nearly the whole of the L. half of the cord is diseased, but the pyramidal tract is healthy in the sections below this, and the columns of Goll above do not appear to be systematically sclerosed.) Both these facts are well known in connection with disseminated sclerosis.

The minute changes are as follows:—

(1.) In the very early stage (*e.g.*, the microscopic patch mentioned in Cv. near the R. posterior grey horn) there is distinct overgrowth of the connective tissue trabeculæ and of the neuroglia, while the nerve-fibres imbedded therein are normal, or at most one or two appear to have fallen out, leaving an empty space. Even the myeline sheath (as seen in the Weigert specimens) is fairly preserved.

(2.) In a more advanced stage (as Cvj. L. antero-lateral column) the connective tissue overgrowth is more uniform and more closely meshed; the nerve-fibres are partly recognisable with their axis cylinders, partly are represented by small ill-defined spaces. In the Weigert specimens the myeline sheaths have mostly disappeared, but are here and there visible, faintly stained, and somewhat irregular. One or two small rounded bodies deeply stained with carmine are visible (? corpora amylacea).

(3.) In the most advanced stage (*e.g.*, Cvj. R. lateral column or Cvij. L. half) a felted web of tissue is seen, somewhat granular

in appearance. In the small faint spaces of this are seen neither axis, cylinders, nor any trace of myeline. Here and there are a few thick-walled spaces and channels, which look like irregularly shaped blood-vessels. In the grey matter (L. anterior horn of Cvij.) the large nerve-cells are preserved, but are smaller and less shapely than those of the other side.

So far, then, as these observations go, they indicate a simple overgrowth of connective tissue, followed by an atrophy of the nerve-fibres.

Of certain points which have been noticed in the histology of disseminated sclerosis I have not been able to assure myself.

(1.) That the process is any way dependent upon disease of blood-vessels in the neighbourhood of the plâques.

(2.) That there is a hypertrophy of the axis cylinders.

(3.) That the axis cylinders, at any rate in the deeply sclerosed portions, are preserved while the myeline sheath perishes.

Statement 3 has been used to explain the absence of secondary degeneration. I do not controvert it, but I have been unable in this case to make it out.

It is scarcely worth while to attempt an explanation of the particular clinical symptoms on the basis of the lesions found after death, seeing that only a partial examination, viz., that of the spinal cord, was possible. I presume, however, that the amount of transverse lesion in the cervical region will be held sufficient to account for the main symptom, paraplegia, and also for the excess of patellar tendon-reflexes, seeing that in the posterior root-zones of the lower dorsal and upper lumbar regions there was no lesion sufficient to abolish the knee phenomenon. I regret very much that I have preserved no note of the tendon-reactions in the upper limbs, which would have been of interest, looking to the more extensive sclerosis in the cervical region. The wasting in the R. upper limb, as compared with the L., is certainly not what would have been expected, looking to the preponderant sclerosis on the L. side of the cord in Cvij.

Clinically, the case possesses this much interest, that there was just enough to render the diagnosis possible on the occasion of first seeing the patient. (This I have pointed out in the history of the case.) Within eight months important confirmation was obtained by the appearance of nystagmus. But this was always slight, and from that time onwards there appeared no new symptoms of diagnostic import. The optic atrophy, which had formed at first an element in the diagnosis, after increasing for a time, finally receded so far, that, at the time the patient was in the Victoria Park Hospital, it was by no means obvious. And one important symptom of disseminated sclerosis,

viz., tremor on exertion, was conspicuous by its absence. It is true the patient once mentioned shaking of the hand (after he had been often asked about it), but I could never observe anything like the tremor characteristic of this disease, and the letters which he wrote to me, till within six or seven weeks of his death, were in a perfectly legible non-tremulous handwriting. I suppose, therefore, that, in spite of the duration of his symptoms, viz., three years under observation and three years' previous history, the disease was still in a comparatively early stage when his life was cut short by the phthisis.

A CASE OF
DISLOCATION OF THE SHOULDER WITHOUT
RUPTURE OF THE CAPSULE.

BY

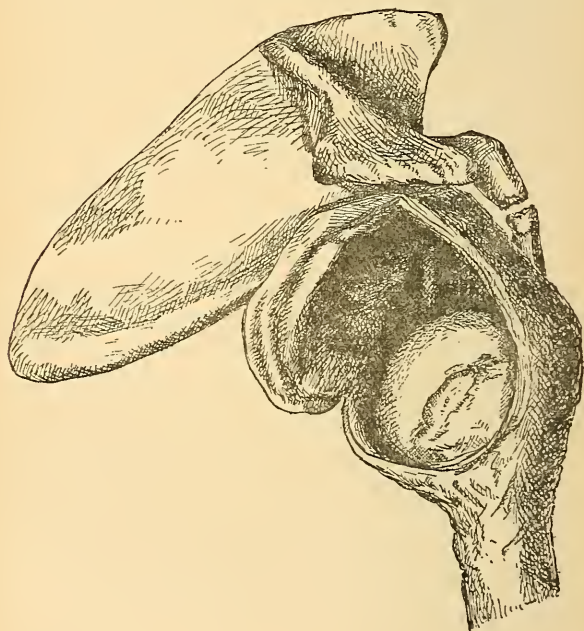
F. CLAUDE EVILL.

J. B., aged 69, a salesman at the Smithfield Meat Market, was admitted into St. Bartholomew's Hospital on December 21, 1887, under the care of Mr. Thomas Smith. He had fallen a distance of 18 feet on to the pavement of the market, pitching on his right elbow and side. On admission, he was found to be suffering from a compound T-shaped fracture of his right humerus into the elbow-joint, the condyles being separated from each other and from the shaft of the bone and a dislocation of the right shoulder. The dislocation did not exactly resemble either the sub-coracoid or the sub-clavicular varieties, the head of the humerus being more prominent, and displaced more forwards, than is usually the case in the former, and less so than is usually the case in the latter. The coracoid process was not felt, and no crepitus could be discovered. The fracture having been set temporarily, the dislocation was reduced without much difficulty under an anæsthetic. The fracture was then reset, and the limb placed upon an internal angular splint.

The patient, who was a stout plethoric man, and unaccustomed to confinement to bed, developed an acute attack of broncho-pneumonia, from which he died on the twelfth day after admission.

Post-mortem examination revealed the following interesting condition of affairs. The head of the humerus was in its proper position in the glenoid cavity, and the capsule of the

joint was found to be quite intact; it seemed more lax than it normally should be, and its attachment to the anterior border of the glenoid cavity somewhat raised, being stripped off the bone to a slight extent, but still continuous with the periosteum. The coracoid process was torn off the scapula, but was still attached to the short tendon of the biceps, and all the muscles surrounding the joint were quite sound, with the exception of the sub-scapularis, which was slightly lacerated, and into which there had been some extravasation of blood. On opening the capsule (see accompanying illustration), the joint was seen to be



blood-stained; and on protruding the head of the bone, there was evident on the extreme edge of the posterior part of the articular surface a deeply stained and distinct indentation or groove, into which, on redislocating the humerus, the lower part of the anterior edge of the glenoid cavity exactly fitted. This indentation was three-quarters of an inch long, and was almost horizontal in direction, being parallel with the groove indicating the anatomical neck of the bone, the cartilage along the margin of which was implicated. The capsular ligament along the inferior portion of the anterior margin of the glenoid cavity,

against which, on redislocation, the groove on the head of the humerus rested, also showed signs of injury, being partly loosened from its attachments to the bone, and also being more deeply blood-stained than the rest of the interior of the joint. In the joint there was a small piece of the articular cartilage lying loose.

Examination of the lower end of the humerus exhibited a very good specimen of a T-shaped fracture, the fracture through the shaft being situated just above the condyles, which were separated from each other, the olecranon being wedged in between the two fragments.

Remarks.—The dislocation was sub-coracoid, but the tearing off of the coracoid process had allowed the head of the humerus to be displaced rather farther forwards than would otherwise have been the case, thus accounting for its unusual prominence. The injury was evidently produced by indirect violence, the extent of the damage to the elbow showing the force with which the patient had struck the ground. This and the fact that the coracoid process was fractured makes it still more remarkable that the capsule of the joint was not ruptured.

The only previously recorded instance of traumatic dislocation of the shoulder-joint without rupture of the capsule is, I believe, that described by Mr. Eve in the Medico-Chirurgical Society's Transactions for 1880. In this case the dislocation was produced by direct violence, *i.e.*, by a blow on the upper and outer part of the arm, but the appearance of the joint when opened very closely resembled the appearance in this instance. The posterior surface of the head of the humerus was deeply grooved, the indentation being nearly vertical and accurately fitting the anterior margin of the glenoid cavity; whereas in the case under consideration the groove was nearly horizontal, fitting the glenoid margin at a lower level, and, though quite distinct, was a less deep impression. In Mr. Eve's case the coracoid process was not fractured, and there was no laceration of the muscles around the joint. However, the chief points—the intact capsule, the stripping of the capsule a short distance from its attachment to the bone, but without any solution of continuity, and the formation of this groove by the force with which the head of the humerus was impacted against the margin of the glenoid cavity—are precisely similar.

Mr. Eve mentions in his paper four cases of dislocation (*with* rupture of the capsule) in which a like groove had been formed by attrition between the head of the humerus and the glenoid margin. Two of these specimens are in the Museum of St. Bartholomew's Hospital, and the other two are recorded by Maligne, who in his remarks upon them makes the suggestion

that the groove may have been commenced by the force of the blow at the moment of dislocation. In the case just described it is evident that this must have been the sole cause of its formation, as the interval between the dislocation and its reduction could not have exceeded one hour.

This specimen, as well as that recorded by Mr. Eve, is in St. Bartholomew's Hospital Museum.

ON THE DIFFICULTY IN
DETERMINING BY MEANS OF MENSTRUATION
THE DURATION OF PREGNANCY,
AND ITS
MEDICO-LEGAL IMPORTANCE;
WITH NOTES OF A CASE OF
SPASMODIC DYSMENHORRŒA AND STERILITY CURED
BY DILATATION BY METALLIC BOUGIES.
BY
CLEMENT GODSON, M.D.

In the spring of 1887 I was consulted respecting a case which was coming on for trial to test the legitimacy of an infant boy. It had been proved that the mother of the boy, a young married lady, who had had one child fourteen months previously, had left her home on the afternoon of Monday, June 30, 1884, and that she was met on her arrival in London by a man with whom she eloped. A divorce had been already obtained in consequence. The lady had been taken in labour at 4 A.M. on Thursday, April 2, 1885, but the child was born on April 3, at ten minutes to three in the morning. Under these circumstances, it is only fair to accept April 2 as the date at which the pregnancy terminated. This was 276 days from the date the lady left her home, and it was not denied that she had slept with her husband up to that time. Evidence was given that on the morning of the day she left home the housemaid had found two diapers stained with menstrual blood, and that in the afternoon, after she had left home, a third was found, which was that which had been worn during the morning. It was not denied by the lady that she commenced to menstruate on the Sunday evening. In the interview that I had with her, she informed me that such was the case, and that it had commenced at its proper time, but that it ceased entirely on the Tuesday, and was a mere "show"

on that day. Previously, menstruation had always lasted a week. On this occasion, therefore, the period had lasted less than forty-eight hours, and was remarkable from its slowness and brevity. She said that intercourse with her husband had taken place on the night of Saturday, June 28—278 days before the labour occurred. Upon these statements I was asked whether I could come forward on the child's behalf to support his claim to legitimacy, and I unhesitatingly consented to do so. I believe, in law, if the husband has occupied the same bedroom as his wife, the question of sexual intercourse cannot be disputed; and therefore this lady's statement, although unable to be given in evidence, must be accepted as correct. It seemed to me, therefore, that there were only two points which could be raised against the boy's legitimacy—first, the duration of pregnancy, 278 days; and, secondly, the lady having menstruated after she became pregnant.

The case was tried in the High Court of Justice before the Right Hon. Sir James Hannen, president, and a special jury, and a verdict was given *against* the legitimacy of the boy.

Two eminent London obstetric physicians gave evidence that 278 days was an unusually long period for the duration of pregnancy, and that menstruation very rarely occurred after impregnation. In cross-examination it was elicited from both that exceptions might arise, and it was on this account that it was not thought necessary to call me or another physician engaged for the petitioner to give rebutting evidence on these points. After the verdict was given, it was stated by the counsel for the petitioner that a new trial would be applied for. I am now positively informed that the case has terminated, and I therefore feel entitled to express an opinion that there was nothing in the evidence adduced to show that the boy was not legitimate, and that therefore the verdict should have been given in the boy's favour, and not against him. With regard to the husband and wife, the behaviour of the latter robbed her of all sympathy; whereas it was felt, I have no doubt, that the husband was deserving of the greatest possible sympathy, and it would be adding insult to injury to palm upon him, to inherit his property, a child who was not unlikely to be the son by an adulterous intercourse of the man who robbed him of his wife. The law, it seems to me, has nothing to do with sympathy, but only with justice; and suppose this boy had been conceived as the result of intercourse between the husband and wife on the night of the day before menstruation occurred—278 days before the labour began—a gross injustice to this boy has been perpetrated, in that he has, because of his mother's subsequent misbehaviour, been (to use the President's words in

his summing up) "stigmatised as a bastard, and been made in the future a social outcast, and perhaps destitute."

I am going to try and show, *first*, that 278 days is not an exceptionally long period for the duration of pregnancy, and may be exceeded; *secondly*, that pregnancy occurs very commonly shortly before the approach of a monthly period; and, *thirdly*, that a woman may menstruate once, at all events, after she has become pregnant.

If I can prove these three points, then I fail to perceive what there was that was brought forward in evidence at the trial to show that this boy was illegitimate; and surely, if any reasonable doubt existed as to the parentage, the verdict in law should have been given in favour of the boy.

As the President said in his summing up, "It is to be remembered that, in any case of this kind, the law prescribes this presumption in the outset, that any child born of a married woman is to be deemed the offspring of her husband unless the contrary be shown. That is, the onus of proof rests upon those who assert that the child born in wedlock is not the legitimate offspring of the two married people."

First, then, with regard to the duration of pregnancy.

The first medical expert stated that the normal duration was from 270 to 275 days, but he added, "I should say 270 is more frequently correct. I have distinct observations upon that point." "The periods 270 to 275 days are from the last day of menstruation, not from the fruitful connection." "The recent consensus of opinion here, in Germany, and in France is distinctly to limit the period of gestation to 280 days. *To limit it to 275 is, I think, the usual opinion adopted generally now.*"

The second medical expert gave 270 to 275 days as the ordinary normal limits of gestation; "anything beyond that is verging on abnormality, at any rate, but not necessarily so."

To show how opinions differ, I will cite the following:—In the celebrated Gardner peerage case, tried before the House of Lords in 1825, Sir Charles Clarke said, "I have never seen a single instance in which the laws of nature have been changed, believing the law of nature to be that parturition should take place forty weeks after conception." That is, of course, 280 days. No less than eleven medical witnesses on the other side, however, concurred in opinion that natural gestation might be protracted to a period exceeding 300 days.

Dr. Robert Barnes in his recent work on "Obstetric Medicine and Surgery," vol. i. p. 315, writes: "A not uncommon time observed for the delivery of a well-developed child is from 275 to 280 days from the fruitful coitus; cases of children appa-

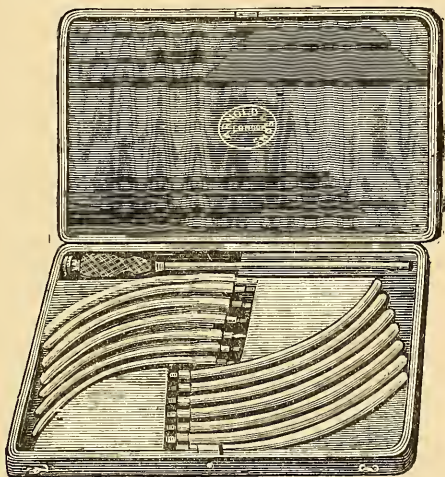
rently carried more than 280 days are exceptional." As my object is to show that 280 days is not an abnormal time for the duration of pregnancy, I give the notes of a patient under my own observation. The correctness of the facts I am prepared to vouch for, and to bring forward proofs of, if necessary.

Spasmodic Dysmenorrhœa and Sterility Cured by Dilatation by Metallic Bougies—Duration of Pregnancy 280 Days at least.

Mrs. A. B., aged 27, married two and a half years, applied to me on January 21, 1886, because she was "desirous of having a baby, and had been greatly disappointed at having been married so long without becoming pregnant." She stated that the catamenia had commenced at 13 years of age, and had always been accompanied by pain at the commencement of the flows. It had increased in severity since her marriage, and lasted for seven or eight hours. It hurts her so much that she sits doubled up, and cannot move about till it leaves her. The flow lasts six or seven days, and is very abundant on the third and fourth. When the pain is on, she retches violently, and generally vomits. The last menstrual period terminated yesterday. The intervals between the periods are generally about twenty-six days. Does not suffer from leucorrhœa. On vaginal examination, nothing abnormal was found beyond marked anteflexion. I was about to pass the sound, when the patient told me I must not do so; she couldn't stand it without an anæsthetic. It had been once done by a physician she consulted some time ago for her dysmenorrhœa, and the agony was beyond description; it was very like the pain at her monthly periods, only ten times worse. I told her that if the passage leading to the cavity of the body of the womb were dilated, there would be a good chance of the painful menstruation being relieved, and she might become pregnant. She consented to have it done. Accordingly, on the following day I visited her with Mr. Mills, who administered chloroform, and I passed bougies Nos. 6, 8, 10, 11, 12, 13, and 14; with the two last a little bleeding occurred. I wiped out the vagina with cotton wool, and cleaned away a good deal of mucus, which had escaped from the canal of the cervix during the dilatation. I used my dilators as described in a paper of mine on "Spasmodic Dysmenorrhœa and Sterility, published in vol. xxiii. of the Transactions of the Obstetrical Society of London; but I unfastened the common handle or lower part of the dilator, leaving the upper end *in utero* until the next dilator was put together, and ready to be passed.

This is an improvement upon the method previously adopted of withdrawing the whole dilator before preparing the next for

introduction. The patient kept her bed until the following morning, when she got about as usual. I did not see her again until February 25th, when she came to tell me that she had menstruated from 15th to 19th with hardly any pain. She was able to get about the whole time. The next period occurred on March 19th, lasted only five days, and was quite free from pain; and the patient left me after telling me this, saying, "If I don't have a baby, I am well repaid for the operation." She menstruated, however, only once more, from April 18th to 23rd. The confinement was calculated to take place on January 28, 1887—280 days from this date. The labour began on February 22nd, the child being born on February 23rd—306



days after the last monthly period ended. It had been believed that the patient became pregnant between April 23rd and the end of the month, during which time her husband was at home. He was away from then until May 15th, when he returned, remaining until 18th—four days. He then left home again, and was away for more than a week. The 18th May was twenty-five days after the last day of the previous menstruation, and just before the next period was due. It seems, therefore, conclusive that the patient became pregnant between May 15th and 18th. Taking it to be at the latest possible time, on May 18th, that would be 280 days before the labour began. The duration of the pregnancy could not have been less, though it might have been three days longer, 283 days, or, if occurring after the last menstrual period, when the husband was at home,

between 300 and 306 days possibly. But we will accept the shortest limit, viz., 280 to 283 days, which is by far the most probable. This case, I think, shows clearly that pregnancy occurred *shortly before menstruation was expected*, and that the duration of pregnancy was at least 280 days.

In respect to menstruation occurring before pregnancy, it is not at all an uncommon thing for a woman to go over 300 days from the last day of menstruation till labour commences. I am sure that I have met with examples of this among my own patients every year since I have been in practice. Have not most medical practitioners learned this to their cost who have relied on the confinement of a patient taking place at the expected date to set them free to leave for their holiday? It has not occurred till over three weeks late—that is, 301 days—or more, and their holiday has been lost.¹

I have met with many instances in both private and hospital practice in which women have married shortly before a menstrual period was due, which has never taken place, pregnancy preventing it. Such cases must be familiar to all practitioners. In my opinion, it is excessively common for pregnancy to occur towards the end, and not at the beginning, of the intermenstrual period. I never was more astonished at anything than to hear the medical expert No. 1 state that, to determine when labour was likely to occur, 270 to 275 days was reckoned from the last day of menstruation. It has been my rule, ever since I commenced practice, to calculate 280 days (forty weeks) from the last day of menstruation, and I almost always find the confinement takes place at a later date—very rarely before—and often *much* later.

Lastly, *Does menstruation occur during early pregnancy?* Medical expert No. 1 answered in cross-examination: "There have been cases in which pregnancy has taken place and menstruation occurred afterwards, but they are exceptional cases."

Medical expert No. 2: "I have repeatedly seen menstruation occur at all stages of pregnancy."

After such admissions it seems almost superfluous to go further.

However, Dr. Playfair, in his work on "The Science and Practice of Midwifery," writes "that menstruation may go on for one or more periods after conception; instances of it have probably come under the notice of most practitioners."

¹ At the meeting of the Obstetrical Society of London in March last, an abstract was furnished by Robert Boxall of a paper on "Scarlatina during Pregnancy and in the Puerperal State," in which is a tabulated series of cases from the General Lying-in Hospital. In this I find that, out of the ten patients delivered at full term, no less than three reached or exceeded 300 days from date of end of last menstruation, 305, 300, and 303 days respectively.

In Dr. Matthews Duncan's "Researches in Obstetrics," 1868, p. 165, we find the following: "Now, whilst most obstetric authors of repute have, with great reason, doubted or denied the occasional presence of real menstruation during the latter months of pregnancy, they have very generally admitted its occurrence, frequently once, more rarely twice or thrice, after conception;" and at p. 167: "From these considerations it is manifest that the secretion of the menstrual fluid from its ordinary source and its subsequent discharge are in no manner impossible in early pregnancy. It is known that during pregnancy, maturation of Graafian vesicles and the discharge of ovula do not generally take place. But the occasional occurrence in early pregnancy of menstruation, with all its ordinary symptoms, suggests the probability that at such times perfect ovulation may take place. Should this happen, we have shown that there is no anatomical reason during the first three months of pregnancy why the ordinary menstrual flux should not proceed from its ordinary source, the mucous membrane of the body of the uterus, now altered into the decidua vera of early pregnancy."

"That menstrual congestion," says Schultze, "often occurs during pregnancy is undoubted; menstrual bleeding also takes place." Kreuzer made the autopsy of a woman who had arrived at the fourth month of pregnancy, and who had appeared to menstruate thrice while in this condition. Not long ago a patient of mine, pregnant for the first time, was coming to London to be attended by me in her confinement. She was taken in labour in the country three months earlier than was anticipated, and I was summoned by telegram. On my arrival, I was astonished to find that a healthy girl, weighing upwards of eight pounds, had been born. A careful inquiry elicited clear testimony that the lady had menstruated regularly up to six months previously.

Dr. Barnes gives a case of great value, on account of its reliable authenticity, bearing on the case before us.¹ "A lady who had been married several years without issue, the cause being a contracted os uteri externum, was operated upon by Robert Barnes on December 1st. Marital intercourse for the first time after the operation took place soon after the succeeding menstruation, *i.e.*, on December 15th. *The catamenia appeared very slightly on January 6th.* She was delivered of a healthy mature boy on October 3rd—that is, after 270 days' gestation." By this we see the patient menstruated once slightly after she became pregnant.

¹ Obstetric Medicine and Surgery, by Robert Barnes, M.D., and Fancourt Barnes, M.D. (1834).

In this case it seems clear that the patient was three weeks pregnant when the scanty menstrual period occurred. In the case I am discussing it is alleged that the lady conceived immediately before menstruation was due. It appears to me, therefore, a very likely thing that a modified menstrual flow should follow.

If her statement of the short duration of her last menstrual period be disbelieved, and it be surmised that it lasted the usual time, and that the pregnancy took place after this, the confinement would have been expected to occur, calculating in the usual manner, on April 12; but we find that labour began ten days before this, a point in favour of the pregnancy having occurred before the last menstruation.

I venture to express the opinion that I have shown that—1st, pregnancy commonly occurs immediately before menstruation is expected; 2nd, that menstruation during *early* pregnancy occurs so commonly, that, to use Dr. Playfair's words, "instances of it have probably come under the notice of most practitioners;" 3rd, that 278 days is by no means an uncommon length of time for the duration of pregnancy. How then was the verdict of this special jury so quickly arrived at that this boy was not the child of the husband? for they took but two minutes to return it.

The conclusion of the President's summing-up was as follows:—

"It is for you to judge upon the evidence whether or not it has been established to your minds that the period passed in this case is an impossible period of gestation, and so excluding the idea of the husband being the father of the child. . . . I have gone through the several facts of the case, and the question which I leave to you is this—whether you are convinced by the evidence in the case that this child was not the child of the husband? and my concluding words to you shall be borrowed from the judgment of a very great judge, Lord Lyndhurst. . . . He uses this language, which I commend to your attention:—'My lords, this then is the view I have always taken of the law connected with this subject; at the same time, as I before expressed, and I now feel, that presumption of law, which is that a child born in wedlock is the child of the husband, that presumption of law is not lightly to be repelled. It is not to be broken in upon or shaken by a mere balance of probability; the evidence for the purpose of repelling it must be strong, distinct, satisfactory, and conclusive.' And it will be for you to say whether this evidence does not establish to your mind conclusively, not by way of conjecture, but by way of conviction, that the child was not the child begotten by the husband."

RESORPTION DIABETES OF LACTATION.

BY

CECIL J. DAVENPORT.

The subject of this paper was suggested by the occurrence of several cases in "Martha" illustrating it during my six months of office. Its object is to show that in early lactation (one to five weeks) but little, if any, of the lactose formed by the mammary glands is reabsorbed into the circulation and excreted into the urine, either during lactation or when it is suddenly suspended; but that when, after the lapse of five to six months, lactation is suddenly suspended, large quantities of lactose may be found in the urine.

Various authors have alluded to this subject; thus—

Dr. Barnes:—"Twenty years ago I elaborately investigated the subject. I frequently found sugar—it is a physiological condition—not constant, however. Dr. Siney has shown that when lactation is suppressed glucose appears in the urine" (*Obstr. Trans.*, vol. xxiv. p. 284).

Dr. J. M. Duncan:—"Verifying the French researches, I have found slight glycosuria in every nursing woman" (*Ibid.*).

Landois and Stirling:—"Milk-sugar is sometimes found in the urine of women who are nursing. When the secretion of milk is arrested, absorption takes place from the breasts" (*Physiology*, vol. ii. p. 626).

My results only partially verify these statements.

I tested specimens of urine obtained from eighteen different cases in our Maternity Department. It was obtained before, during, and as late as three weeks after labour, and, with the exception of one case, I failed to detect any sugar. In some cases the urine was taken after lactation had been suspended owing to the death of the child, but even here I found no sugar.

The exceptional case was that of a primipara, whose urine I examined four times, with these results:—

Second day after labour.—Urine, sp. gr. 1025 ; sugar present.

Tenth day after labour.—Urine, sp. gr. 1025 ; sugar ; albumen a trace ; urates.

Fifteenth day after labour.—Urine, sp. gr. 1036 ; sugar ; no albumen ; urates.

Twenty-first day after labour.—Urine, sp. gr. 1025 ; sugar.

One specimen of this urine—that of the fifteenth day—Dr. Russell kindly examined for me. He obtained a good precipitate with Pavy's solution, but only a dirty brick-red colour with Trommer's test and Fehling's solution. Further, after testing his reagents, he added to the urine a strong solution of glucose, and even then failed to get any clear evidence of the presence of grape-sugar. Thus it seems, looking at it from this one case, that under certain conditions the urine may contain grape-sugar in large quantities, and yet give no satisfactory evidence of its presence with the tests ordinarily used.

On the other hand, in cases where lactation was suddenly suspended by the mother's admission into the ward, after it had continued three to six months, abundant evidence of milk-sugar being present was obtained. The specimens to be tested must be fresh, or lactic acid fermentation will have set in, and the result be negative. Possibly this may be the cause of my failure in the above cases, as they all were necessarily some hours old.

The specific gravity of the urine in this set of cases is raised, but the quantity secreted is not increased, nor is there any increase of appetite or thirst. The sugar seems to be absorbed and passed into the urine twenty-four hours after the child is taken from the breasts: it continues to be present three to four days.

The following are two out of nine cases which occurred in the ward:—

I.—C. L., æt. 32. Admitted to "Martha," January 27, 1888, with hæmorrhage. Child five months old; suckled till admission.

January 27.—Urine, sp. gr. 1047 ; acid ; much sugar ; urates.

January 29.—Urine, sp. gr. 1035 ; albumen a trace ; sugar a trace ; quantity of urine passed, $\bar{3}$ 30.

January 31.—Urine, sp. gr. 1025 ; no albumen ; no sugar ; passed $\bar{3}$ 16.

February 2.—Urine ; no sugar ; passed $\bar{3}$ 40.

February 3.—Urine ; no sugar ; passed $\bar{3}$ 30.

In this case alone sugar was found the same day that the child was taken from the breasts.

II.—C. S., æt. 25. Admitted to "Hope," October 1, 1887. Diagnosis—(1.) debility (*res duræ*); (2.) glycosuria. Child six months old; suckled till admission. No increase of appetite, thirst, or urine.

October 3.—Urine, sp. gr. 1035; albumen; sugar.

October 4.—Urine, sp. gr. 1036; no albumen; sugar.

October 5.—Urine, sp. gr. 1025; no albumen; sugar.

October 6.—Urine, sp. gr. 1029; no albumen; sugar; passed $\bar{3}46$.

October 8.—Urine, sp. gr. 1020; no albumen; sugar trace; passed $\bar{3}33$.

October 9.—Urine, sp. gr. 1023; no albumen; sugar trace?; passed $\bar{3}32$.

October 10.—Urine, sp. gr. 1023; no albumen; no sugar.

These facts exactly corroborate the previous observations.

Between these two classes of cases there lies a third, in which suckling, after it had continued five to six weeks, was suspended suddenly. The urine of three such cases gave evidence of but a trace of sugar. Thus it seems in early lactation but little sugar is reabsorbed, and therefore presumably existent in the milk; but as time goes on, the quantity gradually increases.

Dr. Barnes quotes Dr. Sinely thus: "When lactation was suppressed, glucose appeared in the urine."

Dr. Russell has several times kindly tested the specimens from "Martha" for me, and reports: "The reaction is not that of glucose, nor does it give the carbonic acid fermentation test. Its reaction, however, closely resembles that given by a solution of lactose in normal urine."

In a case of pernicious vomiting, published by Dr. Collins in our Hospital Reports, vol. xix. p. 123, after labour had been induced, sugar was present in the urine for a few days. It could hardly be put down to resorption, for the sugar did not appear until five days after the child's birth, and the quantity of urine secreted rose from 52 to 78 ounces per diem. As the liver was diseased, it seems most likely the temporary glycosuria was due to this cause. The patient was put on "diabetic" treatment and got quite well.

PERFORATING WOUNDS OF THE ORBIT.

BY

W. MORRANT BAKER.

That the orbit forms an easy route by which a weapon may enter the brain has been recognised ever since men fenced and fought; and curious facts in connection with the surgery of perforating wounds of the orbit are well known to those whose attention has been specially drawn to such injuries. To many, however, they may be less familiar; while even those more or less acquainted with the literature of the subject may be glad, I have thought, to have an account of some cases hitherto unrecorded.

The following case was admitted into St. Bartholomew's Hospital under my care near the end of the year 1883. For the notes, from which I have made a brief abstract, I am indebted to Mr. George F. Aldous.

CASE I.—A man, T. J., 26 years old, was admitted into Harley Ward on the night of the 22nd December 1883, in a comatose condition.

When brought to the Surgery at about eight o'clock in the evening, the patient was insensible, and on the supposition that he was drunk, various remedies were employed by the House-Surgeon on duty. The stomach was emptied of about two quarts of a blackish fluid; the galvanic battery was used, and hot coffee was given, but all without avail, so far as rousing him from his insensible condition was concerned. He was, therefore, removed to the ward.

On further investigation, it was found that the patient had lost power of motion in the left arm and leg; the pupils were contracted, and did not act to a strong light.

The only sign of injury was a small wound just beneath the

left lower eyelid. The wound was about half an inch in length, but did not gape. Indeed, on superficial examination, it looked more like a small cut or slit in the skin, such as might have been produced by the point of a gold pencil-case, than the orifice of a deep wound; and it is stated in the notes, taken at the time, to be apparently superficial, although "inclined to track over to the right side." No other indications of injury were observable in the neighbourhood, excepting some slight ecchymosis.

The only history then obtainable was, that the patient had been drinking at a public-house, and had been struck in the eye with a stick by a man with whom he was quarrelling. He was said to have fallen down, and to have struck his head against the bar-counter as he fell.

Looked at in the light of subsequent events, the cause of the symptoms became clear enough; but at the time, and for some days after the man's admission, no clear history was obtainable. It was thought by some that he had a fit, and that the apparently superficial wound under the eye might have been produced by his striking his face as he fell. This notion seemed somewhat confirmed by the opinion expressed by one of my medical colleagues (who kindly saw the patient at my request), that the case was indistinguishable from one of ordinary hemiplegia in connection with apoplexy, and he was disposed to think that the history of the injury, as a cause of the symptoms, arose from a mistaken notion by the bystanders of the sequence of events.

December 23.—The patient has been purged by a dose of calomel gr.ijj., administered soon after his admission. Some urine has been passed involuntarily. This morning the patient is partially conscious, and gave a more or less rambling account of having been struck by a stick. Temperature, 103° . Head was shaved and an ice-bag applied.

December 25.—Temperature, 99.8° .

December 26.—This morning the patient was sufficiently sensible to be able to speak about the quarrel in which he had been struck. There was some diarrhœa, and the incontinence of urine continues. The general condition is not so good. Temperature, 102° .

December 27.—The patient died this morning (fifth day after his admission into the Hospital). The temperature had steadily risen since yesterday morning to over 105° . During the last few days some ecchymosis had been observable in both the upper and lower eyelid.

At the post-mortem examination:—"On removing the skull-cap, no extravasation was found on the surface of the brain, but the posterior veins were very full, especially on the right side. On

removing the brain, extravasated blood was found beneath the middle lobe of the right side; and a small cavity, sufficient to admit the tip of the little finger, was found in this part of the brain, tracking backwards and outwards into the middle corner of the right lateral ventricle.

“The right posterior clinoid process was found fractured, and a probe could be passed from a hole in the floor of the sella Turcica outwards through the lesser wing of the sphenoid bone and orbital plate of the ethmoid bone, until the point emerged through the external wound beneath the left eye. The tip of the posterior clinoid process was loose, and had apparently damaged the middle cerebral artery, or a large branch of it.”

From the post-mortem examination, therefore, it was clear that the symptoms had been caused by a perforating wound of the orbit; and that the weapon of offence, to have produced such injury to the base of the skull and brain as was discovered, must have passed in for at least four inches from the external wound.

In the course of the criminal trial which succeeded the inquest in connection with this case, the stick which caused the injury was produced, and is now in the Museum of St. Bartholomew's Hospital. It is about 30 inches in length, measuring at the end which must have entered the patient's skull a quarter of an inch in diameter and an inch and a quarter in circumference round the first knot.

The facts are unquestionable; otherwise it would seem impossible that a weapon of such a size could enter the orbit and break through the base of the skull, leaving externally such slight indications of injury. That such an injury, too, should have been inflicted without the bystanders' special notice having been attracted by the depth to which the stick penetrated, is sufficiently remarkable.

The prisoner was sentenced to eighteen months' imprisonment with hard labour.

CASE II.—For several years a drover's stick lay in one of the anatomical cases in the Museum of St. Bartholomew's Hospital, and will be remembered by many old students in connection with the history, as related to them by Mr. Luther Holden, of how it gained a place there. No formal account of the stick



Fig. 1.

and its tragic history appears to have found its way into the catalogue; and I am, therefore, very glad to insert the following account, given to me in a letter from Mr. Holden, dated November 8, 1888:—

“I well remember the case of wound in the orbit, concerning which you ask information. I had hoped the preparation (stick and all) was still in the Museum. The facts are as follows:—

“Two drovers were at loggerheads in the market. One of them poked his stick into the other’s left eyelid, just below the edge of the orbit. When I saw the case, the wound was plain enough. The eye itself seemed uninjured, and I think he could see with it. Doubtful as to the depth of the wound, we thought it best to take the man into the Hospital. I believe he was quite himself, and walked into the ward. The lid was swollen, and the eye could not be opened (by the patient). For some days there were no serious symptoms, and we expected the man would recover. However, after a week or thereabouts, the man became comatose, manifestly suffering from brain mischief, and so he died.

“I made the post-mortem examination, and found that the stick had penetrated through the sphenoidal fissure into the middle lobe of the cerebrum, and produced suppuration in the brain substance.

“The to me interesting part of the case was the fact that the lesser wing of the sphenoid was broken at its junction with the body of the bone, but not displaced. The end of the stick, in passing through the fissure, had lifted up the little wing and broken it. It required a careful examination to discover this fracture. To make myself very sure of it, I went a second time to the dead-house. My idea was—How could the stick have gone through the fissure unless there had been a fracture? There would not have been room enough. A close examination convinced me of the fracture.

“Well, the prisoner was tried at the Old Bailey, and the defence was that the brain lesion was not caused at the time of the injury, since the stick could not have passed through the fissure of the bone. Counsel was not aware of the fracture until I was put into the box and told the whole truth. I well remember the sensation in court and the paralysis of prisoner’s counsel when my evidence was given.”

The prisoner got twenty years’ penal servitude.

CASE III.—Mr. Lawson¹ quotes the case of a man who was

¹ *Injuries of the Eye, Orbit, and Eyelids*, by George Lawson, F.R.C.S., Eng. (1867).

admitted into the Middlesex Hospital, October 6, 1866, under the care of Mr. De Morgan, having been prodded in the left eye, two days previously, with the ferrule end of an umbrella.

"On admission, he presented a lacerated wound of the left upper eyelid. He appeared very drowsy, but was aroused by being loudly spoken to, when he answered questions rationally, and narrated clearly the circumstances of the injury, but relapsed immediately into his previous drowsy and semi-conscious state.

"A few days after his admission he was attacked with an erysipelatous inflammation around the wound, which was accompanied with delirium. Under treatment these symptoms gradually subsided. The man rallied from his delirium and became rational, but he continued very drowsy until a few hours before his death, when he sank into a state of profound coma, in which he died, on the twenty-first day after his admission into the Hospital."

At the post-mortem examination:—"A jagged wound, about three-quarters of an inch in length, was seen in the *left* upper eyelid, with considerable swelling of the surrounding parts. After removing the skull-cap and raising the anterior lobe of the brain, a piece of bone rather larger than a sixpenny-piece was found to have been broken out of the orbital plate of the frontal bone, which had pierced the dura mater and been thrust into the substance of the brain.

"On making a section of the brain, the wound of its anterior lobe was found to communicate with the left lateral ventricle, which contained a quantity of pus. The *right* ventricle contained some serous fluid, but no pus. The other organs of the body were healthy."

CASE IV.—Mr. J. M'Carthy has kindly given me the following note of a case, hitherto unpublished, which occurred many years ago at the London Hospital:—

"A lot of men were drinking in a public-house. Presently all but one left. This one was apparently drunk, and the landlord let him sleep in an outhouse; but finding him in the same state next day, sent him to the London Hospital, where he was admitted under the care of Mr. Couper. He was insensible and feverish, and died a few days after admission. At the post-mortem examination, perforation of the right orbital plate and meningitis were found; and on examination a small wound was discovered in the right upper eyelid leading to the hole in the bone. It looked as if it had been caused by the stem of a 'churchwarden.'"

In the following cases the immediate damage to the brain was less severe, but in the end proved fatal from the secondary results of the injury.

CASE V. (For the notes of this case I am indebted to Mr. Sydney Beauchamp.)—"J. R., aged 3 years, was admitted to Lawrence Ward, under the care of Mr. Marrant Baker, on the 13th of June 1884.

"About three o'clock in the afternoon of June 11 he fell on the pavement and bruised the right orbital region. On the 12th and 13th he complained of headache and sickness. Early in the evening of the 13th the child felt dull and sleepy; about eleven o'clock on the same evening he was seized with 'convulsions,' and at midnight was brought to the Surgery in a semi-comatose condition.

"On admission, the patient had a swelling over the right orbital region, with some ecchymosis of the right eyelid. He had paresis of the left limbs, with twitchings of the muscles over the whole of the left side, face included; he was in a semi-comatose condition, and exhibited Cheyne-Stokes breathing; the pupils were equal, and were insensitive to light; there was no strabismus, and no conjugate deviation. Pulse, 120, small and regular. Temperature, 101.2°. No lesion of cranium discoverable.

"An ice-bag was applied to his head and hot-water tins to the extremities, and three grains of calomel administered. With this he fell asleep quietly; his breathing became natural; the twitchings in the limbs and the paralysis disappeared.

"On the 14th he vomited once, and on the morning of the 15th there was much vomiting. His temperature, which was high and fluctuating, rose from 101.6° at 2 A.M. on the 15th to 105.2° at 9 A.M. on the same day, but sank a little during the day.

"On the 16th the child became less sensible; breathing quick and shallow. Pulse, 120, very small and thready.

"On the 17th a protrusion of the right conjunctival membrane was punctured, and some serous fluid escaped.

"At 9.15 A.M. on the 19th the patient had a well-marked rigor; hot brandy was given, and hot tins applied to the body. The right eyelid was still swollen and erythematous, pus (?) and serum escaping between the lids. The eyeball was protruded outwards and downwards. The breathing presented the characters of Cheyne-Stokes respiration. Temperature still high and fluctuating.

"June 20.—The abscess which had formed in the orbit was incised by the House-Surgeon, Mr. Toller, and some foetid pus escaped; the probe reached bare-bone.

"June 23.—The child had a slight cough, and became queru-

lous and fretful. He lay with his limbs flexed and head strongly retracted.

“On the 24th he had an attack of diarrhœa, and became very weak; continued fretful and restless; screamed occasionally, and complained of headache. No delirium. Temperature high and variable. The breathing, at one time quiet and deep, became at another rapid and shallow. He was sometimes sensible, sometimes not; occasionally convulsed.

“From this time the patient became gradually worse until the 7th July, when he died at 1.15 P.M. On the 8th of July a post-mortem examination was made, which revealed a scar, quite healed, at the reflexion of the conjunctiva from the upper eyelid to the globe of the eye. Corresponding to this there was a punctured fracture through the roof of the orbit; and there was an abscess invading the tissues of the orbit. On examining the

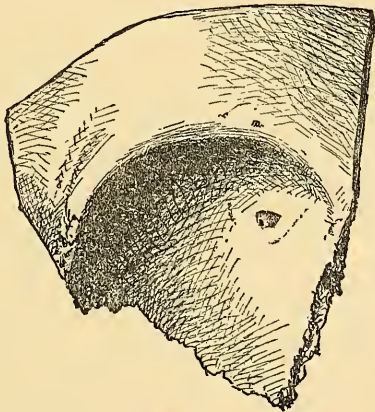


Fig. 2.

brain, a large cerebral abscess was seen to occupy nearly the whole of the right frontal convolutions; no foreign body could be discovered in it. The lungs showed signs of broncho-pneumonia, but the other viscera were healthy.”

The orbital plate and adjoining portion of the frontal bone are now in the Museum of St. Bartholomew's Hospital (fig. 2), and show well the small punctured fracture, which must have been produced by the entrance of some sharp instrument beneath the upper eyelid at the site of the scar found in this region at the post-mortem examination.

CASE VI.—The following case is recorded in the *Lancet* (1884, vol. i. p. 205) by Dr. J. H. Jackson:—“W. N., aged 7, a strong and apparently healthy boy, came to the Infirmary [Royal Albert Edward Infirmary, Wigan] on March 31. His

mother, who accompanied him, stated that about an hour previously the child had been playing with a piece of wood about 2 feet long and half an inch in diameter, when he suddenly fell with his face on one end of it while the other was on the ground, and on rising up the stick was 'fast in his eye,' and had to be pulled out. On examination, there was marked ecchymosis of the inner side of the left eyeball, but no apparent wound. There had been no vomiting or fainting; the pupils were equal, and the boy presented no abnormal appearance. The mother was requested to leave him in the Infirmary, but she refused. On the following day the boy walked to the Infirmary and home again, about two miles, and again presented no abnormal symptoms. On April 2 the lad walked to the Infirmary in the afternoon, and as he appeared a little dull and sleepy, his mother consented to his remaining. In the evening his temperature was 99.2° , and he took his food well, and slept soundly during the night. At nine o'clock next morning (April 3) he still appeared well, although the pupil of the injured side was dilated, and the temperature was 100.4° . At 10.30 A.M. he was found to be suffering from a marked convulsion. He had vomited immediately before the convulsion came on. After this he never regained consciousness, and died about 1.30 P.M., three hours after the first serious symptom set in.

"*Necropsy* (April 5, 10 A.M.).—On removing the brain, a perfectly round perforation of the orbital plate of the left frontal bone was found, about half an inch in diameter, and evidently made from without inwards, as the inside edges were raised up. At the corresponding point of the surface of the brain a wound was found, through which the little finger easily passed into the lateral ventricle of the corresponding side. Along this tract there was some pus, and the brain-tissue was evidently disorganised. All the other organs were healthy.

"The only remedies employed were purgatives, rest, and applications of ice to the head."

This case is of much interest, as Dr. Jackson remarks, "(1) because of the small external mark of violence, the stick having passed between the inner side of the eyeball and the inner canthus, without wounding either the eyeball or the canthus, and therefore apparently leaving no wound at all; and (2) because of the almost entire absence of symptoms until three hours before death."

CASE VII.—This case is related by Mr. J. W. Hulke in the "System of Surgery," 3rd edit., vol. i. p. 586:—"A little girl, æt. 6 years, falling with a piece of slate-pencil in her hand, it

pierced her right eyebrow near its inner end, and broke short off. Admitted soon after into the Middlesex Hospital at 6 P.M. in May 1870, the House-Surgeon took out of the wound several splinters, composing, as he thought, the whole piece, covered the wound with a pad of lint, and had the child placed in bed. Her general condition did not betray the serious nature of the injury. She slept quietly through the night, and next morning did not appear much worse for the accident. In the afternoon, when I then first saw the child, I detected with the probe another splinter of the pencil, and enlarging the little puncture, exposed a piece of pencil tightly plugging a hole in the bone. Enough of this was cut away cautiously with a gouge to allow the pencil to be grasped with a forceps. It proved to be shattered, and splinters representing a cylinder three-quarters of an inch long were removed. Intra-cranial inflammation (indicated by convulsions, delirium, a high temperature [103° F.], and rapid pulse) supervened. On the ninth day after the injury the temperature fell to 97.5° (the child had passed a quiet night and took her food better), and from this date it continued sub-normal, or only slightly exceeded the normal average until the sixteenth day, when it rose suddenly to 104° . With this elevation of temperature there were associated restlessness, delirium, a flushed face, screaming, vomiting, convulsions, and coma. Death occurred about twenty-four hours later. At the necropsy a large abscess was found in the frontal lobe of the right cerebral hemisphere. It enclosed a piece of pencil about one inch long, and it had evidently quite recently burst into the anterior horn of the lateral ventricle. It is a matter of regret that the trephine was not employed instead of cutting away the bone around the pencil, which had the effect of loosening the splinters, and contributed to the fatal mistake that the whole piece of pencil had been removed."

CASE VIII.—The following paragraph went the round of the daily and other papers a few months since:—

"Extraordinary Cause of Death.—On the 13th inst. Mr. Baxter, the Coroner for Eastern Middlesex, held an inquiry touching the death of a commercial traveller who died recently in the London Hospital. About seven weeks ago the deceased, who had previously been in good health, complained of pains of the head and shivering. A local surgeon was sent for, who diagnosed bronchitis. After a time, finding he became worse, his friends took him to the London Hospital, where he was received by Mr. Doyle, the House-Surgeon. According to this gentleman's evidence, the deceased then appeared

drowsy, and complained of a pain in his head. He continued in that state till the 10th inst., but at times appeared quite clear-headed and rational. On the 10th symptoms of apoplexy appeared, and deceased expired at twelve o'clock the same night. Since death he had made a most searching examination of the head and brain. On opening the former, he discovered an abscess in the brain. It was about the size of a turkey's egg, and had evidently been there some time. On removing the abscess from the base of the brain, a penholder and nib were found protruding from the top of the right orbital plate. The pen was exceedingly sharp, and together with the holder measured nearly 3 inches. This had produced the abscess, and the abscess had caused death. The holder and nib were of the ordinary kind generally used in schools, and they must have entered the brain by way of the right eye or through the right part of the nose. There was no evidence to show how long they had been in the brain, but it was probable that they had been there for a considerable time, as the bone had grown over them, and it was with difficulty they were separated. He had examined the eye, but had failed to detect any injury. It was, however, quite possible for such a thing to enter beneath the lid of the open eye, and the wound to heal up showing no signs of the entry. The widow of the deceased states that her husband never mentioned to her anything about having been injured by a pen."

On inquiry, I am informed that the facts, as given in the paragraph, are fairly accurate; and that Dr. Stephen Mackenzie (under whose care the patient was admitted into the Hospital) intends to publish the case with full details.

Perforating wounds of the orbit, although involving serious injury to the brain, are of course not necessarily fatal. As an illustration of this fact, I may quote the following remarkable case, which was recorded by Dr. Steavenson in the 15th volume of St. Bartholomew's Hospital Reports. Although reported so recently, I shall be forgiven for inserting it here at some length in connection with the other cases which are so nearly allied to it:—

CASE IX.—“J. D., æt. 21, a gentleman's groom, was admitted into St. Bartholomew's Hospital [under the care of Dr. Southey], April 23, 1879, recovering from right hemiplegia.

“About sixteen months before, at his master's residence in the country, when larking in the servants-hall, he attempted to kiss the kitchen-maid. This young person had been engaged in knitting, and had one of the knitting-needles placed behind her left ear. As the face of the groom approached that of the young

woman, the knitting-needle entered his left orbit, passing between the bone and the eyeball, to the depth, it is said, of four inches, no doubt entering the brain. It must be supposed that the ardour of the young man was extreme, and that most likely the needle obtained a *point d'appui* in the lady's back hair; but such was the confusion following the occurrence, that the history on these points is not very clear; but this much is certain, that J. D. retired from the encounter with the knitting-needle protruding from his orbit. He says he removed it with his own hand; it was followed by some bleeding, and he then fainted. We therefore have no accurate knowledge of the exact direction of the implement, but, from the symptoms which followed, it is very probable that it passed through the sphenoidal fissure, and must ultimately have injured the brain somewhere in the region of the left frontal convolution, or what is called Broca's convolution.

"The injury at the time caused the patient intense pain, but did not injure his sight. Up to the fifth day after the accident he could talk and use his right arm and leg. Then he lost all power over his right upper extremity, sight, and leg. The lower part of the right side of his face was paralysed and he could not whistle. The right side of the tongue was also paralysed. The paralysis came on at night. At first the paralysed parts felt cold and dead, but he did not lose sensation. He lost the power of speech for two months. On his admission to the Salop Infirmary at Shrewsbury, a short time after the accident, he could only say the words 'Yes, yes,' which he answered to every question."

The almost total paralysis remained as long as the aphasia, viz., for two months.

At the date of Dr. Steavenson's note, the patient was gradually recovering power over all the paralysed parts.

Since the accident the patient had had three epileptiform fits.

The patient remained under Dr. Steavenson's observation about five weeks. Galvanism was applied, but very little improvement was observed in his condition from the time of his entering the Hospital, the contraction and rigidity of the flexors of the forearm being of too old standing to expect much improvement. He had no fits while under treatment.

In view of the route taken by the foreign bodies, in several of the cases related in this paper, Dr. Steavenson's experiments on this subject are of much interest.

"In the post-mortem room," adds Dr. Steavenson, "I have passed a knitting-needle through the left orbit of several bodies, the brains of which were afterwards examined, and have ascer-

tained that this part of the brain [Broca's convolution] could be injured in the way described.

"The needle would pass through the outer angle of the sphenoidal fissure into the fissure of Sylvius, injuring the outer part of Broca's convolution. If pushed in four inches (as stated by the patient in this case), it would enter the corpus striatum. In several of the experiments I have made the needle took this course.

"It was only by placing the needle in this position that I was enabled to injure Broca's convolution. It was not the direction taken by the needle when placed between the eyeball and the bone, and, being pushed, left to take its own course. Under these circumstances it always preferred the wider end of the sphenoidal fissure, and passed parallel with the third nerve, keeping clear beneath the base of the brain, and ultimately entering the medulla oblongata. . . . I do not think the needle pierced the orbital plate of the frontal bone, for in all the experiments I have referred to, the needle always seemed to pass towards the sphenoidal fissure, the orbital parietes having a tendency to direct its course whenever it impinged upon them, and it required the assistance of a hammer to force the needle through the orbital plate."

CASE X.—In the *Lancet*, 1838, vol. ii. p. 16, Dr. Selwyn records the case of a man (20 years old at the time of the note), who, when 4 years old, "was eating his dinner, his plate being on a kitchen-chair; near him was another chair; he placed a foot on a bar of each chair; the chairs receded from each other in consequence of the motion given to them while his limbs were extended. He fell, and the knife entered in the following manner:—

"The father of the boy, at the time of the accident, told me that it required all his force to dislodge the knife from its situation. It was a common cheese-knife, about $4\frac{1}{4}$ inches long in the blade, and averaging three-quarters of an inch broad. It entered in a direction nearly horizontal to the depth of $3\frac{1}{4}$ inches, entering the right orbit immediately beneath the superciliary ridge, and penetrating (through the posterior part of the orbital plate of the frontal bone) the substance of the brain, injuring in its course the optic nerve and the levator palpebræ muscle, or the motor filament supplying it. The hæmorrhage was very slight. After removal of the knife, some portion of brain protruded; more was also discharged on the eighth day after the injury. He did not sleep for a fortnight after the accident, and was delirious during nights. The treatment

consisted in low diet, little or no *medical* treatment, and the application of strips of adhesive plaster to the wound, which was entirely healed in six weeks. There was never any exfoliation of bone.

“The present state of the eye shows the globe to be sound and healthy in structure, though less prominent than the other. Its muscular actions are all correctly performed, excepting that of the levator palpebræ superioris. (There is now ptosis, probably from paralysis of this muscle.) The vision is *entirely lost* in that eye. The pupil is dilated and wholly insensible to the stimulus of light.

“As regards the present state of mind, all the senses are perfect, excepting the vision of the injured eye. The memory is very defective. He is incapable of applying to any pursuit requiring mental activity. His disposition is irritable, especially after indulging in liquor, or after any unusual stimulus. He has occasional pain on the injured side of the forehead, and has since had typhus fever. His bodily health is now good, and he has the free use of the superior and inferior extremities.”

Among cases of partial recovery from cerebral injuries inflicted by way of the orbit, I may refer also to those mentioned by Morgagni.¹

Death as the immediate result of a perforating wound of the orbit, and arising from injury of the large blood-vessels at the base of the skull, would seem to be a comparatively rare occurrence; but the following case of Nélaton's shows well how these blood-vessels may be injured, and a fatal result ultimately ensue.

I quote the case from Mr. T. Holmes's “Lectures on the Surgical Treatment of Aneurism in its Various Forms.”² His description is taken from a work of Dr. Delens.³

CASE XI.—“A young man, aged 21, received, January 2, 1855, a poke from the ferrule of an umbrella in the left lower eyelid, followed by abundant bleeding from the nose, and ptosis of the right upper eyelid. He was seen by two eminent oculists (Messrs. Sichel and Desmarres), but no pulsation, and, as it seems, no exophthalmus was noticed till M. Nélaton saw him two months after the accident. There was then protrusion of the eyeball, external squint, with immobility of the globe,

¹ The Seats and Causes of Disease. Translated by Benj. Alexander (1769), vol. iii. p. 123.

² Lancet (1873), vol. iii. p. 143.

³ De la Communication de la Carotide interne et du Sinus caveux. Paris, 1870.

dilated immoveable pupil, diplopia, presbyopia in that eye (which before the accident was myopic), dilated conjunctival veins, pulsation of the eyeball, and a blowing murmur, which was almost continuous, but exaggerated during the arterial pulse. By pressure the eyeball could be made to resume its natural place, and then the patient became sensible of a bellows murmur coinciding with the pulse. Blood soon came when the patient blew his nose, and he sometimes suffered from epistaxis. Pressure on the carotid reduced the exophthalmus, and stopped the bruit altogether. M. Nélaton diagnosed a wound of the internal carotid in the right cavernous sinus, and he succeeded in producing this lesion on the dead subject by driving in a spike of wood obliquely through an incision made in the left lower eyelid. The treatment adopted consisted in mechanical compression of the carotid artery on the left side; but the epistaxis soon became more abundant and more frequent, though the compression did not cause any apparent congestion of the face, and he died of the bleeding a little more than three months after the accident.

A diagram in Dr. Delens's book "shows an arterio-venous communication in the right cavernous sinus, between that venous channel and the internal carotid artery, the result of a puncture with the ferrule of an umbrella, which had been thrust through the left lower eyelid, across the bones of the nose, through the right sphenoidal sinus into the cavernous sinus. The diagram shows the opening in the bony wall of the sphenoidal sinus, the internal carotid artery torn nearly across in the cavernous sinus, its two ends only hanging together by a little strip of the arterial tissue, the dilatation of the cavernous sinus, and to a much greater extent of the ophthalmic vein, which pushes the eyeball forwards. During life the arterial pulsation was communicated to the eyeball by means of this venous tumour. A fragment of the bony wall of the cavernous sinus is seen to have adhered to its membranous wall when it has been dissected back. In this instance the third nerve was destroyed by the blow. The patient bled to death through the orifice of communication between the cavernous and sphenoidal sinus."

Perforating wounds of the orbit do not, of course, involve of necessity injury of the brain.

My attention was drawn to the following remarkable case by Mr. George Lawson, who quotes it in his book on "Injuries of the Eye, Orbit, and Eyelids," and has kindly lent me the accompanying woodcut. The case was originally recorded by Mr.

Brudenell Carter,¹ who informs me that the foreign body is now in the Museum of St. George's Hospital.

CASE XII.—“For my knowledge of the following case,” Mr. Brudenell Carter writes, “I am indebted to the kindness of Alfred Clarke, Esq., of Gloucester.

“E. W., a hale, vigorous old man, turned 73 years of age, fell down-stairs in the dark, being drunk, sometime in the last few days of May. He did not lose consciousness from the fall. He injured the nasal side of the right eye, and bled very freely from the wound; but he did not seek medical aid till June 1st, when he went to Mr. Clarke, who found a ragged conjunctival wound and much swelling of the lids, and ordered a simple dressing.

“The patient presented himself at intervals until the 6th of June, when Mr. Clarke discovered the presence of a foreign body in the wound, but deferred its removal until the following day, when he visited the man at his home. He then felt the extremity of a piece of iron, which he seized with forceps and attempted to withdraw. By using considerable force, and after much time, he removed the entire shaft of a cast-iron hat-peg, measuring $3\frac{3}{10}$ inches in length, and weighing twenty-five scruples. On further inquiry, Mr. Clarke found that this hat-peg had been one of a row screwed to the wall at the bottom of the staircase; so that the man must have fallen upon the end of the peg, and must have broken it by his momentum after it had become completely buried in his orbit. The base of the hat-peg was still in its place in the row, and presented a recently fractured surface, fitting accurately to that of the portion removed from the patient. The annexed woodcut (fig. 3) represents the hat-peg and its base precisely of their natural size.

“When the question arose with regard to the exact period of impaction, no one could answer it. There were the seven days during which the patient had been under medical observation; but he could not remember on what day of the week he fell down, and could only say that it was four or five days before he went to the doctor. Four or five, with an illiterate old man, means simply x ; but it may be presumed that the actual period of impaction was between ten and twenty days. The patient recovered without a single unfavourable symptom.

“To-day, November 12th, I have made a careful examination of the injured part.

“The hat-peg appears to have lacerated the conjunctiva of the globe a little to the inner side of the cornea, and to have passed between the ocular muscles and the lacrymal apparatus without

¹ Ophthalmic Review (1865), vol. i. p. 337.

injury to either. About a line from the corneal margin, and below the horizontal meridian of the eye, there is an excrescence as large as a small hemp-seed, and resembling the little growths that sometimes follow operations for strabismus. From this excrescence as an apex, a conical patch of vascularity, like a pterygium, extends to the caruncle, and the patient says that a few exceedingly small fragments of bone have worked out. The excrescence probably conceals the opening of a fistula; but I sought vainly for such an opening with a probe. The vision and movements of the eye are unimpaired, and the lacrymal apparatus is perfect. But the excrescence, by resting on the margin of the lower lid, diverts a portion of the tears from their proper course, and occasions a slight epiphora. This is, indeed, the only inconvenience that the patient has sustained from the injury.

“Mr. Clarke was compelled to use very considerable force to remove the hat-peg, and had to loosen it by lateral movements as well as by direct pulling. Partly from this reason, and partly from his natural astonishment at its bulk and length, he can scarcely be certain of its direction; but from the relation of its original position to the probable direction of the fall, as well as from anatomical considerations, and from his impressions at the time, he thinks that its point must have been received in the antrum of the opposite side. The entire absence of head

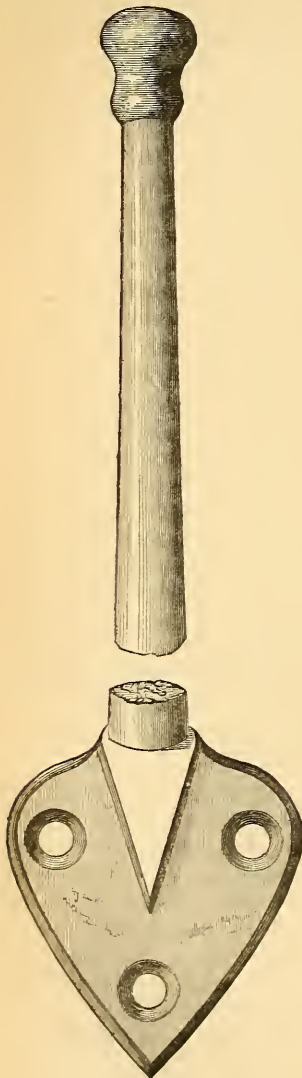


Fig. 3.

of the question; since there are cases on record, perfectly authenticated, in which undoubted injuries to the brain have been

recovered from without any symptoms that could have revealed their existence."

Mr. Carter then quotes the following case, which occurred in the practice of Nélaton, and is thus described by Drs. Zander and Geissler¹:—

CASE XIII.—“A man, 26 years old, applied at Nélaton's hospital on account of a lacrymal fistula, and stated that three years previously he had received a blow in the inner angle of his left eye from the ivory handle of an umbrella, and that it had rendered him unconscious for several hours. At that time he was taken to Desmarres' hospital with a bleeding wound, a centimetre and a half in length at the place of injury. The wound was examined with a probe, and it was believed that a splinter from the superior maxillary bone had been driven between the eye and the inner wall of the orbit. Various fruitless endeavours were made to remove this supposed splinter, and some small white particles were brought away by the forceps. The globe was unhurt, but its movements towards the nose were impeded and mydriasis was produced. The suppuration gradually diminished, and the skin contracted and healed, leaving only a fistulous opening to a channel leading to the supposed splinter. Further treatment was then abandoned, and the patient was discharged. On presenting himself to Nélaton, he exhibited slight exophthalmus on the left side, with strabismus divergens; the sclerotic yellowish or slightly coloured, as if from ecchymosis; the refracting media normal. Below the inner angle of the eye was a sinus, one centimetre in depth, having an external opening precisely like that of a lacrymal fistula, but the lacrymal sac was healthy, and the tears passed into the nose without impediment. A probe, introduced with some difficulty, struck upon a very hard, smooth, and immovable substance. Lying down at night produced severe pain in the left side of the head, which pain almost entirely subsided in the daytime. Notwithstanding the certainty of the patient that there was no foreign body, and his assertion that the umbrella had not been broken by the blow, Nélaton did not feel satisfied upon the point, and he determined to remove the hard substance, whatever it might be. He made an incision two centimetres in length over the inferior margin of the orbit, and through the incision a slight mobility of the substance could be felt. The substance was then seized with strong forceps, and, to the astonishment of everybody, an ivory handle was withdrawn, cylindrical in shape, four centimetres

¹ Verletzungen des Auges, Bd. i. S. 225.

($1\frac{5}{8}$ inches) in length, and a centimetre and a half in thickness. The end that had been turned outwards showed where it had been broken from the wood of the umbrella handle, and presented indentations, produced by the attempts at extraction made by Desmarres three years before. Then followed some bleeding from the right nostril, the pains disappeared, and the eye regained its movements inwards. After a few days the patient left the Hospital with his vision improved, and with the fistula nearly healed."

From some of the symptoms presented by this patient—the insensibility which immediately followed the injury, and which lasted for several hours, and from the occasional severe pain in the head—it may be doubted whether this case does not belong to the category of those in which a direct injury of the brain was produced by a penetration, or at least a fracture, of the roof of the orbit.

THE CAUSATION OF MITRAL DIASTOLIC MURMURS.

BY

HUMPHRY D. ROLLESTON, M.B.

The murmurs characteristic of mitral obstruction occur during the diastole of the ventricles. There may be one long murmur, occupying the whole of diastole, increasing in roughness and intensity—what Dr. Bristowe¹ terms an entire diastolic murmur; or a murmur occurring with the second sound, the early or commencing diastolic murmur; or one near the middle of diastole, but closer to the second than to the first sound, the mid-diastolic murmur; or, lastly, the ordinary præ systolic or late diastolic murmur.

Combinations of all three, producing an entire diastolic murmur, or of the early diastolic and the præ systolic murmur, often occur.

I wish here to discuss briefly the causation of the early and mid-diastolic murmurs. They are, I believe, usually explained as being caused by the same factor as the præ systolic murmur,² viz., the auricular systole.

The evidence in favour of this view is partly experimental, partly based on the character of the murmurs in question.

In the Guy's Hospital Reports for 1875 there is a paper by Dr. Galabin in which he gives cardiographic tracings from patients suffering from mitral stenosis. In this paper³ he says it is not improbable *a priori* that in mitral stenosis the rhythm of the auricle may be disturbed; he then gives cardiographic tracings which are interpreted as showing that the auricle has contracted very early in the diastole and driven blood into the ventricle. The evidence on which this conclusion is based consists in eleva-

¹ Lancet, Nov. 12, 1887.

² Fagge, 2nd edit., vol. i. pp. 962-963.

³ Loc. cit., pp. 281-282.

tions on the curve taken during diastole from the heart's apex, the rise occurring just before the ventricular systole corresponds with, and is explained as, the result of the distension of the ventricle by the auricular systole; a somewhat similar elevation, occurring earlier in the diastole, is explained in the same manner.

This does not follow. The earlier elevation is very likely due to an influx of blood into the ventricle, but the cause of this influx of blood need not be the auricular systole, but may be due to some other cause, and, as I hope to show, the suction-action of the left ventricle would explain it.

In his conclusion, Dr. Galabin,¹ however, says that he has not met with any cardiograms in which the auricular systole is transferred in rhythm to the preceding ventricular systole; in other words, in which it forms the termination instead of the commencement of each revolution of the heart.

Dr. Galabin² also says that his evidence is in favour of the diastolic and præ systolic murmurs having not one common cause, but two; that the diastolic is due to the flow of blood through the constricted mitral, and the præ systolic to the contraction of the auricle and the resulting fluid vein.

Accepting Dr. Galabin's evidence as to the increased duration of the auricular systole, other authorities have argued that the prolonged auricular systole is the cause of the diastolic mitral murmurs. This is what may be termed the experimental evidence. The clinical evidence is based on the character of the diastolic mitral murmurs, which by some authorities is said to be rough and vibratile, like the præ systolic murmur. On the other hand, many authorities³ describe it as soft and musical in character; and point out the importance and means of diagnosing these murmurs from an aortic regurgitant murmur. So that what may be termed the clinical argument for the origin of the early and mid-diastolic mitral murmurs as being due to the auricular systole, is based on a fact of by no means universal acceptance, viz., the vibratile roughness of their character.

The difficulty of explaining the early and mid-diastolic mitral murmurs as a result of the auricular systole was recognised by Balfour,⁴ and he points out that the occurrence of an interval of silence between the soft diastolic mitral murmur and the rough præ systolic is a very damaging argument to the theory which explains them both by a continuously contracting auricle. He explains the early and mid-diastolic mitral murmurs (re-

¹ *Loc. cit.*, p. 310.

² *Loc. cit.*, p. 309.

³ Balfour, *Diseases of Heart*, 2nd edit, p. 129; Hilton Fagge, 2nd edit, vol. i. p. 963.

⁴ *Ibid.*, p. 130.

ferred to as the diastolic mitral murmur) as due to blood running into the ventricle through the constricted mitral orifice, the propelling force being one acting *a tergo*, viz., the high tension in the pulmonary system, as shown by the reduplicated and accentuated second sound.

In the last edition of Fagge's "Medicine,"¹ the association of a diastolic mitral and a præ systolic murmur is not mentioned, but the causation of a diastolic mitral murmur is stated to be probably the auricular systole, which, commencing earlier than normal, drives the blood into the ventricle and comes to an end some little time before the ventricular systole, so that a short interval is left between the auricular and ventricular systole, which is represented by the pause between the diastolic mitral murmur and the succeeding first sound. Now it is contrary to all physiological experience to have any appreciable interval between the contraction of the auricle and that of the ventricle; the peristaltic-like contraction spreads without a break from one to the other.

Without any proof, this hypothesis can hardly be upheld, and in any case, it would utterly fail to explain those cases where a diastolic mitral and a præ systolic murmur are associated together at the same time.

If, as appears probable from what has gone before, the early and mid-diastolic mitral murmurs cannot be regarded as the result of a fluid vein produced by the auricular systole, another explanation must be sought.

A very evident cause for these murmurs is the fluid vein produced at the commencement of diastole by the negative pressure which is developed in the left ventricle by the elastic expansion of its muscular walls after their forcible systole. In a healthy heart the "suction-pump-action" of the left ventricle draws the blood into the ventricle at the commencement of diastole, but no fluid vein or murmur is produced. On the other hand, when the blood has to pass through a contracted mitral valve, an eddy results, which is often palpable as a thrill and audible as a murmur at the commencement or middle of diastole. In health the ventricle is filled at first by blood sucked into it by the *vis a fronte* of the negative pressure developed in its cavity, while towards the end of diastole the blood in the auricle is driven into the ventricle by the *vis a tergo* of the auricular systole. The auricular systole empties the auricle and distends the ventricle with blood.

Now, with a contracted mitral orifice the left auricle is distended with blood at a higher pressure than normal; when the

¹ Hilton Fagge, 2nd edit. (1888), vol. i. p. 963.

left ventricle expands, there are the conditions most favourable for the formation of a fluid vein, viz., blood passing at fairly high tension through a narrowed mitral valve into the expanded left ventricle.

It is submitted that while the præsystolic is due to the vis a tergo of the auricular systole, the early and mid-diastolic murmurs result from the vis a fronte of the expanding left ventricle, and its "suction-pump-action," so called.

As the negative pressure is greatest at the commencement of diastole, the rhythm of the diastolic murmur is easily explained, and no hypothetical alteration in the duration of the auricular systole is needed.

When there is an entire diastolic murmur, or the association of diastolic and præsystolic murmurs, the earlier part of the murmur, or the first murmur, is due to the negative pressure in the ventricle, while the later portion results from the contraction of the left auricle.

Dr. Byrom Bramwell¹ mentions the possibility of the suction action of the left ventricle playing a part in the formation of mitral diastolic murmurs, but abandons the idea. In a paper embodying the results of a research into endocardial pressure, published last year (1887), I put forward this view.²

After its systole, the left ventricle, in virtue of its elasticity, and not from any active dilation of muscular origin, expands.³

Goltz and Gaule,⁴ by means of a manometer put in direct communication with the cavity of the left ventricle of a dog, find that the negative pressure thus developed is equal to -50 m.m. of mercury, while the positive pressure obtained in the auricle during contraction they estimate at a pressure equal to 20 m.m. of mercury. If it be allowable to apply these results obtained experimentally on a dog's heart to the explanation of the cycle of the human heart, it follows that the negative pressure on the ventricle is, with every probability of truth, to be regarded as the cause of the early and mid-diastolic murmurs met with in mitral stenosis.

¹ Diseases of Heart (1884), p. 487.

² "The Endocardial Pressure Curve," Journal of Physiology, vol. viii. No. 5.

³ For an able discussion of this point, and for the bibliography of the subject, see paper in Journal of Physiology, vol. i. 1878, by Prof. Roy, on influences modifying the work of the heart.

⁴ Pflüger's Archiv. Band. xvii. 1878, S. 100.

A CASE OF

A PIECE OF GLASS IN THE EYEBALL FOR SEVEN
YEARS AND NINETY-FOUR DAYS.

BY

RICHARD J. REECE.

The following case, to which I can find no parallel, is worthy of being recorded in these Reports.

On August 30, 1880, Alfred P., who was myopic to the extent of -6.5 D., and wearing spectacles, was struck by a stone, which broke the glasses, and he sustained a cut through the cornea of the left eye, towards the upper part.

The eyelids were not injured.

He remained in the Leeds Infirmary from August 30 to September 12.

On October 26, 1881, patient went to Mr. Teale of Leeds, who found him suffering from traumatic cataract.

An iridectomy was performed *upwards*, and some of the lens matter removed, but with little improvement with regard to vision on account of the dense capsule.

The eye settled down after some time, and in September 1882 Mr. Teale performed an operation to improve vision. The capsule was torn through, two needles being used.

Again the eye quieted down, and in October 1884 Alfred P. entered St. Batholomew's Hospital as a student.

In 1887 patient began to have trouble with the injured eye—photophobia and lacrymation, his right eye being affected to a less extent. He could only read for a short time without rest, and found it necessary to wear smoked glasses.

After four of these attacks of inflammation he became anxious, fearing that the right eye was the seat of sympathetic irritation.

He saw Mr. Vernon, who advised excision, and sent the patient

to Mr. Power, who agreed that it would be safer for the right eye to remove the left.

Still the patient was loath to lose his eye, as it helped him to avoid objects in the street, &c. So by the advice of Messrs. Vernon and Power he saw Mr. Teale again, who advised him to have his eye removed.

Patient was admitted to the Ophthalmic Wards on December 3, and the eye was excised.

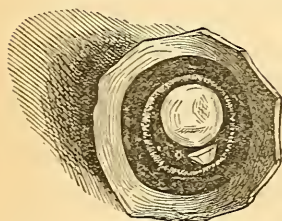
On cutting open the eyeball, a piece of glass, showing from its shape that it had been part of a concave lens, was found at the lower part of the eye, behind the iris, and in contact with the ciliary processes.



The illustration shows the size of the fragment. There is a drawing in the Museum, of which the accompanying woodcut is a facsimile, showing the position of the piece of glass in the eye (Series lvii., No. 395*v*), and the eye itself is preserved in Series xxxiii., No. 2651*b*.

It seems strange, at first sight, that the piece of spectacle should

not have been discovered during the two first operations; but one must remember the transparency of the fragment, and its position in the eye—behind the iris and below the level of the wound. Without it was touched during the operation, there would be no guide to its position, even if it were surmised that a piece of glass were in



the eye; and to search for a foreign body without being sure of its existence would entail more damage and risk to an eye than would be justifiable.

Taking this into consideration, it is easy to see why even such an experienced surgeon as Mr. Teale should not have detected it.

Again, it is a common accident for spectacles to be broken on the face, but it is an exception to the rule for the eyeball to be injured, the only damage being a cut or laceration of the lids. Perhaps the momentary check while the glasses are being broken is just sufficiently long to enable the eyelids to close, and the lids suffer instead of the globe; and indeed, if the globe is injured, it is usually by the foreign body having pierced through the structure of the eyelid.

The length of time that the foreign body remained in the eye calls for comment, from August 30, 1880, to December 3, 1887, seven years ninety-four days.

It was not until the patient began to use his eyes much for

book-work that any irritation occurred, and it is worthy of note that four times he escaped sympathetic ophthalmia.

Glass would, while in the eye, suffer no chemical change nor absorption, and therefore would not cause any irritation from these sources, but the shape of the piece of glass, with sharp edges and pointed angles, and its position in the eye, lying in contact with the ciliary processes, favour to a high degree the risk of sympathetic mischief.

The right eye quieted down immediately after the operation, and the wound healed satisfactorily; the patient has experienced no further trouble.

There was an immense difference in his facial expression before and after the excision. Before the operation the patient had a pinched and careworn appearance, but as soon as he recovered from the anæsthetic all traces of care and anxiety had disappeared, and he at once became bright and cheerful.

CASES FROM MR. BAKER'S WARDS.

BY

H. WATTS.

CASE I.—*Sarcoma of Left Humerus—Amputation of Shoulder-Joint—Recurrence in Scapula Two Years afterwards.*

Henry C., aged 31, general dealer, was in Rahere Ward in March 1886 with (?) sarcoma of the lower end of the left humerus; he then gave a history of having had the swelling for two years. On March 13th the left arm was amputated at the shoulder-joint, and a suspicious gland removed from the axilla. He made a good recovery and went to the Convalescent Home on April 24, 1886. The tumour was found to be a mixed-celled sub-periosteal sarcoma, the cells being chiefly spindle-shaped.

June 1, 1888.—He now comes back with the statement that he noticed nothing till three months ago, when there was a small lump at the outer end of the scar. He was advised to come into Hospital three weeks ago, but for some reason deferred it.

On examination of the left shoulder, there is seen to be a conical outgrowth, across the middle of which extends the old scar. The tumour is about the size of a small cocoa-nut, occupying the whole area over the back of the left scapula, which is freely moveable on parietes; the tumour is rounded and discoloured in parts, is firm in consistency, but soft and elastic at its lower and outer part. No enlarged glands to be felt above clavicle.

He is evidently recovering from an attack of pleurisy, possibly pleuro-pneumonia. Urine, sp. gr. 1028, acid, no albumen.

It was decided that, as the man was in pain and the tumour was increasing in size, to remove the scapula.

June 8.—The patient being under the influence of ether, an incision was made from the outer end of the clavicle to the inferior angle of the scapula; a second incision from the same point along the posterior aspect of the clavicle round the tumour to the inferior angle.

The sub-clavian artery was compressed, and all vessels were

clamped as they bled. The outer third of the clavicle was sawn through and removed with the tumour *en masse*. There being some suspicious-looking growth around the axillary vessels, it was carefully dissected out. There was very slight hæmorrhage in comparison to the vessels ligatured, owing to the clamping. The skin was then sutured with silk and a few horsehair stitches. Drainage was kept up by a counter-opening by the side of the spine, a silver wire being inserted. Sanitas oil dressings and Gamgee's padding were used.

June 9.—Patient slept fairly well. Dressings were changed to-day. Good appetite. Temperature normal.

June 11.—Wound looking well; good drainage. Patient slept badly, having two attacks of dyspnoea.

June 13.—All stitches removed. Posterior and lower part of wound is red and inflamed. Discharge foul. Perspires freely. No sleep.

June 17.—Redness disappeared. Wound looks better. Says he is spitting blood. Some swelling and tenderness in left upper mamma.

June 21.—General condition much improved. Swelling in breast gone. Wound is healing up.

July 2.—Wound dressed with *lotio rubra*. General condition very good. Patient from this time rapidly improved, and could walk about the ward. Had slight pain in left knee, which, however, passed off. He was discharged on July 16.

On August 4, 1888, the patient was readmitted with pain and swelling in the lower third of the left femur. On examination, the wound over the shoulder had nearly healed. The left thigh of the patient for the whole lower third was swollen. The tissues feel thickened and are painful. Circumference of the left thigh two inches above patella is one inch more than the right. Movements of knee-joint unaffected except on forcible extension. Superficial veins are dilated. The lower end of the left femur is thicker and bigger than the right. Belladonna fomentations were applied, which eased the pain considerably, and in four or five days' time, after complete rest in bed, he had no pain in the thigh. Was discharged August 11, 1888, at his own request.

On September 7, 1888, he was again readmitted, with severe pain in the left side of thorax and hæmoptysis.

He states that he has been spitting blood for the last two weeks. On examination of his chest, the skin of which was extremely sensitive and painful, some pleural friction was heard over the left side. Some dulness over the upper part of the left back of chest.

The swelling over the lower end of the left thigh is still about the same size, but there is an enlargement of the sternal end of the right clavicle. The tumour is globular, about $1\frac{1}{2}$ inches in diameter,

it has been growing rapidly lately, is hard and tense, and fixed to the sternal end of the clavicle. The surrounding tissues are not implicated, the skin being freely moveable over it and quite natural. It is painful on being handled. No enlarged glands to be felt. There is also a small hard tumour over the inferior angle of the right scapula, size of a cob-nut, with smooth surface and ill-defined edges. The skin is freely moveable over it. No pain attached to the swelling.

Patient was kept in bed, and belladonna ointment applied to the tumour over the right clavicle, which eased the pain. The hæmoptysis, which at first was severe, gradually lessened. He was given ten minims of tincture of opium about thrice daily, which seemed to have a beneficial effect on him. Slept well at night. At the end of seven days there was very little tinging of the sputa, and on the 19th September he left the Hospital much relieved from pain.¹

CASE II.—*Sarcoma of Left Humerus—Amputation at Shoulder-Joint—Removal of Scapula—Recurrence in loco.*

April 5, 1888.—William H., aged 14, van-boy, was admitted into Darker Ward with a tumour of the left humerus over the insertion of the deltoid muscle.

At the beginning of January 1888 he first felt pain in the left shoulder, which ached mostly at night-time. This continued till March, when he noticed a swelling at the upper part of the shoulder, which gradually increased in size. Two years ago he fell off a ladder on to his left side, but has no recollection of injuring the shoulder.

Present condition.—There is a tumour of the size of a small orange situated over the outer and upper end of the left humerus. It is firm in consistency, and harder on its inner and upper aspect than elsewhere. It seems firmly fixed to the humerus, the deltoid muscle moving easily over it. The superficial veins of the upper arm are dilated. Wasting of muscles of the arm. There is limitation of movement of the arm, especially backwards, forcible movement causing pain. The arm is very painful at night-time, the pain extending down to the thumb and three outer fingers on their dorsal aspect. Urine, sp. gr. 1020, acid, no albumen.

April 12.—A consultation was held to-day, and it was agreed that the tumour was malignant, probably myeloid sarcoma, and that amputation at the shoulder-joint was advisable.

April 13.—The boy having been placed under the influence of chloroform, a cut was first made into the tumour, which proved to

¹ Was again readmitted September 27, and has since slowly got worse. The tumour, December 22, is as large as a cocoa-nut.

be sarcomatous. The operation was then proceeded with. Two skin flaps were made, the anterior being taken from the inner and under side of the arm. The muscles and ligaments were then dissected back and cut through, and the joint laid open. The sub-clavian artery was controlled by digital pressure, and the anterior flap of muscles, &c., grasped by a special large pair of pressure forceps, which completely controlled all hæmorrhage from the proximal end when the finger was removed, but there was a large gush from the distal end. There was a considerable amount of oozing in the sub-scapular fossa.

The flaps were united by horsehair sutures, and a piece of pewter wire inserted for drainage. A piece of gutta-percha tissue was placed next to the wound to prevent adhesion to the Gamgee's padding with which it was dressed.

The humerus and tumour were examined after removal, when a longitudinal section of the bone was made, proving the growth to be sarcomatous, and of sub-periosteal origin. The growth outside the bone presents a large irregular mass of pyriform shape, surrounding the upper two-thirds of the shaft of the bone. The muscles surrounding the growth are infiltrated with it. The diaphysis of the humerus is infiltrated with the growth, from the upper epiphysial cartilage to within an inch and a half of the lower epiphysis. The upper epiphysis forms a sharp line of demarcation, limiting the growth in an upward direction. The upper articular end with its cartilage is not encroached upon by the growth. The outline of the bone is preserved, showing and proving the growth to be of periosteal origin, and not endosteal.

The boy had a sub-cutaneous injection of morphia at eleven o'clock, and another at 2.45 A.M., as he was in great pain.

April 14.—Large amount of discharge this morning when dressing was changed. Patient has retention of urine. Catheter used. Temperature high, 103.8°. Otherwise the lad is doing well.

April 16.—He feels well. Wound looking well and healthy. Urine, sp. gr. 1030, acid, no albumen nor sugar. Appetite bad.

April 21.—Lad looks well. Takes and sleeps well. Wound looks well, but smells somewhat. Some clots of blood came away in the discharge. Wound is syringed daily.

April 23.—All stitches removed to-day. Wound looks well and has a much sweeter smell.

April 26.—Wound dressed with ung. acid. boric., looking well. Some tenderness and fulness in left pectoral region; pus can be squeezed from beneath pectoral muscles. Pad placed over spot.

April 30.—Wound healing rapidly; less discharge. Swelling in pectoral region has disappeared. Appetite good. Urine, acid, sp. gr. 1030, trace of albumen.

May 7.—Patient does not feel quite so well. Lies upon couch

now. The wound looks well. A slough came away to-day. Temperature rose to 102° last night.

May 11.—More sloughs came away to-day. Lad feels well.

May 14.—Wound looks well; not much discharge. Urine, sp. gr. 1033, acid, some albumen, no sugar, pus.

May 16.—The albumen in the urine seems to be due to pus; there is some blood also in the urine.

May 20.—Granulations exuberant; painted with silver-nitrate.

May 22.—Some swelling and tension round the lower part of the wound. Temperature 102° . No albumen in the urine to-day.

May 24.—Swelling increased, some fluctuation in its lower part. Under chloroform an opening was made and some pus let out; a counter-opening was then made and a drainage tube inserted.

May 25.—Swelling still continues the same. Discharge is free, but not profuse.

May 28.—All the albumen has disappeared from the urine.

May 30.—The swelling having steadily increased, the boy was removed to the operating theatre and placed under ether, and the wound explored. The wound was first laid open and a quantity of sarcomatous and broken-down tissue turned out. The growth was found to be adherent to the ventral surface of the scapula. It was decided to remove the scapula. An incision was carried down its axillary border, the skin dissected off the back of the scapula, and the aponeuroses and muscles attached to the vertebral border cut through. It was then found necessary to saw off $1\frac{1}{2}$ inches of the clavicle (acromial end), thus severing the attachments of the scapula to the trunk. The axillary artery was cut through in removing the sarcomatous growth, but was clamped and ligatured. In order to obtain good drainage and to bring the edges of the flaps together, it was necessary to make an incision in the posterior flap; this also prevented tension. A silver wire was used for drainage. A small raw surface was left bare, as the tension of the flaps was too great. Hæmorrhage was not great. Gamgee's dressings were used.

Boy slept well after an hypodermic injection of morphia, gr. $\frac{3}{10}$.

May 31.—Temperature, 101° . Pulse rapid. Feels easy, and has very little pain. Dressings were changed.

June 4.—Stitches were removed to-day. The wound looks healthy, the discharge is free and sweet. Urine, sp. gr. 1023, acid, no albumen. Temperature high, 103.8° .

June 6.—Temperature is lower, and the boy feels better. The wound is being irrigated now twice daily.

June 9.—Silver drain removed to-day. Patient feels stronger and takes his food better.

June 14.—Wound healing slowly but surely. Appetite good. Feels much stronger.

June 20.—The last two days a small growth about the size of a filbert-nut has made its appearance about the centre of the anterior edge of the wound.

June 22.—The boy was placed under chloroform, and the growth and surrounding parts freely excised for an area of three-quarters of an inch, and down to the chest wall. The wound was washed with strong carbolic lotion. Gamgee's pads applied.

The tumour was examined, and thought to be a gland.

June 24.—Patient feels well to-day, but rather low in spirits; wound is progressing favourably.

June 26.—There is a slight erythematous blush around the edges of the wound made at the last operation. Temperature, 99.6°. Bowels not open. Wound is rather sloughy. He is now taking quinine.

July 2.—Patient sleeps well; takes well; has no pain. Wound is progressing well; granulations look very healthy.

July 4.—Small slough on the lower portion of wound.

July 6.—To-day the wound was grafted with two pieces of skin, and dressed with gelatine tissue and ung. acid. boric.

July 9.—Grafts appear healthy and likely to live; wound is healing very slowly. Getting up on couch.

July 16.—Grafts are enlarging and appear very healthy. Boy now can get about in the square.

July 23.—General condition very good. Granulations look very healthy, but seem large; are now dressed with lotio argent. nitrat. (gr.ij. ad \bar{z} i.)

July 27.—Boy now convalescent, and going to Swanley Convalescent Home.

Towards the middle of August the boy returned from the Convalescent Home at Swanley. When he showed himself a week after at the Hospital, he had an outgrowth from close beneath the remaining part of left clavicle about the size of an orange. He was seen by Mr. Bruce-Clarke, who advised the use of caustics, and said that any operation would be of no avail. He was put on quinine, gr.ij. every four hours, and the caustic used was chloride of zinc, gr. 100 in \bar{z} i. of flexible collodion (half strength). This was of no use, as the mass grew very fast, and had trebled itself in a fortnight. He refused to come into the Hospital. Having great pain from it, he was ordered liq. morphia hydrochlor. \mathfrak{m} xx. ter die, with a cocaine ointment 20 per cent., and iodoform to dress the growth with, and to keep the growth sweet. A week before his death the growth was the size of a large cocoa-nut, but during the last week large pieces sloughed off, and at the time of death was only half this size. About four days before death there was

some rather free hæmorrhage. When seen the day before death, he was very weak, and could take nothing except weak brandy and water with a little beef-tea. He died on September 23, 1888.

CASE III.—*Epithelioma of Bladder—Removal.*

June 25, 1888.—Ruth N., 65, housewife, was admitted into Sitwell Ward suffering from abdominal pain and hæmaturia. She states that three years ago she had to give up hard work owing to a constant aching pain in lower part of abdomen. Three months ago she noticed her water was blood-stained with a deposit in it. For the last two months the pain has been severe; so she applied to a medical man, but obtaining no relief, she came to the Hospital.

She is married. Has had one child and a miscarriage. Has been fairly healthy. Has varicose veins of legs.

Present condition.—At various times has shooting pains in right lumbar region and around the umbilicus. She has a great deal of pain in passing water, which is small in quantity and micturition very frequent. Urine is of a dark red colour, alkaline, sp. gr. 1028, large quantity of albumen. Under the microscope are seen a large number of red-blood cells and some white cells, also numerous crystals of triple phosphates.

June 27.—Was sounded to-day. Nothing could be detected. Urine has less albumen.

June 28.—Under ether Mr. Baker proceeded to examine the patient's bladder with the cystoscope, assisted by Dr. Steavenson. The bladder was well washed out and then filled with hot water (105°), and the lower parts of the bladder were examined; the orifices of the ureters seemed large, but nothing abnormal was discovered. (The instrument for examining the upper part of bladder unfortunately could not be used.) Mr. Baker then dilated the urethral orifice, and made a digital examination, at once finding a papilla-like growth with a broad base on the right side and anterior to the orifice of right ureter.

June 29.—Had no incontinence of urine. Slept well. Pain is not so great. To-day the urine is slightly acid. She has very little appetite.

July 4.—Patient being placed under ether, she was placed in lithotomy position. A grooved lithotomy staff was passed into the bladder. An incision was made through the vesico-vaginal wall, the edges being held aside by silk threads. The growth was thus exposed and pulled forward. The growth was then dissected off the wall of the bladder by means of a pair of scissors, and when the last portion near the ureter was cut through,

some purulent urine was seen to escape from the cut part into the wound. There was very little hæmorrhage, only three vessels being ligatured. The bladder was then well washed out, and the incision in the vesico-vaginal wall sewn up with silver wire by means of Smith's perforated needle. A Gangee's pad and T bandage applied. On examination of the part removed, it was found to include what looked like the orifice of the ureter.

July 5.—Slept fairly well. Nearly free from pain. Had complete incontinence of urine. Catheter passed every four hours. Has great thirst.

July 7.—Patient had a good night's rest. Passed a few ounces of urine naturally; complains of no pain whatever. Temperature last night was 103° . Normal this morning. Microscope shows a small quantity of blood and a large amount of pus.

July 9.—Does not feel so well to-day; complains of nausea, but has no pain nor incontinence. Urine, sp. gr. 1020, alkaline, albumen one-tenth. Microscopically, a small quantity of blood and numerous bacteria in continual motion; crystals of triple phosphates.

July 12.—Some slight incontinence to-day. Still has nausea. Slight appetite.

July 14.—Incontinence continues.

July 19.—Under chloroform the silver sutures were removed. There was a long white superficial slough along the edges of the wound, which was removed, and the bladder and vagina well syringed out.

July 21.—Incontinence about the same. Patient says she feels weak. Appetite very bad.

July 26.—Great pain in abdomen. Temperature, 103.2° . Ordered a soap enema, and a pill of codeine gr. $\frac{1}{3}$ thrice to-day. This seemed to relieve her.

August 1.—Patient sleeps better now. Bladder washed out daily.

August 7.—Getting up now. Feels better, and appetite improving. Incontinence the same. Has no pain.

August 15.—Under the influence of ether, Mr. Bruce-Clarke, in the absence of Mr. Baker, proceeded to pare the edges of the vesico-vaginal fistula, and brought the edges of the wound together with four silver sutures. There was some hæmorrhage, which was, however, stopped by the suturing of the surfaces together.

August 17.—Patient has remained quite dry since the operation, there being no incontinence. Has no pain anywhere.

August 20.—Patient feels much better and stronger. Keeps quite dry. No incontinence. Passes her water naturally. Urine neutral; contains albumen and pus.

August 22.—Temperature rather high, 101.2°, but feels well. No incontinence.

August 27.—Patient rapidly improving. Urine, sp. gr. 1015, acid, contains some albumen, pus, and mucus.

August 30.—Yesterday the sutures were removed; three found to be only hanging, having sloughed out. The union was very good.

September 2.—Patient can get about ward now. Is convalescent, and retains her water for three or four hours easily. Has no pain. Going out to-day.

CASE IV.—*Sarcoma between the Bladder and Rectum—
Obstruction of Ureters.*

April 16.—Thomas A., 6 years, was admitted to Darker Ward, supposed to be suffering from retention of urine.

The patient was admitted about 1 A.M. with a swelling in the abdomen, occupying much the same position as a distended bladder, but somewhat to the left side. Dull on percussion. He was given a hot bath and a soft rubber catheter passed; about 3iss. urine drawn off. A No. 3 silver catheter was then passed; this inclined to the right side. Under chloroform a catheter was passed, no urine escaping. Per rectum, a hard mass was felt between the finger and anterior abdominal wall. In the absence of Mr. Baker, Mr. Walsham was sent for, who on his arrival confirmed what had been discovered. He punctured the mass under chloroform, and incised the linea alba and again punctured, but only drew blood. The cannula seemed as if it was in a solid mass.

The tumour felt firm, the upper edge being clearly defined, the lower part in close contact with the pelvic bones; it was elastic in some places, but was firmly fixed; dull on percussion; and occupied the hypogastric region, extending as high as an inch below the umbilicus. The whole abdomen distended.

Slept fairly well for two hours after the anæsthetic. Was seen by Mr. Baker and Mr. Walsham later on in the day, when both agreed that the tumour was malignant, probably sarcoma.

April 17.—Boy slept fairly well after tinct. opii ℥vi. He complained from time to time of "pain in stomach." He has been slightly sick. Has passed only ʒviiij. during the last thirty-six hours. Urine acid; trace of albumen; no blood nor sugar; no pus; slight amount of mucus. Bowels open freely. External wound looking well.

April 18.—Slept well after laudanum. Cheeks flushed, tongue furred. Dulness of abdomen more increased in left flank, extending up to the ribs. Superficial abdominal veins well marked out.

No evidence of peritonitis. Urine the same; only $\bar{z}v$. passed. Catheter passed; no water in bladder. Wound healing.

April 19.—Passes water freely and unconsciously. Boy lies on his back, with thighs and legs flexed. Is very drowsy; takes only milk. Upper level of tumour is nearly as high as umbilicus. There is some œdema of scrotum to-day. Placed under chloroform and taken to consultations, Messrs. Savory, Langton, Butlin, Walsham, and Bruce-Clarke being present. Unanimous opinion that probably the tumour was sarcoma, and no operation was justifiable. Girth of abdomen 24 inches.

April 23.—General condition much the same. Passes a fair quantity of water. Wound gaping slightly.

April 26.—Child is very fretful and restless. Wound discharges still. Veins of anterior part of trunk greatly distended.

April 29.—Child very pale and wasted in appearance. Has an anxious appearance. Temperature rising, 103.8° .

April 30.—Condition the same. Size of abdomen still the same, 24 inches. Ribs plainly seen through skin. Only takes milk. Has diarrhœa. Urine is passed in less quantity; is acid; sp. gr. 1020; albuminous; urates.

May 7.—Girth of abdomen has increased $2\frac{1}{2}$ inches, being now $26\frac{1}{2}$ inches. Wound gapes very much. The child is much weaker and more emaciated.

May 10.—Now has laudanum every four hours. Is very feverish and weak.

May 14.—The boy gradually got weaker, and died very quietly this morning at 3.30 A.M.

Post-mortem examination.—Thorax: very little sub-cutaneous fat. Lungs and pleuræ normal. Heart and pericardium normal.

Abdomen is much distended by a large tumour. The upper part of the growth was cystic, and extended as high as the stomach, and as far in the left side as the spleen and left kidney. It did not extend into the right loin. The cyst contained dark blood-stained and grumous fluid. The inner surface was rough, and its outer surface was continuous with the tissues of the abdominal wall, which was infiltrated.

The contents of the pelvis were next removed with the symphysis pubis. The cyst was found to have resulted from the breaking down of a very soft brain-like tumour, the more solid parts of which lay between the bladder and the rectum. The bladder had been pushed to the right side. It could, however, be separated from the growth, and the rectum was similarly free.

The prostate was not affected.

The pelvic bones were free.

The ureters were very greatly distended with urine.

The kidneys were much enlarged. The pelves and calices were absorbed, and the renal tissue was softened by inflammation, which in the right kidney had, in the cortex, gone on to suppuration. The kidneys could easily be separated from the growth.

The tumour was thus found to have no definite connections with any other viscera, and seems to have originated in the cellular tissue between the bladder and rectum.

The microscope showed the growth to be a typical small round-celled sarcoma.

EXCRETION OF URIC ACID IN A CASE OF GOUT;

WITH

NOTES ON THE ACTION OF SOME DRUGS.

BY

A. HAIG, M.D.

Alice H., *æt.* 38, admitted into Elizabeth Ward on May 11, 1888, under the care of Sir Dyce Duckworth, to whose kindness I owe the permission to examine the urine and to suggest variations in the treatment in accordance with my results.

There are many points of interest in her history and symptoms, but I do not propose to go into these farther than is necessary to show that we had to deal with an undoubted case of gout.

Her father died of bronchitis; her mother is well. Has five brothers, eldest 47; none of them gouty. One sister died of "bronchitis" *æt.* 32.

Had her first attack of gout in the right great-toe eighteen years ago; has had many attacks since in feet, knees, and elbows. Generally has three attacks in the year.

Had "bilious sick headache" five years before the gout came on; it lasted three years only, and averaged one attack in a month.

She has now much uratic deposit in her ears and fingers, and says that she had much in her toes, but it has been discharged.

Her present attack began on 7th May, when she woke up with pain in her right knee.

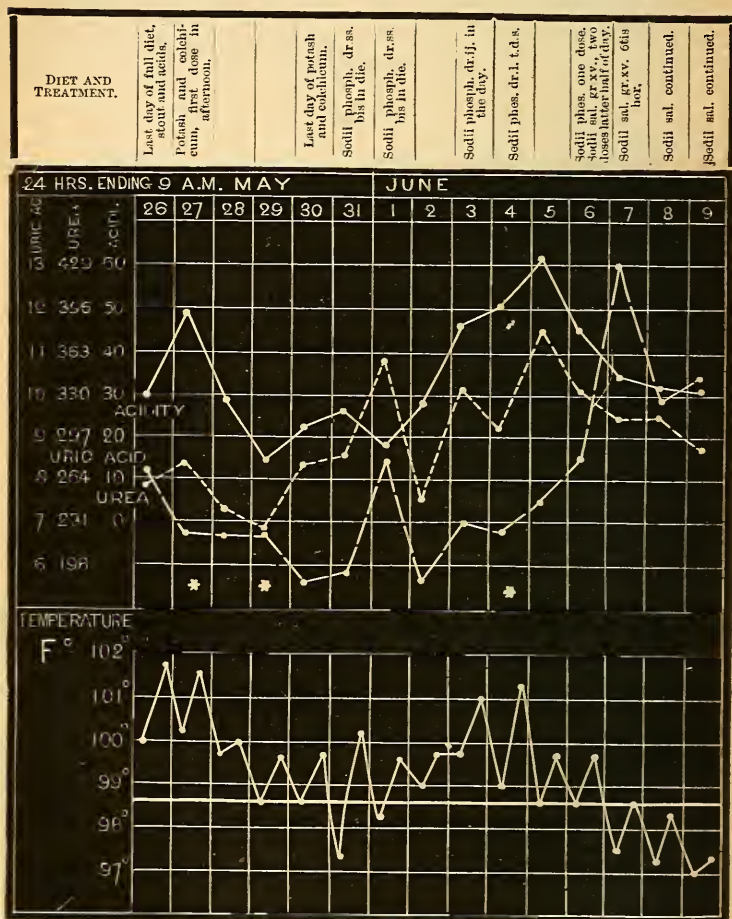
There is a history of potus, whisky and rum. Never worked in lead. No serious illnesses. No rheumatic fever.

Urine on admission 1020, acid; cloud of albumin; no sugar. I may here say that the specific gravity varied while I was examining it from 1018 to 1013, and it always contained a trace of albumin. Under the microscope muco-pus; no casts seen; and she

had some leucorrhœa, to which I believe this condition of urine was due.

Her arteries are noted as being rather hard, and she had at times some plus arterial tension, though it was not constant.

The attack for which she was admitted had subsided, and by



* On these days a considerable amount of urine was lost, so that the relation might not be quite as represented in that saved.

Fig. 1.

May 19th the temperature was sub-normal, patient having taken colchicum and alkalis, and being on milk-diet.

On this date (19th) she was put on ordinary diet, with a pint of stout, and Hst. acid. nitr. hydrochlor. three times a day, with the

view of testing the effect of retention of uric acid by acids. The temperature almost at once began to show small rises at night. On the night of the 24th it was above 100° ; on that of 25th above 101° ; and on that of 26th nearly 102° .

The first urine which I analysed was that of the twenty-four hours ending 9 A.M. on the 26th, and I continued my analyses without interruption till the 9th of June. See fig. 1.

On the 26th there was considerable joint-pain, most marked in the right knee.

On the 27th the full diet, stout, and acids were left off, and she was put on colchicum and alkalies. The pains were worse this morning, and affected the left knee and ankle as well.

The temperature fell on the morning of the 28th, and did not rise above 100° the next night, and the pains were less; and this improvement continued on the 29th and 30th.

On the 30th she was put on phosphate of soda \mathfrak{zss} . ter die, with some tincture of nux vomica, and took the first dose of this on the afternoon of the 30th.

On the 31st she was still better; tongue cleaner, appetite improving, and there were no pains. The phosphate mixture to be given $\mathfrak{6tis}$ horis.

On June 1st, however, she was not so well; the temperature rose a little in the night, and there was some pain in the left hip-joint. This continued on the 2nd, and $\mathfrak{3i}$. of the phosphate was ordered to be given three times a day in water, without any other drugs.

On the 3rd, however, the pains remained severe, and the temperature rose to 100° at night; and the same state of things continued on the 4th, and she had to be given a draught of bromide of potassium and cannabis indica at night.

On the 5th, phosphate of soda was stopped, and she was given salicylate of soda, gr. xv . $\mathfrak{6tis}$ horis.

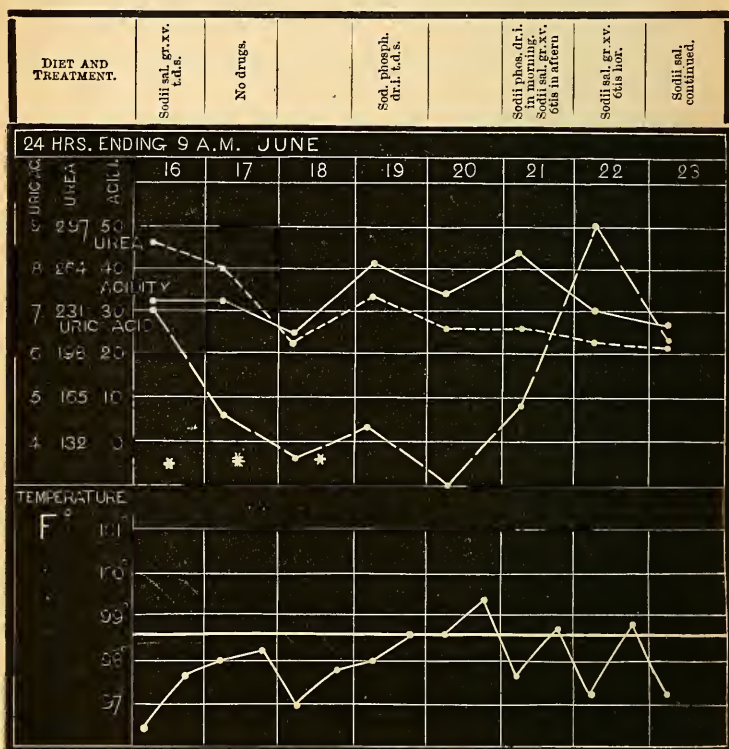
On the 6th she was much better, especially with reference to her pains, and she said that the improvement began soon after the first dose of salicylate.

On the 7th she was still better; there was little or no pain, though tenderness on pressure over the affected joints remained for some days. Temperature below normal, and remained so during the rest of the period to which this figure refers.

With regard to the curves in fig. 1, I may say that though some loss of urine at stool or in other ways was on some days unavoidable, yet on most of the days practically the whole excretion was collected, mixed, and measured, and the relative positions of acidity, uric acid, and urea on each day are probably fairly correct. The relatively high acidity on the 26th and 27th is, I suppose, due to the diet and acids. On the 26th I am surprised to see that the uric acid is above the urea, and bears a relation to it of 1-32, the

curves exactly coinciding when the relation is 1-33, which is taken as the normal for reasons given in my previous papers (see M.D. Thesis in Brit. Med. Journal, July 1888, p. 11).

With the sharp rise of acidity on the 27th, the uric acid falls a good way below the urea, and with the falling acidity of the 28th and 29th (due no doubt to the alkali taken), it (uric acid) comes nearer to the urea again.



* On these days a considerable amount of urine was lost, so that the relation might not be quite as represented in that saved.

Fig. 2.

Acidity again rises and uric acid falls away, to rise again a little with the fall in acidity of the 1st June.

With the rise of acidity from the 2nd of June onwards it again falls, and remains a long way below the urea till the fall of acidity on the 6th June. This is the usual relation of uric acid to acidity, as may be seen in the urine of any healthy person from day to day.

On the 7th the uric acid is a long way above urea, and this

again is the ordinary effect of salicylate of soda on the excretion of uric acid. (See *Med. Chir. Trans.*, vol. lxxi. p. 125.) The rise in acidity from the 2nd of June onwards is due to the phosphate which is being taken, and I had expected that it would increase the excretion of uric acid and do the patient good; but unfortunately it had the opposite result, for reasons which I shall mention later on.

I will only now point to the further fact that the temperature was high or rising when the uric acid was far below the urea (retention), and it was low or falling when the uric acid was near to or above the urea (plus excretion), and the pains and discomfort of the patient followed the temperature.

Now to return to the patient: the salicylate of soda was kept on gr.xv. 6tis horis; on the 11th it was reduced to three times a day, and was stopped altogether on the morning of the 16th.

She continued to improve on it, and on the 15th Sir Dyce Duckworth remarked that she was now better than at any time since admission. It required hard pressure to elicit any tenderness about the joints.

On June 16th I began the analysis of urine, the results of which are given in fig. 2.

Patient went on fairly well till the 18th, when she was again put on phosphate of soda, which I had obtained from another source, and hoped would act in the same way as salicylate of soda. As will be seen, however, I was again disappointed; and the same when I tried it for the third time, again from another source, in fig. 3.

The phosphate was begun on the 18th, and on the 19th she was not so well, and had pain in the outer side of the left ankle and along the metatarsal region, with redness and swelling, which began about 6 A.M. in the morning. The salt being continued, the pains got worse and the temperature higher, till on the afternoon of the 20th she was again given salicylate of soda, with the result that the temperature fell decidedly next morning, and the pains were better; the improvement continuing and being more marked with the high rise of uric acid on the 22nd, just as with the parallel condition on the 7th of June in fig. 1.

As before, when the phosphate was begun the acidity rose, the uric acid fell further below the urea, and the joint-pains at once began to be troublesome, with rising temperature.

On the 22nd the pain was decidedly better, but on the 23rd, with a lessened excretion of uric acid, the pain, which had left the ankle, got worse in one of the knees, and the temperature rose a little at night; but a temporary increase of the salicylate to six doses in the twenty-four hours was sufficient to relieve the pain and keep the temperature below normal, and all went well.

The next (fig. 3) refers to July the 19th, at which date she was well, taking D. L. and fish, and gr.v. of ferri et quin. cit. three times a day.

On the 20th there was some little increased swelling in the left thumb.

On the 21st she was again put on phosphate of soda, which was this time supposed to be quite pure and free from sulphate, and was given with the view of relieving the pain in the thumb. Dose \mathfrak{z} i. ter.

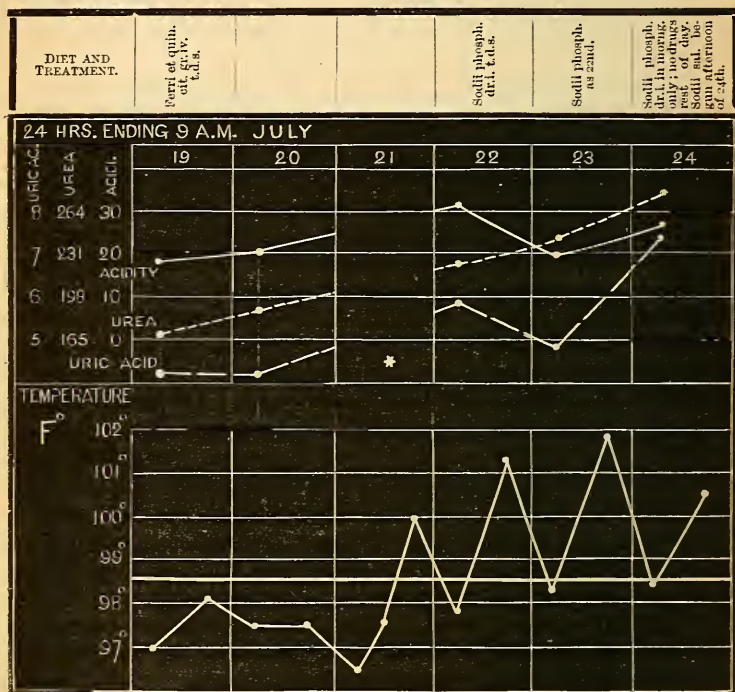


Fig. 3.

The temperature, however, rose on the evening of the 21st, and the pain was no better next day. On the 23rd the left thumb was distinctly red and swollen, and on the 24th several other joints were painful as well as the thumb. The phosphate was therefore stopped, and she was given some salicylate in the afternoon. The pains got less and the temperature at night did not rise so high; and on the 25th the temperature fell below normal, and remained

there, and the joint-symptoms cleared up, the thumb going through all the phases of an attack of gout, ending with peeling of the skin.

After this I made no more analyses of the urine, but the patient remained in the Hospital till the 31st of August.

On the 3rd of August the salicylate of soda, taken since the last attack, was reduced to gr.xv. in the day, and she was put on Hst. ferri et quin. cit. three times a day.

On the 10th these drugs were stopped, I believe on account of some return of symptoms, and she was given only ℥x. of tinct. of nux vomica three times a day.

On the 12th a fresh attack of gout is noted in the left hand, with swelling and brawny œdema of the knuckles.

On the 13th salicylate of soda was again given, gr.xv. ter, and the bowels were freely acted on with calomel and Hst. sennæ co.

On the 17th it is noted that the gouty symptoms have subsided, and she continued on the salicylate, and without further pain, till she left the Hospital.

I was not watching the patient during this last attack, but I should think it was probably due to the ferri et quin. cit. she took, aided by constipation, which was troublesome throughout, and it will be seen that there was some trouble, probably from the same drug, on the 20th of July before the phosphate was begun. As in previous attacks, all symptoms quickly improved on salicylate of soda.

A word of explanation is here necessary with regard to the phosphate of soda so often mentioned above, for in my M.D. Thesis, B. M. J., 11/88, p. 11, it is said that this salt is a well-known solvent of uric acid, and greatly increases its excretion; and according to my conclusion, No. 7, on p. 10 of the same Journal, it ought to be useful in all diseases connected with uric acid. How is it, then, that on three separate occasions, as above narrated, it caused retention of uric acid and precipitated attacks of gout?

To make a long story short, I may say that I found by analysis that all the specimens of phosphate used contained also some sulphate of soda, and that though that used on the last occasion, on the 21st of July, was said to be absolutely free from sulphate, a subsequent analysis of the specimen showed that this was not really the case.

I also found that a mixture of phosphate and sulphate of soda caused retention of uric acid, and produced very distinct joint-pains; and sulphate of soda taken alone in doses of gr.x. ter die has a similar effect. Practically, all the phosphate to be found in the market contains sulphate in quantities varying from a mere trace to six or seven per cent., which is quite sufficient to produce retention of uric acid and joint-pains; and to obtain a pure phos-

phate I have had to have some specially made by the combination of pure caustic soda with phosphoric acid.

I hope very soon to be able to publish my experiments with phosphate and sulphate of soda in full, and I shall therefore not go farther into the matter here, it being understood that I consider that the above bad results as regards the patient were due to the impurity of sulphate in the specimens of phosphate used.

We have here, then, a case of gout in which, on five separate occasions, attacks were precipitated by drugs which cause, as I have shown, retention of uric acid, all the attacks promptly clearing up when a drug which increases the excretion was given.

My conclusion, No. 7 in the above mentioned Thesis, Brit. Med. Journal, July 1888, p. 10, is as follows:—"That drugs which diminish the solubility and excretion of uric acid are harmful in the diseases connected with it, while drugs which increase its solubility and excretion are useful in these same diseases;" and the case affords, so far as it goes, a complete practical verification of this statement.

The drugs which precipitated attacks were on the first occasion acids (see Journal of Physiology, vol. viii. Nos. 3 and 4); on the second, third, and fourth occasion, phosphate of soda mixed with sulphate, about which I have spoken above; and on the fifth occasion, probably iron (Med. Chir. Trans., vol. lxxi. p. 283).

The drugs which cleared up the attacks were alkalies and colchicum (see about the former, Journal of Physiology as above), and on the four other occasions salicylate of soda (see Med. Chir. Trans., vol. lxxi. p. 125). Of these latter, the action of salicylate of soda was by far the most satisfactory, probably for the reason given in the paper just referred to, that the compound it forms with uric acid is freely soluble in slightly acid fluids. In the case of alkalies, the victory is with the largest dose: if there is more acid, there is retention; if alkalies are present in greatest amount, there is plus excretion. But with a salicylate there is no need to overcome the acids; its action for good is rather aided by their presence, this being, as I believe, the chief cause of its value in uric acid disease.

Sir A. Garrod says, "When a few glasses of wine, ale, or porter quickly and invariably produce in any individual an inflammatory affection of a joint, such inflammation is of a truly gouty character" (Gout and Rheumatic Gout, 3rd edit., p. 245). We can go a great deal farther than this now, for we can say with absolute certainty that it was the acid in these beverages that produced the arthritis, and we can produce it with acids taken in other forms. We can also show that other drugs, as lead and iron, having

nothing in common with acids but their effect on the solubility of uric acid, will produce similar effects; and we can further show that when an acid is given, the excretion of uric acid in the urine diminishes in relation to urea hour by hour as the pains come on and increase; and we thus come to be certain that the pains are the result of a retention of uric acid, the joints being one of the places in which it is retained. (See *British Medical Journal*, November 1888, p. 12.)

Further, I can answer for it that any one who suffers from a headache due to uric acid, if he will take a good dose of a dilute mineral acid at a time when he has a headache, will soon experience just such pricking pains in his joints as Sir A. Garrod describes on the page from which I quoted above; or if he will substitute for the acid say ʒi. of phosphate of soda well mixed in solution with say gr.x. of the sulphate of soda, and will repeat the dose twice at least in the ensuing twenty-four hours, the pains will pass beyond a joke, and may be sufficient to render him lame.

Now I have shown¹ that the uric acid headache is due to excess of uric acid in the blood, and is contemporaneous with its excessive excretion in the urine (the excess in the urine being an overflow from the excess in the blood, and varying with it), and it can be shown that, as the above-mentioned joint-pains come on and increase, the excretion of uric acid diminishes in the urine, and the same can be seen in the attacks of the patient whose case forms the subject of this paper.

I take it, therefore, that the pains are due to the fact that the mineral acid or the sulphate of soda diminishes the solubility of the uric acid present in the blood, and leads, so to speak, to its precipitation in the liver, spleen, and joints, these organs and tissues being selected by it for reasons given in previous papers. (See *Jour. Physiology*, vol. viii. p. 214, and *Brit. Med. Journal*, July 1888, p. 12.) The joints are by no means the only organs that give signs of this precipitation, but I am only concerned with them just now.

We appear, then, to be able to produce a miniature attack of gout in any one who has a uric acid headache, and a severe attack in any one who has had previous ones. We can do this by diet or by drugs of several kinds, and can say in each instance how they act, verifying our statements by examining the urine; or we can reverse the processes, and cure the attacks by other diet and drugs, again with a complete knowledge of their mode of action. Though I believe that an attack of gout may be thus reduced to simple terms, and regarded as a retention of uric acid in a joint, it must not be imagined that, given a gouty patient, an attack can in

¹ *Med. Chir. Trans.*, vol. lxx., and *Hospital Reports*, vol. xxiii.

all cases be quickly and certainly induced by giving acids, iron, or lead; or, on the other hand, that, given an attack of gout, it can be quickly and certainly cured by giving alkalies or salicylate of soda.

I firmly believe that if the acids, iron, or lead cause retention of uric acid, they will cause an attack of gout; and, on the other hand, that if the alkalies or salicylate of soda cause a free excretion of uric acid, they will relieve or cure the attack; but as there are several reasons why, in a given case, each or any of these drugs may fail, at least for a time, to exert their usual action on the excretion of uric acid, I shall now mention a few of the more important of these reasons, so that apparent failure of action may not be wrongly thought to throw doubt on the explanation of the disease here given.

Acids, then, may fail to act in clearing up a uric acid headache and causing joint-pains, because, among other reasons, they are not absorbed on account of gastric disturbance with more or less nausea or vomiting when these accompany the headache. On the other hand, alkalies may be strongly in possession of the field, and the dose of acid taken may be insufficient to overcome them. In either case, the excessive excretion of uric acid in the urine will go on unhindered, and the headache will continue.

Iron or lead may give rise to intestinal irritation, and may be only absorbed to a very slight extent; further, the intestinal irritation causes lessened absorption of food, and this results in a fall of urea and acidity; and the fall of acidity, in facilitating the excretion of uric acid, more than counterbalances the effect of any little iron or lead that gets into the circulation. But here, again, if iron or lead fail to induce gout, they do so because they fail to act on the uric acid, as may be seen by examining the urine.

Alkalies may fail to cure for a time because the acids are too strong for them, and salicylates may fail because given in insufficient doses. See June 23rd in this case, where it was necessary to increase the dose to gr. xv. 4tis horis for a time. Salicylates, again, may fail to be absorbed for a time from gastric irritation or other causes, and I had a remarkable instance of this in a case of epilepsy which I was treating with this drug. On several occasions the urine gave no reaction with perchloride of iron during the fits, though on some occasions there was probably as much as gr. xx. of the salicylate lying in the stomach, and there was a strong reaction in the urine after the fits had passed off, without any more of the drug being given. In all these cases the drugs failed to affect the disease because they failed to affect the uric acid.

I must just say one word about constipation, which was very

marked in the case of Alice H., and which, as I hinted before, probably aided the iron in causing retention of uric acid.

I have just spoken of the way in which intestinal irritation, by diminishing absorption, lowers the excretion of urea and causes a fall of acidity, thus facilitating the excretion of uric acid. Probably constipation has the reverse effect, every available piece of nourishment will be absorbed, and there will be at least no cause for a fall in urea and acidity; but further than this, the contents of the large intestine have an acid reaction, and the result of its contents lingering in its pockets is an absorption of fluid, the fæces becoming more and more hard and dry; and we may, I think, suppose that the fluid absorbed carries with it at least some of the acid that gives the contents of the large intestine their normal reaction; and in this way it is not difficult to account for the fact that constipation is generally accompanied by rising acidity of the urine and diminished excretion of uric acid, or the further fact that constipation is generally, and I believe rightly, credited with doing much harm in diseases connected with uric acid, and is often attacked, with much benefit to the patient, by means of powerful drugs, such as calomel and colocynth.

The history of "bilious sick headache" in the case of Alice H. is interesting, and I take it that it was probably a uric acid headache. Many cases of gout give a history of severe sick headache in their younger days before the gout came on, though they do not suffer with their head now. Cases of sick headache or megrim have been observed to terminate abruptly in an attack of gout (Sir A. Garrod records an interesting case at p. 459 of his book), and it is, of course, easy to explain their doing so, but it is less easy to see why headaches should cease to occur occasionally when the gouty attacks begin. We can only suppose that once the uric acid has found an outlet or additional place of precipitation in the joints, though often present in the blood in some quantity, it is never there in such large amount as before the joints were affected. I do not believe, however, that gouty people are quite free from headaches. Alice H. had one (of some kind) on one or two occasions, and I have seen very severe headaches in other cases. What they often mean by the above history is, I think, merely that a headache that used to have a more or less regular periodicity, as once in every week, fortnight, or month, has since the gout attacks appeared become irregular, and has ceased to attract so much attention.

SIX CASES OF SINUS OVER THE SACRUM AND COCCYX.

BY

D. H. GOODSALL.

So far as I have been able to find, there is no mention of this form of sinus either in any systematic work on surgery, or in any book on diseases of the rectum.

Curling,¹ in the fourth edition of his book, says, "A fistula connected with a carious state of the ischium or coccyx is unfit for operation unless the surgeon can reach the diseased bone, and, if necessary, gouge it."

Solly,² in a clinical lecture delivered in 1855, refers to a case of "fistula dependent on carious sacrum," and says he believes such cases are rare. His case, which had been in the hospital for a year, was relieved by a free incision over the sacrum.

That such cases are not so rare as the literature of the subject would seem to show, is, I think, proved by the fact that the six cases now referred to have come under my observation within a period of less than three years.

This sinus is more frequently met with in women under thirty years of age, than in men. It is nearly always preceded by a clear history of an injury to the part, either from a blow or a fall (see Cases II.-VI.). After the lapse of several weeks or months, the injury is followed by an abscess, the part having been more or less stiff or tender from the date of the injury until the abscess has been opened or has broken of itself. In the majority of the cases the abscess appears to have been allowed to break of itself.

The first opening of the abscess is usually from a quarter to half an inch on the left side of the middle line, and from a half to one inch on the sacral side of the sacro-coccygeal articulation. The

¹ Curling "On the Rectum," 4th edit., 1876, p. 107.

² Lancet, 1855, vol. ii. p. 461.

second opening, when one forms, is usually from one to two inches nearer the anus than the first opening. When the burrowing extends laterally, it is chiefly, if not entirely, confined to the left side of the middle line (see Cases IV.-VI.). The burrowing may extend on the sacral side of the sacro-coccygeal articulation as far as the posterior superior spine of the left ilium, and towards the anus as far as a point about midway between the anus and the tip of the coccyx. When the burrowing takes place laterally, it may extend as far as the sacro-sciatic notch, and pass through it into the pelvis, ultimately burrowing downwards, and pointing between the anus and the coccyx (see Case VI.). I believe this was the course the burrowing took in the case referred to by Mr. Solly.

As the abscess does not close quickly, its cause has been erroneously attributed to necrosis either of the sacrum or of the coccyx or of the ischium.

In extending laterally, the pus makes its way among the sacral and the coccygeal tendinous points of origin of the gluteus maximus. When a probe is passed down the sinus in search of the cause, the tip of the probe may catch against these points, and give a kind of grating sound, which may be mistaken for the grating caused by dead or bare bone. Should the surgeon operate and remove the part of the bone supposed to be bare or dead, leaving the main sinus and the lateral sinuses, if any, not laid open to their ends, the patient, so far as I have seen, will not get well (see Cases III. and V.), the reason being that the sinus is not caused by necrosis, but by the anatomical structure of the part, which prevents the walls of the sinus, or of any part of the sinus, from uniting until all tension has been removed.

As the notes of five of these cases show (the sixth case being still under treatment), the patients were quickly cured by laying open all the sinuses from end to end, as well as every pocket of any size in the walls of a sinus. The granulation tissue in the sinuses was removed by scraping and sponging; the fibrous walls of the sinuses not being removed, but only their polished surfaces exposed. The wounds were filled with dry cotton-wool. No attempt in any of the cases was made to find either dead or bare bone, neither was any either seen or felt.

CASE I.—Was fifty-five days in St. Mark's Hospital, the abscess having first appeared seven years previously.

CASE II.—Twenty-three days, the abscess having first appeared eight months previously.

CASE III.—Forty-nine days, the sinus having been discharging continuously for five years; and during that period she had, on three occasions, had bone removed.

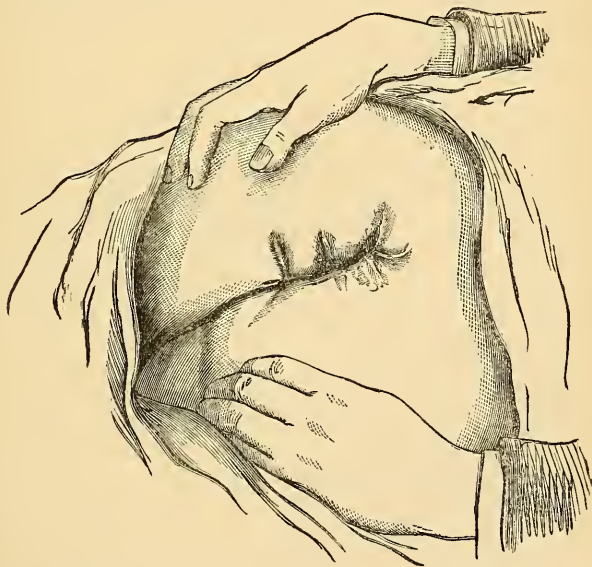
CASE IV.—Seventeen days, the abscess having broken three years before.

CASE V.—Fifteen days, the abscess having broken three and a half years previously, and the coccyx having been almost completely removed in another hospital nine months before her admission into St. Mark's Hospital.

CASE VI.—Patient still under treatment.

CASE I.—St. Mark's Hospital. E. A. W., æt. 25, married pregnant. Family history good.

September 11, 1886.—Admitted as an in-patient. In 1879 an abscess about the size of a hen's egg formed close to the sacro-coccygeal articulation. It gathered for about three weeks, and then broke of itself. The patient does not know what caused the abscess.



CASE I.—Appearance of scar two years and two months after operation.

It quickly disappeared, and gave her no further trouble until Easter 1882. The abscess then re-formed, and after being poulticed for about a week, was broken by a blow from a fellow-servant. The abscess again quickly disappeared, and gave her no further trouble until February 1886, when she was confined with her second child, and was then unable to lie on her back because of the aching pain over the lower part of the sacrum. From this

date the part gradually became more and more painful, and at times discharged. On 29th July 1886 she went to St. Mark's Hospital, where the opening of the sinus was enlarged. On 11th September 1886 she was admitted into the Hospital, and on the 13th the sinus, which extended from about two inches below the posterior superior spine of the left ilium to half an inch below the tip of the coccyx, was laid open from end to end. Four lateral pockets were also laid open. The granulations lining the sinus were removed, and the wound was then filled with dry cotton-wool. No dead or bare bone was either seen or felt during the operation.

On 14th September the wound was poulticed. This treatment was continued until the part had quite healed.

November 5, 1886.—Patient discharged cured.

October 26, 1888.—The part has kept perfectly well since she was discharged from the Hospital. (See copy of the photograph, taken 8th November 1888.) Her third child was born eight months after the date of the operation.

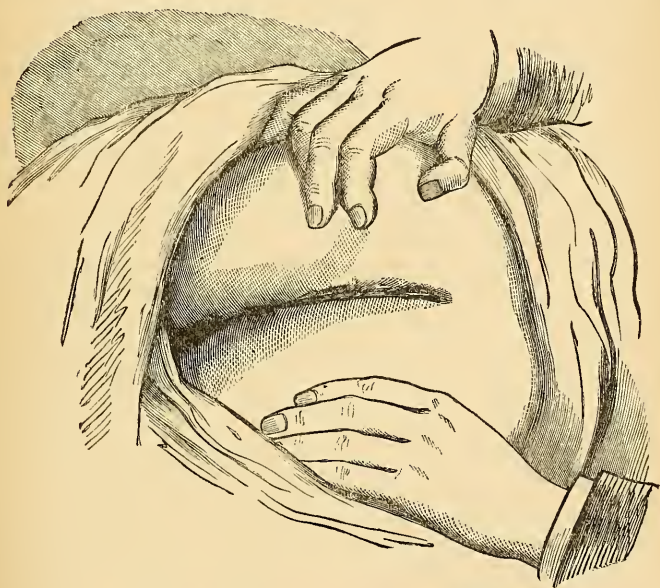
CASE II.—St. Mark's Hospital. C. H., æt. 20, shopwoman. Family history good.

August 23, 1887.—Admitted as an in-patient. In 1883 the lower part of the sacrum was injured by a fall off a stool. The part was stiff and painful for about a year, and then a swelling about the size of a small marble formed over the site of the injury. From this date the part continued unchanged until April 1886, when she was thrown from a cart and severely shaken. After this accident the part became more painful. On December 26, 1886, while skating, she fell backwards and again injured herself over the lower part of the sacrum. Three or four days after this fall the medical attendant opened the swelling over the sacrum in two places, letting out about a tea-spoonful of pus. The pain in the abscess was much increased by the fall on December 26. About the 10th January 1887 she slipped down-stairs, and again injured herself over the lower part of the sacrum. From this date until her admission into St. Mark's, August 23, 1887, the sinus was nearly always discharging. On August 25 the sinus was laid open from end to end. It extended from about three inches from the posterior superior spine of the left ilium to a point about midway between the anus and the tip of the coccyx. A transverse incision was made on the left side of the sinus and about an inch on the sacral side of the sacro-coccygeal articulation. All the granulations in the sinus were removed, but the fibrous wall of the sinus was not removed. The wound was filled with dry cotton-wool. No diseased bone was either seen or felt. On

September 17 (twenty-three days after the operation) she was made an out-patient. On December 1 the wound was healed, and a few days later she was married.

January 12, 1888.—The part of the scar over the coccyx has broken down for about an inch. On this date, and again on January 26, nitrate of silver was applied to the broken-down part of the scar. On February 26 the scar was again sound, and continued to keep so until July 12, when it again broke down for about three-quarters of an inch over the coccyx; nitrate of silver was applied. On July 19 the scar was again sound.

November 8.—The scar has remained perfectly sound since July 19. (See copy of the photograph, No. II., taken on this date.)



CASE II.—Appearance of scar fourteen months after operation.

Her first child was born at the end of last September. There is now neither stiffness nor tenderness over either the sacrum or the coccyx.

CASE III.—St. Mark's Hospital. F. M., *æt.* 28, domestic servant. Family history good.

March 24, 1888.—Admitted as an in-patient. In 1882, when romping with a fellow-servant, she fell on a stone floor, striking herself over the coccyx and the lower part of the sacrum. About

eleven months after the fall an abscess formed over the injured part. The abscess broke of itself in about a month. Two months later she went into a hospital, where the surgeon enlarged the opening of the abscess. After being there for two months she was discharged, and told to come in again at the end of three months, when the diseased bone would be removed. The patient did not do so, but went into another hospital, where she was an in-patient for six months. While there, she was twice operated on; a piece of bone was removed at both of the operations. She was in this hospital for six months, and then went to her home in Dorsetshire until "May 25, 1885, when she was admitted into a third hospital. From the date of leaving the second hospital the sinus had been constantly discharging. During the last four months the middle third of the inner side of the right thigh has become swollen and painful. At this time the sinus extended on the sacral side of the sacro-coccygeal articulation for about three inches from the opening.

"June 20.—About three ounces of pus were removed with an aspirator needle from the abscess in the right thigh.

"November 17.—The abscess in the right thigh was laid open by an incision about three inches in length. Several ounces of thick curdy pus were let out.

"January 7, 1886.—Left the hospital at her own request, and returned to her home. The sinus over the sacrum and the coccyx and the sinus in the right thigh were still discharging."

"October 27.—The patient was readmitted into the third hospital, the sinus over the coccyx still discharging continuously.

"April 20, 1887.—The abscess cavity over the sacrum and the coccyx was laid open for about four inches in an upward direction. The coccyx was found depressed, and the upper part denuded of periosteum. All exposed pieces of bone were removed.

"April 27.—Fæces present in the wound.

"July.—Wound healed, with exception of a small sinus leading in direction of bowel.

"August 21.—Sinus leading to bowel keeps about the same."

The patient again returned to her home, and while there an abscess formed over the left hip, and broke of itself.

November 10.—The patient was again admitted into the third hospital, and remained there for about five weeks. "No active treatment was adopted on this occasion."

She again returned to her home, and remained there till March 24, 1888, when she was admitted into St. Mark's Hospital with a sinus over the sacrum and coccyx, which had been discharging continuously for the last five years. Leading from the opening

of the sinus, which was situated close to the left side of the sacro-coccygeal articulation, there was a direct communication with the left dorsal side of the rectum about two and a half inches above its lower end. The orifice in the rectum was about a quarter of an inch in diameter, with a well-defined margin. This fistula allowed a large quantity of motion to escape externally. The sinus extended on the coccygeal side of the sacro-coccygeal articulation to about a quarter of an inch beyond the tip of the coccyx, and on the sacral side of that articulation for about two inches in the direction of the posterior superior spine of the left ilium. As the passage of fæces through the fistula caused intense pain, it was decided to lay open the fistula, as well as the burrowings of the sinus. This was done on March 26. Neither dead nor bare bone was either seen or felt during the operation. On May 14 (seven weeks after the operation) the patient was discharged, the fistula and sinus being soundly healed, but with complete loss of control over the contents of the rectum.

September 15.—The patient was readmitted into St. Mark's, the sinus and fistula being still soundly healed, but with very little increase in her power of control over the rectum. On the 28th September, assisted by Mr. A. A. Bowlby, I closed up about one-third of the anal orifice of the rectum by an operation similar to the operation for lacerated perineum. On October 23rd the patient was discharged with the power of control much increased, although still far from being perfect.

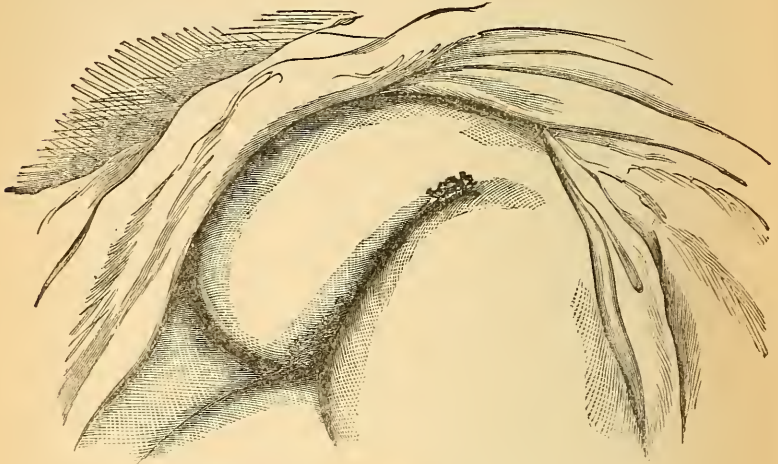
I am indebted to the House-Surgeon of the third hospital for the notes of this case, made between 25th May 1885 and 10th November 1887.

CASE IV.—St. Mark's Hospital. M. P., æt. 26, housemaid. Her mother died of phthisis.

May 5, 1888.—Admitted as an in-patient. In 1879 she cut herself near the sacro-coccygeal articulation by falling on the edge of a broken chamber. The cut quickly healed, but the scar was always tender. In 1885 an abscess formed close to the scar, and after gathering for a month, broke of itself, and discharged constantly until she was admitted into St. Mark's on 5th May 1888.

On 10th May the sinus was laid open from end to end, as well as a short lateral sinus on the left side of it. The granulations in the sinuses were removed. The wound was filled with dry cotton-wool. No dead or bare bone was either seen or felt during the operation. On 27th May the wound was soundly healed. On 2nd June the patient was discharged. The wound was constantly

poulticed from the day after the operation until it had healed. (See copies of case taken immediately before and after the operation.)



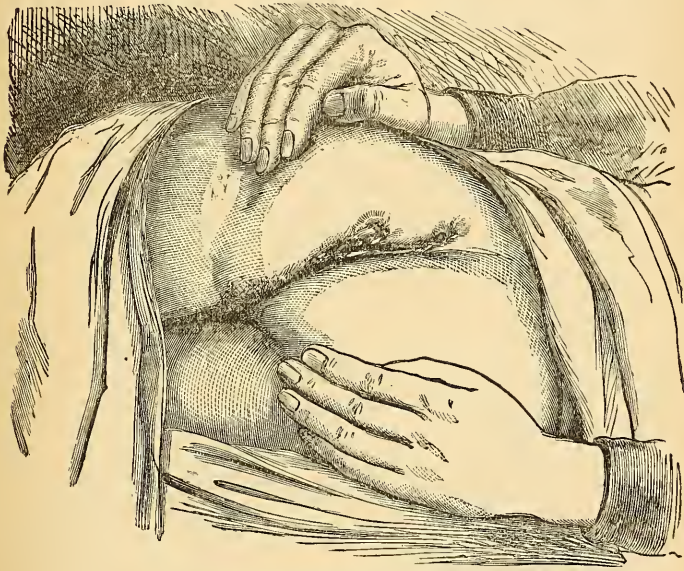
CASE IV.—Immediately before operation.



CASE IV.—Immediately after operation.

CASE V.—St. Mark's Hospital. E. L., *æt.* 23, servant. Family history good.

September 3, 1888.—Admitted as an in-patient. In 1884 she fell down a coal-cellar stairs, striking herself near the sacro-coccygeal articulation against a wooden box. She was able to get up the stairs without assistance, and she went on with her work. Subsequently the part struck was always tender. About five months after the fall a small swelling formed over the injured part, and two months later began to discharge. The patient was then admitted into a hospital, where she remained about four weeks. While there the abscess closed. No other treatment than rest and poulticing was adopted there. Two or three days after she had left that hospital a second opening formed, about one to one



CASE V.—Immediately before operation.

and a half inches nearer the anus than the first opening, and has always discharged more or less freely. In December 1887 the patient was admitted into a second hospital, where the sinus on the coccygeal side of the second opening was laid open. She remained in that hospital for six weeks. On her discharge the part of the sinus which had been laid open was healed. The remainder of the sinus on the sacral side of the second opening was still discharging.

September 3, 1888.—The patient was admitted into St. Mark's Hospital with a sinus over the left side of the sacro-coccygeal articulation. The first opening was about three-quarters of an

inch on the sacral side of the sacro-coccygeal articulation; the second opening being about an inch on the coccygeal side of that articulation. The sinus extended for about half an inch on the sacral side of the first opening and to the left of the middle line. The greater part of her coccyx has been removed.

September 7.—The remainder of the main sinus and two lateral sinuses, both on the left side of it, were laid open from end to end. The granulations were removed from the sinuses, and the wound filled with dry cotton-wool. Neither dead nor bare bone was either seen or felt during the operation.

September 22.—Discharged as an in-patient, the greater part of the wound being healed.

November 8.—Wound healed. (See copy of the photograph, taken on this date.)

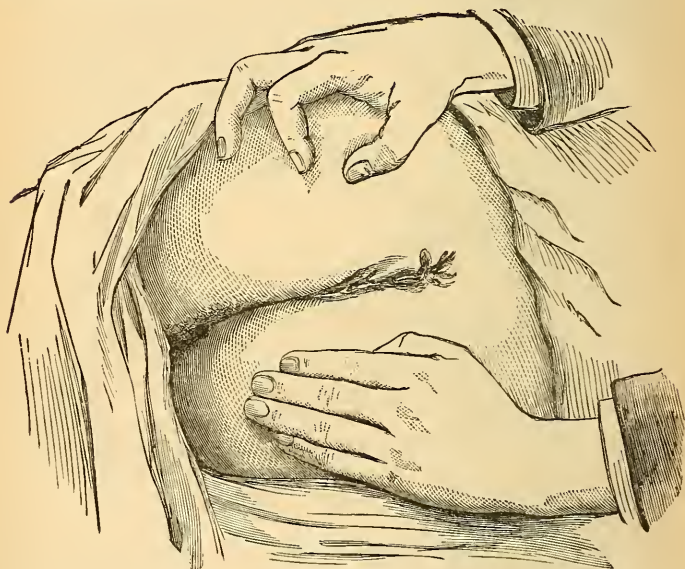


Fig. CASE V.—Two months after operation.

CASE VI.—St. Mark's Hospital. W. T., æt. 37, baker.

September 14, 1888.—Admitted as an in-patient. In April 1887 his horse suddenly bolted, and he was thrown back in his cart, "striking the end of his backbone against the box of his cart." For a short time the fall rendered him insensible. After two or three weeks he felt no discomfort from the accident.

Early in April 1888 an attack of rheumatic fever came on, and he was laid up by it for several weeks.

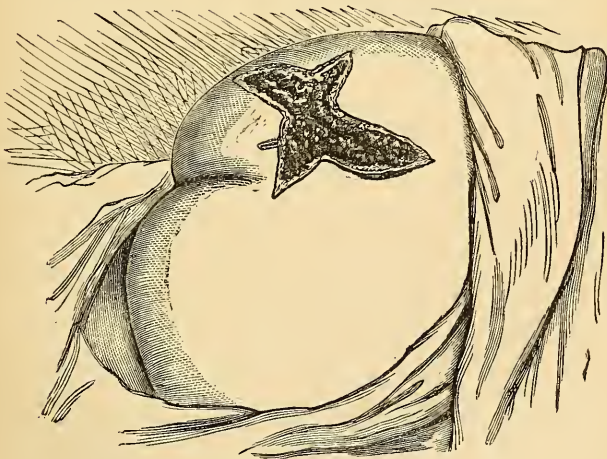
About July 10, 1888, an abscess began to form over the sacrum

and coccyx, and after it had been gathering for about five weeks it was lanced, and about a pint of pus was let out. The abscess has discharged continuously since then. Since April 1888 he has lost considerably in weight.

On admission into St. Mark's, the opening of the abscess or sinus was about three-quarters of an inch on the left side, and three-quarters to one inch on the sacral side of the sacro-coccygeal articulation. The opening was about three-sixteenths of an inch in diameter. A probe could be easily passed for $2\frac{1}{2}$ inches to the left, and 2 inches to the right of the opening, and for $3\frac{1}{2}$ to 4 inches towards the posterior superior spine of the left ilium. On the left side of the posterior part of the ischio-rectal fossa the tissues were hard, though neither red nor tender on pressure. The tissues over the sacrum were swollen, especially on its left side, but not tender on moderate pressure, and the skin was of the normal colour. Not any pus escaped from the rectum. The discharge from the opening over the sacrum was very profuse.

September 17.—The burrowing of the sinus over the sacrum was laid open, the incision on the left side extending as far outwards as the sacro-sciatic notch. (See copy of photograph, taken about fourteen days after the operation.)

All the granulation tissue was removed from the parts of the



CASE VI.—Fourteen days after operation.

sinus laid open, and several of the tendinous points of origin of the gluteus maximus were broken down.

A counter-opening was also made in the induration on the left side of the ischio-rectal fossa, midway between the anus and the

coccyx. A probe could be passed through this opening for upwards of three inches in the direction of the left sacro-sciatic notch.

November 8, 1888.—The patient was discharged as an in-patient, and was advised to go to his home at Ipswich for two or three months, to see whether the remainder of the sinus between the sacro-sciatic notch and the counter-opening made on September 17 would not close, as its cause had been removed. The whole of the wound made over the posterior surface of the sacrum had healed, excepting the outer part of the incision over the posterior surface of the left sacro-sciatic notch. The quantity of discharge from this part of the wound and from the counter-opening was very small, and was slowly diminishing.

TWO CASES OF
CEREBELLAR DISEASE IN CATS,
WITH STAGGERING.

BY

W. P. HERRINGHAM, M.D., AND F. W. ANDREWES, M.B.

In May 1887 a half-bred Persian cat, belonging to the Sister of Hope Ward in this Hospital, produced a litter of four kittens. These appeared healthy at birth, and grew well for a time. When they began to walk, they at first moved like healthy kittens, but soon one of them was noticed to be weak on its legs. Another was soon afterwards similarly affected, and these two gradually became so incapable of movement that they were destroyed while only a few weeks old. At the time of their death the remaining two appeared quite healthy; but not long afterwards first one and then the other showed symptoms of the same weakness, which progressed until, in September, they came under our notice. It is therefore certain that the symptoms did not date from birth, that they did not come on at the same time in all the kittens, and lastly, that they were of a progressive character.

When we saw the kittens in September, one was much more incapable than the other, but the morbid symptoms were so exactly alike that one description embraces both. The nutrition of the body was good, the coat sleek and clean. The head and eyes were moved well and naturally, and there seemed no loss of vision. One of them, examined with the ophthalmoscope, showed a natural fundus. The ears, whiskers, cheeks, nose, tongue, and tail were moved naturally. The cats lapped milk and mewed as usual. Micturition and defæcation were performed properly. There was, however, great loss of power to maintain equilibrium, both at rest and in motion. When sitting down, the beast held the fore-legs wide apart, so as to increase its supporting base, and even then a slight movement would suffice to throw it over. In walking, it seemed as if either the fore-part of the cat or its hind-

part could have walked separately, but as if they were badly joined together. The fore-paws were placed in proper position, and the hind-paws kept time with their movements, but the whole hind-quarters swayed and tottered from side to side, and often fell over, thus dragging the fore-part with them, and making locomotion very difficult and uncertain. But it was very remarkable that this was much more the case on a smooth surface, such as the boarded floor of the ward, than on a soft or rough surface. On a bed the cat could walk almost naturally. Moreover, the movements of each leg by itself, whether delicate or forcible, seemed unaffected. The little delicate movements of the fore-paw, which are peculiarly feline, were well performed; the rapid motion of scratching the head with the hind-foot was natural; the cat when on a bed could jump twice its own length, and would clamber about the furniture.

These movements, taken together, were sufficient to show that, whatever might be the cause of the tottering, the power of the legs in propelling or raising the body, and the co-ordination of the muscles in each for delicate movements, were not appreciably impaired. The tottering was not therefore due to a paralysis, nor, so far as could be judged, to a loss of harmonious action in the legs. Nor was it due to a tendency to fall in one direction, to go to one side, or to revolve round one axis. It was entirely due to inability to keep the hind-quarters in balance with the fore-quarters, or, more exactly, the hind-half with the fore-half of the animal. The falls were always due to the hind-part of the cat, not to its fore-part, and, more than this, the hind-part often fell without the fore-part, so that the cat was left with its fore-paws planted and its head upright while the hind-quarters lay sprawling. The manner also of the fall was instructive. The hind-half toppled over, not as if the hind-legs gave under it, but as if, being a top-heavy body on a narrow base, it lost equilibrium and dragged the legs over with it.¹

It was impossible to watch these curious performances closely, comparing what could be done with what could not, the healthy with the morbid appearances, without feeling certain that the weak part of the cat was the loins, and the loins only. Now it was shown in a paper contained in the preceding volume of these Reports that the function of the lumbar muscles in man was the maintenance of equilibrium, and that this was effected by their preventing the upper half of the body swaying so far over as to bring its centre of gravity outside its base line. Quadrupeds need exactly the same controlling power, and its exercise is the function of the same

¹ On several occasions, while trying to run, the cat was seen to turn completely head-over-heels. Rumpf also noticed this in his case. We had no opportunity to examine this movement.

muscles. For though their four legs greatly increase their stability when at rest, every motion, by raising now one and now another of their supports, necessitates a continual readjustment and a continually changing muscular action to preserve the balance, which is easily upset even when they are still. That this office is performed by the lumbar muscles may be tested by examining a horse, or a man walking on all fours. When the left hind-leg is lifted, the spine is drawn slightly to the right side, throwing the centre of gravity over the triangle formed by the remaining three legs, and this is brought about by a contraction of the right lumbar muscles. If this does not happen, the hind-quarters lose balance and fall over. While the loss of balance in the cats was not in appearance the same as a drunken or cerebellar reel, it was yet evidently caused by a paralysis of those very muscles which had been already designated in the paper above mentioned as concerned in this particular gait, and the difference was one of appearance only, due to the fact that the cat stands on four legs, the drunkard on two, and that the cat's spine is horizontal, while the drunkard's attempts to be vertical.

Guided by these observations, and by Rumpf's accurate and humorous account of an exactly similar case,¹ we diagnosed cerebellar disease.

The first cat was killed in September, when four months old, the second in January, when eight months old. When the skull was opened, the eye was at once struck by the smallness of the cerebellum, and especially of its middle lobe, which hardly projected at all beyond the lateral, and did not reach to the calamus scriptorius. The middle lobe was smaller in proportion in the younger cat. Two other cats of about the same size and age were killed for purposes of comparison. Their cerebella measured respectively $\frac{17}{16}$ and $\frac{18}{16}$ inch from side to side, and $\frac{14}{16}$ and $\frac{13}{16}$ inch from front to back. The vermiform process projected in each from $\frac{1}{8}$ to $\frac{1}{4}$ inch over the calamus. The cerebellum of the first diseased cat measured from side to side $\frac{13}{16}$ inch, and from front to back $\frac{6}{16}$ inch, the calamus being uncovered by $\frac{1}{8}$ inch. In the second the extreme breadth was $\frac{14}{16}$ inch, and the length $\frac{8}{16}$ inch. Thus the breadth was much less diminished than the length. The smallness of the cerebellum produced a gap in front between it and the cerebrum, in which could be seen the corpora quadrigemina. Fig. 1 represents in outline a view from above of the brain of the second and older diseased cat, drawn of the natural size. Fig. 2, introduced for the sake of comparison, represents a similar outline of the brain of a normal cat. Vertical median sections of the brain are shown in figs. 3 and 4. Fig. 3 is a drawing from the second

¹ Arch. f. Psychiatrie, xvi.

diseased cat. Fig. 4 is an outline of a normal brain. Both are drawn of the natural size. All the figures are carefully drawn

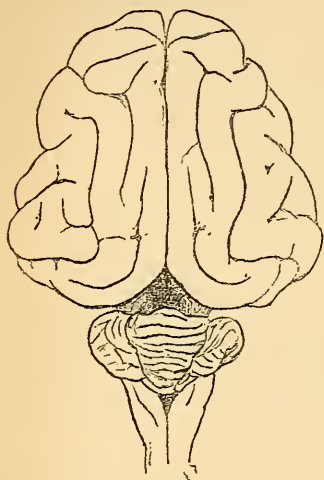


Fig. 1.

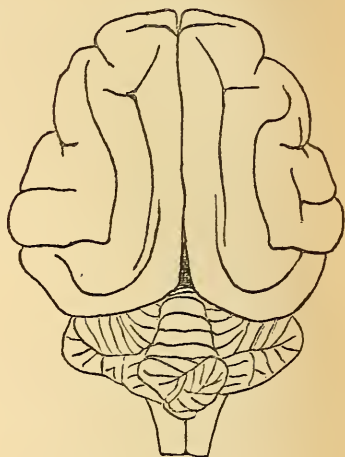


Fig. 2.

from nature, and they show faithfully the remarkable diminution in size which the cerebellum has undergone.



Fig. 3.

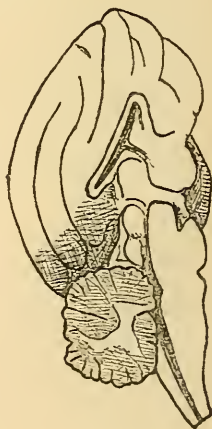


Fig. 4.

In the first cat killed the erector spinæ muscles were pale and yellowish, though not uniformly so. In the second, this was not the case. No other manifest abnormality was present anywhere

in the body. The brain and cord of both cats were hardened in Müller's fluid and examined microscopically. The cerebrum and cord appeared quite healthy on comparison with similar sections from normal cats.

The condition of the cerebellum was very remarkable. The central mass of white matter was not smaller than natural in its proportion to the whole cerebellum. The processes of white matter radiating from it to form the primary branches of the arbor vitæ were abnormally broad. The laminae were not reduced in number, though stunted in development, and the secondary laminae, also stunted, were more numerous than in the normal cerebellum. (See fig. 6.) The arbor vitæ was, if we may so put it, a pollard tree. This was true of both the central and lateral lobes. In the second cat killed the above condition was not uniformly present. The lowest and hindmost convolution and the adjacent portion of the second, in both middle and lateral lobes, were softer in texture and more nearly normal in arrangement than the rest of the cut surface; the processes of white matter going into them were narrower than elsewhere. In the first cat this was not so well marked, but the same convolutions were less abnormal than the rest. (See fig. 6.)

Microscopic examination showed that in intimate texture the hindmost convolution was the least affected, and, indeed, in the second cat presented little deviation from the normal. The changes elsewhere were marked, and reached their maximum in the regions farthest from the base. The pia mater was normal. The molecular layer was scarcely half its normal width, but preserved its ordinary ratio to the size of the diminished cerebellum. Purkinje's cells were, for the most part, not arranged in a definite row, but were dotted about throughout the thickness of the molecular layer, some even at its extreme outer limit. Their number was not appreciably decreased, for they were strewn very thickly, often two or three deep. They were fully of normal size, and looked perfectly healthy; but the apex did not always point to the surface, but sometimes laterally, or even inwards: their processes could not be traced very far. Fig. 5 is a drawing from a section of the cerebellum, stained in aniline black. It is magnified about fifteen diameters, and shows the changes in the cortex at

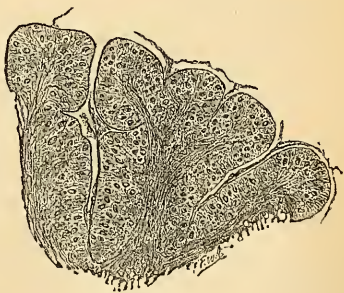


Fig. 5.

their maximum, namely, the irregular distribution of Purkinje's cells and the absence of the granular layer.

The granular layer, like the molecular, was much narrowed, and in the regions where the changes were most marked was indeed hardly recognisable as a distinct layer. It was very deficient in cells, especially in those which stain deeply with hæmatoxylin.¹ Throughout the molecular layer there were, as there normally are, scattered cells whose nuclei stained with hæmatoxylin, and similarly scattered cells were visible everywhere in the granular layer. In certain regions near the central mass of white matter, and in the posterior laminae, a distinct though scanty granular layer was recognisable in places; and in the hindmost convolution the hæmatoxylin cells formed masses as thick as in a normal brain. The distribution of these cells is shown in fig. 6, drawn from a vertical median section of the middle lobe, and magnified about four and a half diameters. The masses of hæmatoxylin cells are represented by the black shading. This section shows well the stunted development of the arbor vitæ, already alluded to. Where the granular layer was best developed, there Purkinje's cells formed a more definite row.



Fig. 6.

granular layer was best developed, there Purkinje's cells formed a more definite row.

In contrast to the narrowing of the preceding layers, the nerve fibre layer was wider than in the healthy brain. It did not seem that the number of fibres was increased, but rather that they were frayed out and separated by some interstitial substance. In sections stained by Weigert's method the nerve fibres, instead of looking like a thin black streak running up the middle of the convolution, were little separate black threads running through a tissue that could not be distinguished from the granular layer. The fibres could be traced, as in health, right up to Purkinje's cells. The nucleus dentatus was visible, and appeared natural.

The conclusion to which we have come is that the disease is originally an affection not of Purkinje's cells, nor of the nerve fibres, but of the molecular and granular layers. If this is so, it shows an intimate relation between these two layers of the cere-

The conclusion to which we have come is that the disease is originally an affection not of Purkinje's cells, nor of the nerve fibres, but of the molecular and granular layers. If this is so, it shows an intimate relation between these two layers of the cere-

¹ The granular layer of the cerebellar cortex contains two sorts of cells, one which stains deeply with hæmatoxylin, the other with eosin. These have been called the "hæmatoxylin" and the "eosin" cells respectively.

bellar cortex, and this is borne out by the fact that on the borderline between the more healthy and the diseased parts the changes begin equally in both layers. We look upon the confusion of Purkinje's cells as due to the contraction of the molecular layer, whether this be due to original mal-development, or, as seems more probable from the clinical history of the cats, to an active process. In the granular layer the hæmatoxylin cells are specially affected; indeed their paucity is perhaps the most striking pathological feature present. This fact seems to us to indicate them as taking an active part in the functions of the cerebellum, and bears out Stilling's view as to their nervous nature, in opposition to Henle and Merkel, who have regarded them as lymph corpuscles, and to Denissenko and, more recently, Beevor,¹ who have contended that they are merely neuroglia cells. Their absence in the diseased regions affords, we conjecture, an opportunity for recognising the true neuroglia cells of the granular layer, namely, the scattered cells above mentioned as present both in the granular and molecular layers. In the healthy brain the abundance of the hæmatoxylin cells proper to the granular layer obscures the scattered neuroglia cells; where the former fail, the latter become recognisable.

Dr. Sharkey has kindly lent us a microscopic specimen of cerebellar disease in a child which is extremely interesting in this connection, for in parts of it the hæmatoxylin cells of the granular layer are absent, and in the same parts the molecular layer is very narrow, while in others both are natural. Purkinje's cells are, however, absent in the diseased regions, instead of merely confused in their arrangement, as in our cats. He informs us that no symptoms peculiar to the cerebellum could be observed with certainty during life, because the child, while under observation, was too ill to offer them.

Sections through the three peduncles, the pons, and the medulla revealed no change in our diseased cats when compared with similar sections from a normal animal. The olivary bodies were natural, both to the naked eye and microscopically. This is interesting because removal of the lateral lobe of the cerebellum has been followed by shrinking of the opposite olivary body, and an intimate connection has hence been inferred between the two. Our cases show that the olive does not at any rate waste in disease of the two outer layers of the cerebellum.

The yellowness of the erector spinæ in the first case led us to expect that these muscles would be found degenerate, and some changes were indeed found, namely, swelling and absence of striation in many fibres. But these changes were absent in the second case, and hence cannot be regarded as an essential part of the disease.

¹ Brain, xxiii.

The main result of these cases is to prove that loss of equilibrium may be caused by disease affecting only the cortex of the cerebellum, and causing no change either in the white fibres of the part or in other parts of the nervous or muscular system. They indicate also an intimate connection between the molecular and granular layers of the cortex, and show that alteration in these, with disturbance but without destruction of Purkinje's cells over the greater part of both middle and lateral lobes, is sufficient to produce the symptom in question.

A CASE OF
SPASM OF THE MUSCLES OF THE NECK
CAUSING PROTRUSION OF THE HEAD.

BY
W. H. R. RIVERS, M.D.

Henry S., aged 33, a printer, was admitted to Luke Ward on July 4, 1888, under the care of Dr. Gee.

Three months previously he had had pain between his shoulder-blades, running up to the back of his head, and at the same time he began to have attacks in which his head was drawn backwards and turned to the left. The attacks of spasm had gradually become more frequent and had lasted longer, so that during the last few weeks his head had seldom been relaxed except during sleep.

Before this affection came on the patient had been working in a damp cellar; he had been a great drinker, and had had syphilis at the age of 21.

Condition on admission:—The head is almost constantly being drawn backwards, and at the same time inclined and rotated towards the left side, but not to a great extent.

The relaxations of spasm, during which the head can be held straight and erect, never last for more than half a minute.

During the spasm, the occiput is drawn downwards and backwards and the chin is raised and protruded, so that the face looks upwards and to the left; the eyebrows are elevated and the shoulders raised, especially the left.

The muscles at the back of the neck, particularly the splenii and trapezii, are hard and contracted, more so on the left side. The sterno-mastoids can also be felt to be tense.

There is no rigidity elsewhere.

The affected muscles act normally to faradism, but those on the left side respond more readily to the galvanic current than

those on the right, and the electro-sensibility of the former is also increased.

Except slight inequality of the pupils and somewhat well-marked tendon-reflexes, examination of the rest of the body revealed nothing abnormal.

The affected muscles were galvanised and shampooed, and the patient took half-ounce doses of *succus conii* three times a day.

A month later (on August 5th) the note was:—

The deformity of the head is now more constant, with occasional exacerbations of spasm. The head still turns towards the left, but to a less extent.

The muscles of the back of the neck can be felt strongly contracted, particularly the *splenii* and the skin of the part is much wrinkled. There is much less rigidity of the *sterno-mastoids*.

Several mechanical appliances were tried to take the strain off the affected muscles, but the patient was unable to bear their application for any length of time.

On October 5th, the patient went to Swanley slightly improved and able to move his head more freely.

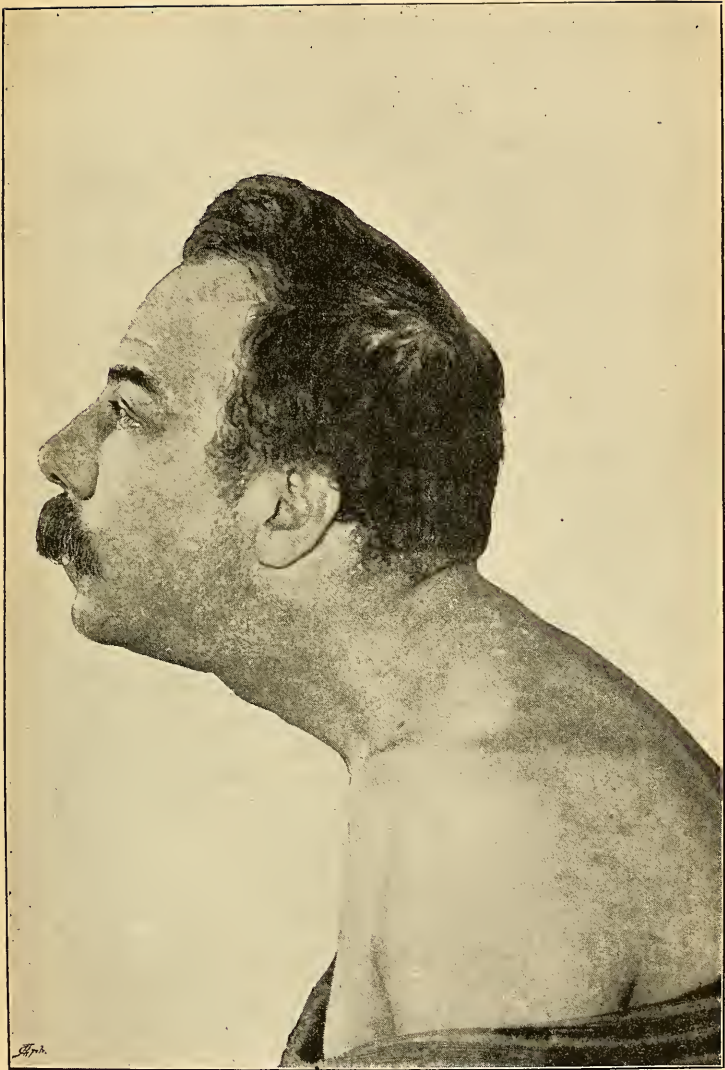
While at Swanley the improvement continued, and on his return three weeks later the attacks of spasm were less frequent and less severe.

There was no reason in this case to suspect either malingering or hysteria, for on several occasions I found the contraction of the head well marked during sound sleep, and at other times a spasm more violent than usual would wake him up suddenly.

The above case was a very unusual example of spasmodic wry-neck, the peculiar features being its bilateral character and the preponderance of spasm in the muscles of the back of the neck, and particularly in the *splenii*.

In cases of contraction of the *splenii*, which have been described especially by Duchenne and Gowers (each of whom give drawings of patients with this affection), there has not been the protrusion forwards of the head which is so well shown in the engraving, which was taken from a photograph of the patient. This was probably due to associated spasm of the *sterno-mastoids*, which could be felt to be contracted. When these muscles are alone contracted, the head and neck are drawn forwards, and the association of slight spasm of the *sterno-mastoids* with strong contraction of the *splenii* would cause the appearance of protrusion of the head which existed in this patient.

The *trapezii* could be felt to be contracted as well as the *splenii*, and both muscles were more affected on the left side, but the rotation of the head to the left—to the more affected side—



To face page

showed that the splenii were the principal agents in causing the deformity.

The raising of the shoulders, most marked on the left side, was due to the spasm of the trapezii, and was less marked at a later stage, when the affection of these muscles had to a great extent disappeared. A point mentioned by Gowers was exhibited by the patient, viz., the association of contraction of the frontales with the "retro-colic spasm." The elevation of the eyebrows thus produced is shown in the engraving, and it is noticeable that in Duchenne's picture, in which the spasm was more unilateral than in the above case, the eyebrow is only raised on the affected side.

Of the pathology of this affection nothing definite is known, but the association of muscular spasms in such a way as to produce a definite movement of protrusion of the head seems to point to an affection of the higher nerve centres.

The treatment in this case consisted mainly of galvanism and massage, and the result was a decided improvement; the spasms not only became less severe, but seemed to be limited to a smaller group of muscles.

REMARKS BY DR. GEE.

Most cases of wryneck are to be regarded as being due, not to spasm of this or that muscle, but to spasm of a set of muscles which are associated in producing a certain movement. Thus, the wryneck which is most often met with, that which turns the face to one side, is more than a spasm of one sterno-mastoid; all the muscles which concur in producing that movement are affected. This view of the nature of wryneck has an important bearing upon treatment of the disorder. For instance, taking again the common form of wryneck, unless the contraction be confined to one sterno-mastoid, it is not a very reasonable operation to divide that muscle. Hence the frequent failure which attends such operation.¹ Indeed I have never known division of the sterno-mastoid to do any permanent good, except in the congenital form of wryneck.

¹ See *Transac. Clinical Society*, vol. vi. p. 116, and vol. xx. p. 226. In the latter very interesting paper by Dr. G. V. Poore, the case of a man is narrated whose wryneck was probably due to an injury to the head, or perhaps to cerebral syphilis.

CLINICAL NOTES AND OBSERVATIONS

FROM THE

ESSEX AND COLCHESTER HOSPITAL.

BY

ALEXANDER WALLACE, M.D.

No. I.—*A Case of Morbus Addisoni.*

T. W., æt. 35, a spare, somewhat emaciated woman, of medium build and size, was admitted, September 6, 1888, into the Essex and Colchester Hospital. She stated she was married and had four children, the youngest three months old. She had been ailing since her last confinement; complained of dyspnœa, pain in the back; urine reported of a high colour; slept badly; had a sinking at the epigastrium. Pulse very feeble; hands cold; of a dusky tint. Further inquiry elicited that from childhood she had suffered much pain in the loins; that when she married she was of a fair complexion; that in her pregnancies and confinements she was always very weak, and appeared to bronze much, especially during the last one, which was attended with great asthenia during the whole period; that the confinement was protracted in consequence, and attended with much loss; that she recovered very slowly afterwards, and only up to a certain point.

Was ordered mist. ammon. and milk diet, and to be kept warm in bed.

September 7.—She had slept well. Tongue clean; appetite good. Pulse 132; very small. Heart-sounds weak but normal; conjunctivæ white. Careful examination could not detect any diseased organ. Urine, sp. gr. 1030, acid; no albumen.

Was ordered to take tinct. cinch. ℥ss. with her medicine ter die, and beef-tea extra oij., wine ℥iv.

September 10.—Weight, 6st. 3lbs. Condition the same; headache was gone. The skin was noted to be generally discoloured

with brown stainings in patches. She was ordered a warm bath, and the skin over the dusky spots to be well washed with soap and water.

She was ordered quin. gr.i. ex. mist. acidi hydrochlor. dil. (℥xv.) ter die; mutton diet.

September 18.—Feels stronger and sleeps well. There are permanent brown stains below the knees where the garters are worn, on the knee-caps, nipples, about the neck-lines; the skin generally of the face and hands was very dusky; less marked over the arms, legs, back, &c. The discolouration, together with the persistent asthenia and pearly conjunctivæ, led to the diagnosis of morbus Addisoni.

Liq. arsen. hydrochlor. ℥iii. (gr. $\frac{1}{40}$), with tinct. ferri sesquichl. ℥vi. was now given ter die.

September 25.—Weight, 5st. 13lbs; sleeps well; complains of depression and sinking at the epigastrium, especially at nights, and some headache. Pulse very weak, scarcely to be counted. Stains thought to be of a darker tint. Urine, sp. gr. 1025, acid; no albumen; quantity passed to be now noted daily.

Cocaine lozenges, each containing gr. $\frac{1}{12}$, were now given, three in the night, in addition.

September 28.—As the lozenges relieved the sinking feeling, six were now ordered to be taken in the twenty-four hours. Mutton diet.

October 1.—The temperature was taken, and found to be slightly sub-normal; afterwards taken daily. Sleeps well; sinking feeling much relieved. Pulse 120, very small, somewhat flickering; skin dry, with slight moisture in the palms; appetite fair; the dusky tint is deepening; finger-nails of a lighter tint. Weight, 5st. 10lbs.; conjunctivæ white.

Ordered to inhale nitrite of amyl from a crushed capsule twice daily, at 10.30 A.M. and 7.30 P.M.

October 2.—Has felt less depression; is warmer; flushed a little after inhaling nitrite, and feels warmer. Sleeps well; appetite good. Pulse 100, very small, scarcely perceptible. Skin, in palms (only), moist; cardiac sounds weak, clear; area of liver dulness smaller than normal. Brown discolouration in patches is now noted about the sternum and umbilicus, also on the right scapula, in the neck, loins, forehead, with a dusky bluish patch inside the right lip, and on the right edge of the tongue, with a general deep dusky tint of the skin.

October 5.—Gets up daily in the afternoon; says she feels stronger than when admitted. Pulse is noted to be stronger, and to be counted more readily, and when taken one hour after the nitrite has been inhaled is much stronger. See pulse-tracing,

taken October 3, one hour after the nitrite has been inhaled, and compare it with pulse-tracing taken October 10, one hour before the nitro-glycerine was taken.

October 7.—The nitrite of amyl capsules were changed for nitro-glycerine tablets, gr. $\frac{1}{100}$ each tablet, two taken daily, morning and evening.

October 8.—Weight, 5st. 10lbs. She had therefore held her own since October 1, so far as weight was concerned. This, coupled with her sitting up, and feeling stronger, and the circulation improving, led us to persevere. At this time the dusky tint of her skin was noticed by her own friends to be replaced by a lighter hue, and my own impressions in this direction were confirmed by other professional observers who saw the case with me less frequently. She sleeps well; bowels open; no thirst. Pulse 100, stronger. The sp. gr. of urine, which had been down to 1015, now rose to 1020.

October 9.—Sleeps well. Face and hands certainly are less dusky. No pain; appetite good. Pulse 100, stronger, more distinct and rhythmical. After taking the nitro-glycerine feels a throbbing at the temples for five minutes. She does not flush; is warmer, particularly at night. I did not see the case again till the 20th, as I went away from home; but she continued to improve, and on the 13th the temperature again touched the normal point.

On the 14th a patient died in the ward from cardiac dropsy, and this upset her very much. On the 16th she got a chill and sore throat,¹ and the temperature rose (17th) to 102.6°. She had a gargle with glycerinum acidi tannici and chlorate of potass lozenges; the cocaine lozenges and nitro-glycerine being also continued.

October 17.—She woke restless, moaning, and screaming; was much collapsed and sinking. Brandy \bar{z} ij. was given. No pain. Pulse very feeble; hands livid. About 11 A.M. she rallied, but could not swallow easily, nor could she sit up.

October 19.—Better, but very feeble. Omit nitro-glycerine and give nitrite of amyl.

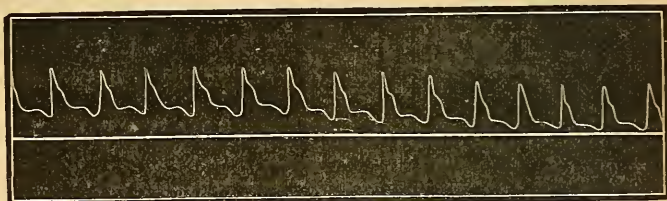
October 20.—I saw her, unable to sit up, much collapsed, with a shrunken, lost, and frightened look about her eyes. Pulse 120, very weak; throat better. Quite sensible. Taking drinks only—milk, beef-tea, and brandy.

October 22.—She went to her home at her own wish in a very weak condition. Afterwards she rallied, took food and stimulants well for a few days, but died suddenly on the 28th from asthenia.

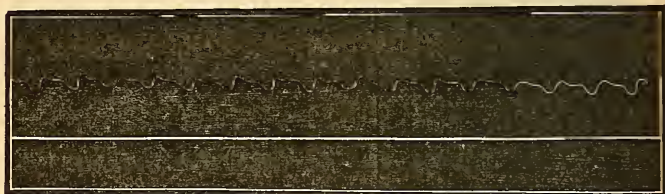
Her medical attendant, who visited her during the last few days

¹ I learnt afterwards that at this period the other patients in the ward suffered from sore throat.

of her life, noted that the bronzing was much more marked than after her last confinement, and that she assumed a mahogany tint.



Pulse-tracing, October 3, one hour after the inhalation of nitrite of amyl.



Pulse-tracing, October 10, one hour before nitro-glycerine was taken.

Table of Temperature, Amount of Urine Passed, and Number of Actions of the Bowels in the Twenty-four Hours.

	Temperature.	Amount of Urine in ounces.	Actions of the Bowels.	
Oct. 1, M.	Nitrite of amyl given.
E.	98	32	1	
" 2, M.	97.6	...	...
E.	97.4	30	1	
" 3, M.	97.2	...	...
E.	98	31	2	
" 4, M.	97.2	Nitro-glycerine given.
E.	98	22	1	
" 5, M.	97.2	...	...
E.	98.4	24	1	
" 6, M.	97.6	...	...
E.	97.8	30	1	
" 7, M.	97.4	...	...
E.	97.4	33	1	
" 8, M.	97.6	...	...
E.	97	28	...	
" 9, M.	98	...	...
E.	97.4	35	1	
" 10, M.	97.4	...	...
E.	97.6	33	1	
" 11, M.	97.8	...	...
E.	98	37	1	
" 12, M.	97.8	...	...
E.	98	36	1	

Table of Temperature, &c., continued.

	Temperature.	Amount of Urine in ounces.	Actions of the Bowels.	
Oct. 13, M.	98.2	...	...
E.	98.4	40	I	
„ 14, M.	97.4	...	...
E.	97.2	36	I	
„ 15, M.	97.2	...	...
E.	97	32	3	
„ 16, M.	...	...	...
E.	...	...	...
„ 17, M.	102.6	...	...
E.	101.6	...	...
„ 18, M.	101.8	...	2	
E.	101.6	...	...
„ 19, M.	101.8	...	...	} Nitrite of amyl instead { of nitro-glycerine.
E.	102	...	...
„ 20, M.	98.2	...	...
E.	98.6	...	...
„ 21, M.	98.2	...	I	
E.	100.6	...	...
„ 22, M.	98.4	...	...
E.	...	...	...

REMARKS.

Never having before had a case of Addison's disease under my care, I but slowly arrived at the conclusion that this was an example of that fatal ailment. At first I treated the case, as one of pernicious anæmia, with arsenic and steel; under that treatment she lost weight, the circulation became more feeble. I now (September 18) recognised the true nature of the disease, and observed also that its chief features were similar to those which I had observed in the few cases of disease of the nerves of the sympathetic system which had come under my notice, viz., great asthenia, accompanied by *rapidly increasing impairment of all the functions of organic life, although by careful examination no one organ could be pronounced diseased*; and, considering that the province of the sympathetic nerves is to preside over and regulate the nutrition and due discharge of the functions of the organs which maintain life, we might justly expect that when the sympathetic centres themselves should be at fault, either directly by central mischief or indirectly by reflex action, all the vital organs nourished and directed by them should show signs of impaired or misdirected work.

Recognising, moreover, in this disease that the semi-lunar

ganglion would probably be gravely affected, either directly or indirectly, it was easy to draw a parallel between this case of Addison's disease and those which I had previously witnessed of sympathetic nerve disease, in which no bronzing had occurred.

Now the only remedy which I had found useful in these cases was nitrite of amyl, as having the power of stimulating the circulation and dilating the arterioles.

I therefore gave, October 1, capsules of nitrite of amyl; and on the 7th, finding that she was holding her ground as to weight, and that the circulation and warmth had improved, as I hoped they would, I substituted for the nitrite, lozenges of nitroglycerine, gr. $\frac{1}{100}$ in each, as having a more permanent action, and with these in one week she not only gained two pounds, but her circulation improved; she became warmer, and the bronze tint actually got lighter. She continued to improve till, unfortunately in my absence, she got a shock from seeing another patient die; at the same time she was attacked with sore throat, which caused great prostration and fatally weakened the already slender thread of her existence.

Though this case terminated, as all other recorded cases of this disease have terminated, fatally, yet I still think it to be worthy of record, as showing how, for a limited period, under the influence of small doses of certain drugs which have the property of increasing circulation by acting on the sympathetic system, the patient rallied, gained weight, sat up, and actually became of a lighter tint of skin. This surely affords encouragement for a further trial of these drugs in similar cases. The coincidence of the colour-lightening, which all who saw her remarked, with the improved circulation and warmth, rather points to the skin-bronzing being caused by defective cell-action, the result of feeble circulation and impaired nerve nutrition; the same may be in a lesser degree noted in many cachexiæ, pigment being deposited instead of being eliminated.

No. II.—*A Case of Fistulous Opening between Bladder and Small Intestine.*

M. A. B., æt. 25, married, no children, was admitted an in-patient at the Colchester Hospital, September 10, 1869.

Statement.—Her illness commenced the previous Christmas with sickness, diarrhoea for a day or two, and sharp pain about the navel, followed by constipation. The pain at the navel lasted twelve weeks.

From the first she noticed an offensive fæcal-smelling sediment

in her urine; this sediment has increased in quantity lately. No urine is passed per rectum. From the first the urine has always contained fæcal matter, causing pain and frequency in micturition. She has never recovered her strength.

She is thin and sallow-looking, but with some colour in her cheeks. Tongue red at tip, with a thin white fur; always thirsty; appetite good. Pulse 120, small. Sleeps fairly well. Bowels open twice to-day, four times yesterday, with pain at the umbilicus. A tender spot is found on examination a little below and to the left of the umbilicus; to this spot the pain is referred.

She was ordered tinct. opii ℥x. ex aq. cinnamoni ter, port wine ℥ij., and meat diet.

September 17.—Her weight was 6st. 10lbs. Having during the week tested the accuracy of her statements, and noted fæcal matter (like thin gruel, coloured light yellow brown) constantly passing in the urine, the bowels being now quiet, treatment was commenced. The idea was, that by keeping her on her back for weeks, giving her opium to quiet peristaltic action, and only liquid food, the opening might either heal or else contract, so that semi-fluid matter might no longer pass. This would require time; it was therefore necessary to explain to the patient the rationale of the treatment, and obtain her consent to continue decubitus for weeks and absence from solid food. She agreed, and was now ordered absolute rest in bed. Milk oi., beef-tea oij., wine ℥iv. Emp. canth. 3×2 to the painful spot, and acid sulph. dil. ℥x., tinct. opii ℥x. ex aq. cinnamoni ter die.

September 21.—Bowels act once daily; sleeps well; always thirsty; tongue clean; urine always contains fæcal matter, but in less degree than before. To take milk oij., beef-tea oi.

September 28.—Better; urine contains floating oil globules, and still some fæcal matter.

October 1.—Milk oij.

October 20.—Being tired of lying in bed, she went out by her own wish. Still always passing a small quantity of thin fæcal matter *per urethram*. Weight, 7st. 2lbs.

January 18, 1870.—Scarcely any trace of fæcal matter in urine, only a few filmy specks.

REMARKS.

Whether there was a direct opening between the bladder and intestine, or a fistulous canal of some length, cannot be accurately determined; but I am inclined to think that the latter was the case, and that the canal was at least half an inch long. During the first week meat diet was given, yet the sediment in

the urine was always finely grumous, and no solid matter was ever passed. If the communication had been direct, I can hardly see how, between 20th October and 18th January, while she was at home and about her work, so much further improvement could have taken place. It will be noted that she remained in bed thirty-seven days, a period quite as long as a young married woman might be expected to remain quiet away from her home, and that in that time, though taking liquid nutriment only, she gained 6 lbs. There was no tubercular taint about her, nor was there any history of typhoid at the commencement. The cause, therefore, of the mischief is obscure. The result of the treatment of this case, novel as it was to me, was, I think, eminently satisfactory.

No. III.—*Incontinence of Fæces for Three Years.*

G. B., æt. 9, a boy of healthy look, was brought to me by his mother on 10th April 1888, who stated that up to six years old he passed his motions naturally, but since then he was unable to retain his fæces, which dropped from him as he walked. His general health was good. He was admitted an in-patient. On examination his rectum was much dilated and full of fæces; the sphincter ani lax, and without tone. Weight, 3st. 12lbs.

He was ordered meat diet, an enema of ol. ricini daily, and, when the bowel was emptied, another enema of zinc, alum, and catechu daily. At first some difficulty was experienced in unloading the rectum and colon; but this having been accomplished by means of enemata, the treatment went on steadily till 4th May, when he was ordered tinct. ferri sesquichl. ℥v. ter die, pulv. glycyrrhizæ co. ʒi. omni mane.

On the 14th his weight was 3st. 13lbs., and on the 16th he was discharged, having now no difficulty with his bowels.

It has been generally noticed that over-distension of the rectum and colon will induce the habitual passage of bulky evacuation having a large diameter, and that without sphincter inconvenience; but it may not be so generally known that the converse is equally true, and that under the daily habit of emptying the rectum with liquid motions by the use of salts, if these be discontinued, and the motions become at all solid, the passage of a stool having a very moderate diameter, say one inch, is attended with considerable rectal discomfort and sphincter pain. The knowledge of this habit enables us to foresee that if this boy's rectum and colon were emptied daily, and kept, so to speak, at rest, they would recover tone and contract, as indeed they did.

No. IV.—*Observations on the Vocal Cords in Action, taken
Twenty Years ago.*

Thomas J., æt. 44, once a postman, also boots at a hotel, then in Colchester Union, cut his throat July 5, 1861. The wound healed, all but an irregularly-rounded opening $\frac{3}{10}$ inch \times $\frac{2}{10}$ inch, through which the interior of the larynx and the vocal cords might be seen.

Counting.—On making him count 1 to 10, the vocal cords approximated so as to leave an open slit, the free edges along the slit being thrown into excessive vibration, and resembling transparent films of mucus vibrating; the remaining half of the vocal cords approximated closely to the thyro-arytenoidei muscles, they seemed to be about $\frac{1}{8}$ inch in thickness, and to be bevelled off.

When dwelling upon the word "two," a thin membrane (the true vocal cord) became apparent, extending the length of the anterior half of the cords, which approximating, left an oval opening, through which the air passing made the sound, the thin free edge being by the act of approximation extended (as the valves of the heart are by the back flow), and thrown into vibration by the upward air current.

The posterior portions of the cords separated and came together, but the anterior remained apart.

Holding the breath.—The aperture was distinctly closed.

Whispering.—The vocal cords during their entire length are separated about $\frac{1}{8}$ inch, even more at the posterior half than at the anterior half.

In uttering a deep note the approximation seemed to be greatest, the air emitted throwing the cords into vibration, but only a trace of any opening was visible. During a high note the opening was elongated. During a medium note the opening was only slightly elongated.

Vowels.—In pronouncing these, the anterior halves were slightly open, the posterior halves closed.

In whispering vowels the posterior were open, the anterior more so.

In sounding *a, b, p, s, g*, a double movement was observed in the approximation of the vocal cords, and the posterior halves were observed to be more open than in pronouncing the other letters, especially when pronouncing *g*.

In forming a bass note the opening between the vocal cords seemed shorter and rounder.

In forming a high note the opening seemed longer and narrower, and the glottis was elevated and drawn back.

On listening with a stethoscope over the aperture: A was well marked. B, C, E, ill defined. D more indistinctly defined. F clear. G, H, less clear. I, J, K, very indistinctly defined. L not clear. M, N, very indistinctly defined. O, P, not quite clear. Q, the vibrations seemed to be communicated direct to the tympanum with a peculiar thrill. R clear, with slight vibration. S clear, sharp. T, U, clear, with some vibration. V clear. W not clearly defined. X, Y, a little more clearly defined. Z not clear.

CASES ILLUSTRATING THE
CLINICAL COURSE AND STRUCTURE OF DUCT-
CANCERS OR VILLOUS CARCINOMAS
OF THE BREAST.

BY

ANTHONY A. BOWLBY.

CASE I.—Sarah B., æt. 39, was admitted into Lawrence Ward, under Mr. Marrant Baker, on February 26, 1886, on account of a tumour of the right breast. She was a married woman, who had borne five children, and had had a miscarriage sixteen months before her admission into the Hospital.

She stated that about seven months before she saw Mr. Baker she noticed a small lump in the right breast, and that a month later she first saw a discharge from the nipple. This continued at intervals until her admission.

On examination of the right breast, a tumour was discovered the size of a large hazel-nut, just beneath the right nipple. It was globular in shape and elastic to the touch, and on examining it with a view to the detection of fluctuation, about half a teaspoonful of slightly blood-stained serous fluid escaped from the nipple, and the tumour at once diminished in size.

On March 30th the tumour was removed, together with some tissue forming the base of the nipple. The growth was found to be cystic; and the cyst was formed by the dilatation of one of the milk-ducts. Sprouting into the cavity of the cyst was a small pedunculated papillomatous growth, bright red in colour, and looking like a ripe raspberry.



Fig. 1.

Papillomatous growth
inside a cyst. From
Case I.

On the surface of the rest of the cyst were about 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 (see fig. 1).

On November 22nd of the present year the patient wrote to me to say that she continued in good health, and that there was no swelling in the breast.

CASE II.—Henrietta N., æt. 44, was admitted into Lawrence Ward, under Mr. Baker, on June 7, 1886. She was a married woman, with five children, and had always enjoyed good health, but had never been able to suckle with the right breast. The family history was unimportant, except for the fact that her mother had died of cancer of the breast.

The history the patient gave was that, after a miscarriage four years since, she first noticed a thin, blood-stained discharge from the right nipple, which was always most marked at the menstrual periods. For about two months previous to her admission the discharge had been most profuse, and a lump had appeared about the same time a little to one side of the nipple.

Present condition.—A healthy-looking woman. Just below the nipple is a tumour the size of a hazel-nut, rounded in outline, firm but elastic to the touch, moveable on the deeper part of the breast, and evidently connected with the ducts beneath the nipple. The latter, however, is not retracted, and on squeezing it there is a slight serous discharge. The glands in the axilla are not enlarged.

On June 10th the tumour was removed. It consisted of two distinct cyst-like swellings containing a soft, red, friable growth, together with some blood-stained fluid. The growth was granular on the surface, and inseparable from the cyst-wall over the greater part of its circumference. It also grew through the cyst-wall, and was continuous with the breast tissue around.

On November 22, 1888, the patient wrote to say that there had been no recurrence of the growth, but there was still a discharge from the nipple.

CASE III.—Florence S., æt. 29, unmarried, was admitted into President Ward, under Mr. Smith, on April 1, 1886. Her past history and her family history were good. She said that she first noticed a tumour in her breast in December 1885, her attention being attracted by some slight pain. Since she noticed the growth it had slowly increased in size, and there had been a slight discharge of blood-stained fluid from the nipple.

Condition on admission.—On the upper and outer part of the left breast is a hard lumpy swelling of irregular consistence, and

as large as a pigeon's egg. The skin is irregularly bulged over the growth, but is not adherent. The nipple is not retracted. There are no enlarged glands.

On April 5th Mr. Smith made an incision into the growth, and finding that the breast was infiltrated, he removed the tumour with about half of the mammary gland.

On examination the tumour was found to consist of several separate growths in close contact. The growths appeared to be contained in cysts, and, in addition, the latter contained blood-clot and serous fluid. The solid part of the tumour was red, soft, granular, and very friable, not at all gelatinous or opaque like a sarcoma or scirrhus cancer.

The patient made a good recovery, but has not been heard of since she left the Hospital, and I have not been able to obtain any answer to letters of inquiry, as she left her place of residence soon after discharge.

CASE IV.—Mary Anne H., æt. 67, was admitted into Lawrence Ward under Mr. Smith on August 25, 1887. She was a married woman, but had never had any children. General health good.

She said that for four years she had noticed a lump in the left breast, to the inner side of the nipple. For three years it never gave any trouble, but for a year previous to her admission it had pained her, and there had been a discharge of a dark red fluid from the nipple. A fortnight ago the breast became suddenly inflamed and swollen, and had continued so ever since.

Condition on admission.—The inner half of the left breast is swollen, and the skin over it is red. The whole of this portion of the breast is more firm than natural, and is irregular and lumpy. In two places distinct fluctuation can be detected. The nipple is normal. There is one enlarged and tender axillary gland.

The breast was poulticed, and on August 31st one of the fluctuating swellings burst and discharged a small amount of reddish fluid.

On September 1st the patient was taken to "consultation." The general opinion was that the growth was malignant, and that it was probably scirrhus carcinoma.

On September 2nd the cavity which had burst was freely opened, and a little pus and a good deal of blood-stained fluid escaped.

As the treatment was not followed by any improvement, Mr. Smith amputated the breast on September 15th.

Subsequent examination showed that while most of the breast was healthy, a probe passed in from the incision of September 2nd entered a cyst the size of a small walnut, the walls of which were smooth, and contained no solid growth. On the inner side of the

nipple there was another cyst which had not been opened. It contained some blood-stained fluid, and a soft papillated growth, which was granular and friable on the surface, and dark red in colour. This growth was continuous with a very hard, dense, and nodular tumour, situated partly in the wall of the cyst, and partly in the surrounding breast tissue, and looking on section like a scirrhus carcinoma. In July 1888 the patient was quite well, and no growth could be felt in the breast or the axilla.

CASE V.—Eliz. C., aged 43, was admitted into Lawrence Ward, under the care of Mr. Baker, on September 16, 1883.

The patient was a single woman, and had noticed some lumps in the left breast about four or five months. An examination of the breast discovered several small, firm, rounded swellings. The axillary glands were not enlarged.

On September 19th Mr. Baker made two incisions over the largest of these lumps, and removed all of them without trouble.

I did not see the patient at this time, nor did I have an opportunity of examining the growths; but on May 2, 1887, the patient returned to the Hospital on account of a recurrence of the tumour, which she had noticed about one year.

At this time the breast was occupied by an irregular lobulated tumour, situated on the inner side of the nipple, with a bossy outline and a sense of elasticity, or almost of fluctuation, in parts.

There was no glandular infection, and the skin was not implicated. No discharge from the nipple had been noticed.

On May 5th Mr Baker removed the whole breast, and a subsequent examination showed that the tumour consisted of several rounded, apparently encapsuled swellings, which on incision were found to contain blood-stained serum and some dark red, very soft, and friable solid growth. Some of these swellings were quite separate from the main mass, and one of the nodules in particular was so deeply pigmented as to look like a melanotic sarcoma. Some of these growths were in the breast, and others were in the fat around the gland (see fig. 2).

The wound healed well, and the patient was discharged.

In March 1888 I sent for the patient in order to see if there was any recurrence, and found at the inner end of the scar a small



Fig. 2.—Section of a breast with three nodules of duct-cancer, one of which is in the fat outside the breast.

nodule, the size of a hazel-nut. After much persuasion the patient allowed its removal, and when this was done by Mr. Baker, a careful examination revealed no further growth and no implication of the axillary glands.

The tumour removed on this occasion was not so pigmented as most of those removed previously, but in other respects did not differ from them.

CASE VI.—Susannah S., æt. 64, was admitted into Sitwell Ward, under Mr. Baker, on June 8, 1887. She had been married, and had borne three children. Her general health had been good. Her mother had died of cancer.

Eighteen months before admission the patient had noticed a tumour in the left breast, which although at that time no larger than a hazel-nut, had steadily increased in size. There had been no discharge from the nipple.

On examination, the breast was found to be occupied by a tumour of considerable size, situated chiefly in the upper and inner parts of the gland. The growth was very irregular in outline and consistence. It presented several rounded masses, some of which yielded a sense of fluctuation, whilst others were apparently solid.

The nipple was not retracted, the skin was not implicated, and the axillary glands were not enlarged.

On June 9th the patient was taken down for "consultation," when the general opinion expressed was that the growth was a sero-cystic sarcoma, and it was recommended that the breast should be removed.

On June 16th the breast was amputated, and subsequent examination showed the following condition. The tumour consisted of a series of cysts filled with blood-clot, serum, and a soft, reddish, friable, solid growth. The tension in the cysts was high, and before being cut open they gave a deceptive sense of a solid body. Some of the cysts contained only dark blood and no solid, and many of them were no larger than a pea.

On June 20th the patient was attacked by erysipelas, and of this she died on June 26. A post-mortem examination showed no growth in the axilla or elsewhere.

CASE VII.—Caroline T., æt. 38, was admitted into President Ward, under Mr. Butlin, on September 13, 1888. She was a married woman, who had enjoyed good general health. Her 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 very slowly. Three months before

admission a blood-stained discharge commenced to escape from the nipple, and continued to do so at the time she came into Hospital. She suffered no pain.

An examination of the breast showed a little excoriation of the nipple, and a drop of serous fluid could be squeezed out on slight pressure. On the inner side of the nipple was a firm swelling, about the size of a small walnut, moveable in the gland, irregularly rounded in outline, and slightly lobulated. Although close to the nipple, the latter was not retracted. The axillary glands were normal.

On September 14th, an incision was made into the tumour, and some soft, red, and friable growth, darkly stained in places with extravasated blood, was removed, together with some blood-stained fluid.

The wound healed well, and the patient left the Hospital on September 29th.

The microscopical appearances presented by the growths removed in all the above cases were practically identical. The tumours were all papillary in nature, and in those cases where there was a definite cyst-wall the papillæ grew directly from its epithelial lining. The tumours were all of the arborescent or foliaceous type of papilloma. The base of each papilla was formed of very delicate connective tissue, which in some cases was almost myxomatous in nature, and on this grew several layers of short columnar epithelial cells. The papillæ branched in all directions, giving off numerous offshoots of various forms and sizes. Many of these branches coalesced, and by so doing formed an irregular network enclosing spaces of different sizes and shapes. In all parts of the sections more or less infiltration of blood had taken place, and red-blood cells in various stages of disintegration stained all parts of the sections, and fully accounted for the pigmented appearance presented to the naked eye. Up the centre of each papilla ran a large and very thin-walled blood-vessel, whose branches followed the ramifications of the growth. In some of the sections cysts without any papillary ingrowth could be seen, and in others the ingrowth was only commencing. The disease appeared to affect different parts of the breast at one and the same time, and in some parts of the mamma near to the tumours, where the naked eye could not detect any definite tumour formation, the microscope yet revealed the early development of cysts. In many sections it could be seen that the cell-growth was not entirely confined by the cyst-walls, but that in places the cells had extended through the lining membrane into the subjacent connective tissue of the gland, and had formed cysts of new formation as apart from the mere dilatations of pre-existing ducts or acini. It is by

this extension of cell-growth that those tumours situated outside the breast tissue are to be accounted for (see figs. 3 and 4).



Fig. 3.—Section of duct-cancer under a low power, showing the interlacing processes covered by epithelium. From Case I.

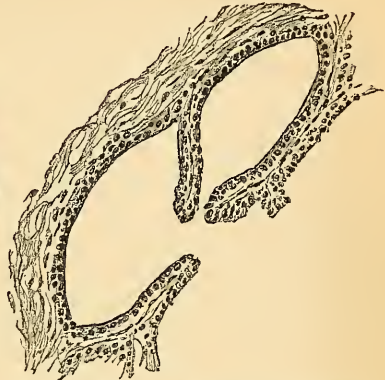


Fig. 4.—Duct-cancer under a high power, showing the papillary processes springing from the cyst-wall and their central blood-vessels. From Case V.

In Case IV., in addition to the above appearances, there was found in the more dense parts of the tumour already mentioned a very definite growth of alveolar carcinoma, differing in no way from the common scirrhus type except in the comparatively small amount of its fibrous stroma.

The cases I have described do not stand quite alone, and, indeed, my attention was first directed to them, as a group by the examination of a tumour removed by Mr. Butlin in 1884, and now preserved in our Museum. In this case the growth was so darkly pigmented that to the naked eye it looked exactly like a melanotic sarcoma, and both Mr. Butlin and myself were misled as to its true nature, and considered the growth to be sarcomatous. Yet there can be no doubt that the tumour belonged to the same class of cases as those under notice. The following is a brief summary of the description given by Mr. Butlin in vol. xxxviii. of the Pathological Society's Transactions, p. 343.

The patient was a woman aged 60, and had noticed a tumour growing in her breast for one year. "It was as large as a bantam's egg, situated below and external to the nipple; was firm in feel; irregular in shape; not adherent to the integument. There was no retraction of the nipple, and the glands were not enlarged."

The breast was removed in June 1880, and the tumour was found to be "perfectly circumscribed, enclosed in a thin capsule, of brownish black colour, firm but friable."

Recurrent and similar growths were removed in June 1882,

February 1884, and October 1886; but the glands were at no time affected, and each growth appeared to be circumscribed.

In the report by the "Morbid Growths Committee," the microscopical appearances are thus described: "The most important fact evident on microscopic examination is the distinct papillary nature of the growth. From the inner surface of its fibrous walls there arise branching processes of connective tissue, in many places (especially in their ultimate subdivisions) of extreme delicacy and mucous in nature. All the processes are thickly invested with epithelium. The deepest layer of the cells is distinctly columnar. The rest, to judge from the spherical form and equi-distance of the nuclei, are probably spheroidal. Extensive hæmorrhage has occurred into the tissue of some of the delicate trabeculæ of the tumour. There is no pigmentation."

Two other cases of a similar nature have been recorded by Mr. Bilton Pollard in vol. xxxvii. of the Transactions of the Pathological Society, p. 483. The first one he names a "duct papiloma," and of this the following is a short summary:—

F., æt. 50, had noticed for twelve years a blood-stained serous discharge from the left nipple, which continued for three years without any other symptom, and was then succeeded by a warty growth projecting from the nipple. Although this was removed several times by caustic and ligatures, it continued to grow, and formed a hard lump in the breast extending two inches from the nipple, but not implicating the skin or causing glandular infection. After removal of the breast the growth was found to be of a "dark red colour with a granular appearance and a very friable consistence."

Microscopical examination showed that the growth was "an arborescent papilloma; there was a very delicate stem of fibrous tissue with innumerable offshoots all lined with two or three layers of epithelium."

Of the second case no details are given, but the naked-eye appearances of the tumour are thus described:—

"On section in the fresh state, this growth appeared like altered blood-clot contained in spaces separated from one another by fibrous tissue, and surrounded by fat with which the growth appeared to be penetrating." There were no enlarged lymphatic glands.

"The microscope shows the growth to be composed of papillary processes lined by columnar epithelium, and containing blood-vessels in which red blood discs are visible."

Mr. Bernard Pitts has recorded another case of the same nature, and showed the specimen at the meeting of the Pathological Society held on March 6, 1888.¹ The patient was a lady aged 53, who had noticed the tumour for three months. There was

¹ *Vide* Transactions, vol. xxxix. p. 320.

no affection of the axillary glands, and the nipple was not retracted. The tumour was soft, and much blood-stained, "like a melanotic sarcoma," and microscopic examination by Mr. Shattock showed a similar structure to that already described above.

Two other cases may also be mentioned, although their details are imperfect.¹ Mr. Shattock showed, at a meeting of the Pathological Society, a specimen of secondary growth of duct-cancer in a rib, from the museum of St. Thomas's Hospital; and Mr. Godlee² showed before the same Society a tumour which was probably a duct-cancer in which secondary growth had occurred in the axillary glands. In the present year Mr. Battle³ recorded another case of duct-cancer in a woman aged 45, in whom the axillary glands also contained growths, but the glandular portions were not examined microscopically.

It is, I think, evident that the cases I have referred to form a very definite group, and one which may be clearly separated from the more commonly described tumours of the breasts. Their minute structure has already been described by Cornil and Ranvier under the name of "villous carcinoma." Yet the clinical course, and even the naked-eye appearances, of these tumours has not been thoroughly recognised by the most recent writers on diseases of the breasts, and for the most part the statements that have been made concerning "duct-cancers" or "villous carcinomas" are misleading. Thus, in one of the best known works on surgery such growths are said to "infiltrate surrounding parts, to infect the glands, or to generalise like ordinary cancer." In another and very recent work the same statement is made, but I think the true condition of affairs has been expressed by Mr. Beck in his article in "Heath's Dictionary of Surgery," where he says: "The clinical features of the disease cannot yet be accurately defined." It is chiefly on this account that I have thought it worth while to collect these cases, for they are sufficiently numerous to be of some service in determining the clinical character and the course run by such tumours.

Of the eleven cases under notice the ages of the patients were as follows:—

Between 20 and 30	one case.
„ 30 „ 40	two cases.
„ 40 „ 50	two cases.
„ 50 „ 60	two cases.
„ 60 „ 70	three cases.

In one case the age is not mentioned.

In seven cases the patients were married women, in two they were unmarried, and in the two others the matter is not mentioned.

¹ Trans., vol. xxxix. p. 324.

² Path. Soc. Trans., vol. xxvii. p. 270.

³ Path. Soc. Trans., vol. xxxix. p. 322.

In five out of the seven cases I have recorded there was discharge of blood-stained fluid from the nipple, either before the growth was noticed or during the development of the tumour. In one of Mr. Pollard's cases the same discharge is recorded. The nipple and its areola were normal in every case.

In none of my cases were the axillary lymphatic glands affected.

In all the cases the tumours were situated close to the nipple, but in none of them was the nipple retracted.

In one case (Case IV.) the skin was involved in a suppurating cyst, but in all the others it was neither puckered, adherent, nor ulcerated.

In two of the cases the tumours recurred locally, but did not affect the lymphatic glands or the viscera. In none of the patients up to the present time has the disease proved fatal.

The cases seem to justify the following conclusions as to "duct cancer" or "villous carcinoma":—

1. The patients are mostly over middle age.
2. In a considerable proportion of the cases there is at some time a discharge of fluid from the nipple, but the growths are never associated with eczema of the nipple or Paget's disease.
3. The axillary glands are not usually affected.
4. The tumours are not of very rapid growth.
5. Neither the nipple nor the skin are usually retracted, but the growths are commonly situated near to the nipple.
6. The tumours are occasionally multiple in the same breast, and are firm or elastic to the touch, rather than hard and nodular like a carcinoma.
7. On section the growths are seen to be encysted, and are generally darkly blood-stained, soft, and friable. Some of the cysts are almost filled with solid growth; others contain little but blood-clot and serum. The cysts may be situated either in the gland or in the surrounding fat.
8. The tumours are liable to recur locally, but are not so prone to affect the glands or to disseminate as are the spheroidal-celled carcinomas.

If attention be paid to these points, I think no difficulty will be found in diagnosing these tumours from scirrhus carcinomas; the difficulty rather lies in separating them clinically from the cystic sarcomas. With regard to this, the following points are worthy of attention:—

Duct-cancers occur frequently in old women, in whom the growth of cystic sarcoma is rare; they may form several separate growths in the same breast; they do not attain so large a size, nor do they grow so rapidly as do the cystic sarcomas; the discharge from the nipple is not so much blood-stained.

OUR SURGICAL CONSULTATIONS.

BY

W. J. WALSHAM.

WITH A BRIEF ACCOUNT OF SOME OF THE MORE INTERESTING
CASES ON WHICH CONSULTATIONS HAVE BEEN
HELD DURING THE PAST SIX MONTHS.

FROM NOTES BY THE HOUSE-SURGEONS,

MESSRS. FARRAR, CAUTLEY, EVILL, WHITE, NAPIER,
DAVENPORT, GOW, LYNDON, AND WATTS.

Our Thursday afternoon Consultations have always been one of the most popular institutions in connection with the surgical teaching of the Hospital, and there are few Bartholomew's men, I imagine, to whom they are not now familiar. Their value not only to the students and our younger qualified men, but also to the members of the surgical staff themselves, has long been recognised; and both the area and body of the operating theatre, in which they are held, is generally on these afternoons, at least during the session, full to overflowing.

As, however, there may be some of the older members of the school to whom, either by reason of their not having visited the Hospital in recent years, or from their not having happened to be present there on a Thursday afternoon, the nature and scope of our Consultations is not so well known, a short description of what I venture to think is one of the most useful and instructive methods of clinical teaching on the surgical side of the house may not be out of place in this year's volume.

The Consultations were started some fifteen to eighteen years ago, and, like other of our methods of clinical instruction, have been of gradual growth. They were at first held in the wards, but it was found, as they increased in popularity, that the attendance of students was so large that it was impossible for all of them to see

the patient and to hear the remarks that the surgeons had to offer. To obviate this difficulty, therefore, the patients are now brought into the operating theatre. Here not only can all hear and see alike, but the examination can be more systematically conducted, the light is better, and appliances are at hand should any physical investigation be required or an anæsthetic need to be administered. This arrangement holds good for all cases except where the patient would suffer from being thus removed from the ward.

The Consultations are held every Thursday at 1.30 throughout the year. At this hour the surgeons, assistant-surgeons (and frequently all of them are present), with their house-surgeons and dressers, assemble in the operating theatre. There is also a large attendance of the students, a considerable number of our younger qualified men, generally a sprinkling of our older members, and perhaps a stranger or two who may be visiting the Hospital on that day. Indeed, we are always glad to see our old students and other qualified practitioners who may honour us with their presence at what may, I think, be fairly considered not only part of our school-instruction, but also in a measure a post-graduate course. The patient is brought into the theatre, and the surgeon under whose charge he is either reads the notes of the case from the head-board or gives a shorter or longer *resumé* of the history of the case; and whilst informing his colleagues of its probable nature, especially calls the attention of the students and others to the physical signs of the disease or injury which are exhibited by the patient, and such points in his local and constitutional condition as he considers more particularly worthy of their observation. But whilst the patient is in the theatre, no remarks which could in any way hurt his feelings or increase his anxiety as to his condition are made. Each of the surgical staff then in turn examines the patient, who is afterwards taken back to his ward. The surgeon in charge of the case next states the diagnosis at which he has arrived and the treatment he proposes; or, if the diagnosis admits of doubt, he discusses the probable nature of the injury or disease, and lays before his colleagues and those present the various constructions which he thinks may be put upon the case, and his reasons for coming to this or that conclusion. The several methods of treatment, where more than one is open to him, are next considered, and the advantages as they appear to him of this or that one are duly weighed. The surgeons then, in order of their seniority, give their opinions and the treatment they would adopt, openly stating any additional reasons that may occur to them for agreeing with or dissenting from the view of the surgeon showing the case. It occasionally happens, therefore, in obscure affections, that con-

siderable divergence of opinion is expressed both as regards diagnosis and treatment, so that the student in such cases enjoys the advantage of hearing what may be said from various points of view, and is able to enter into and appreciate the difficulties that the diagnosis or treatment may present; whilst, subsequently, if he accompany the surgeon on his visit to the wards, he is in a better position for examining the patient for himself, having already had the opportunity of observing the way in which the examination has been conducted by the surgical staff. Further, from the case having thus been brought prominently under his notice, it is more likely to make a lasting impression on his mind, and must increase the interest with which he watches it to its conclusion.

The Consultations, however, are not confined to rare cases, or to those in which the diagnosis is difficult or obscure and the treatment an open question; but what may be called everyday cases, which, however, present especially well-marked or typical signs and symptoms of the affection, or which illustrate some important principle in surgery, are also from time to time shown; whilst frequently, too, as opportunities present, a series of like cases, but with the disease in various stages of progress, or in which the likeness is merely apparent, are brought in this way before the notice of the student. In such instances the opportunity is not lost by the surgical staff of pointing out the important signs which serve to distinguish such apparently similar though essentially different diseases, and of calling attention to the special treatment required in each case.

In marked contrast is this open expression of the opinions of the staff to what was the usual custom in former times. Indeed, at an infirmary where I spent part of my student days, when a Consultation was to be held, the students were all requested to leave the ward, and the surgeons having consulted within closed doors, we were only informed of the decision afterwards, and were not told what were the points at issue, or given any inkling of what views had been expressed.

Several of us, myself among the number, have for some time felt that the value and interest of the Consultations would be enhanced if some record were kept of what ultimately became of the cases shown. For although, when a case of special interest has been the subject of Consultation, the termination generally becomes known in the Hospital, cases of secondary importance, but still illustrating some point either of diagnosis or treatment, are apt to be forgotten, except by those in charge, and the time and thought thus given to them at the Consultation, and the lesson which might otherwise have been learnt from them, are

lost. In order, therefore, to ascertain whether our diagnosis was verified or refuted by the subsequent history, and whether an operation recommended, if undertaken, was successful or the reverse, I started during the past year keeping a record of the cases shown week by week, with the results added, as they became known, on a printed form which is hung up in the instrument room for the use of all. With the aid of this record, supplemented by the notes kindly furnished me by the house-surgeons, I here give, with the permission of my colleagues, the following brief account of some of the more important cases on which Consultations have been held during the past six months. Special reference is made to the points of interest and difficulties of diagnosis which the cases displayed, and to the results, as far as they were ascertained by subsequently watching the case, by operation, by microscopical examination, and by post-mortem examination in the case of death.

SOME OF THE MORE INTERESTING CASES SHOWN AT
CONSULTATIONS DURING THE PAST SIX MONTHS.

THURSDAY, JANUARY 26.

- I. *Congenital tumour in an infant.*—II. *Tuberculous disease of knee and ankle.*—III. *Congenital cystic hygroma of neck.*—
IV. *Swelling beneath breast.*

CASE I.—*Mr. Willett* showed a congenital tumour in an infant. It was about the size of the foetal head, and apparently sprang from the spinal column, but involved more or less of the left buttock. The swelling was tense and fluctuating, non-translucent, and on tapping, blood-stained fluid was let out. The question submitted was whether the swelling was a congenital sacral tumour, a spina bifida involving the lower part of the vertebral column, or a congenital tumour beneath the gluteus maximus? Differences of opinion were expressed. All were agreed that, whatever might be done, or even if nothing were done, the child would not long survive. The cyst having been tapped on three occasions in the Hospital, Morton's fluid was subsequently injected three times. The child died, and the tumour turned out to be a congenital cyst attached to the front of the sacrum and coccyx, just behind the rectum. It contained a clear fluid and a soft gelatinous solid.

CASE II.—*Mr. Langton* showed a patient with tuberculous disease of the knee and ankle. He had also a discharge from the ear. The question was raised, seeing that the ankle-joint was spoiled but that the knee was only affected to a slight extent, whether an amputation should be done through the leg or through the thigh, or whether, seeing that there was probably tuberculous disease already present in other organs, it would not be better merely to place the limb in some fixed apparatus, and trust to constitutional treatment only. The latter view received general support. The limb was placed in a fixed apparatus.

CASE III.—*Mr. Morratt Baker*.—This was a case of congenital cystic hygroma of the neck. The mother had first noticed the swelling three weeks after birth, and it had gradually increased in size since, but more rapidly the last three weeks. The boy was now $3\frac{1}{2}$ years old. Over the left shoulder was a globular swelling, divided by a constriction into an anterior and posterior part. It extended from the clavicle in front to the spine of the scapula behind, and from the middle line of the neck on its inner side to the coracoid process on its outer. The swelling was soft, and only very loosely connected with the deeper structures; the skin over it was moveable. The anterior and posterior portions clearly communicated with one another, and fluctuation was well marked from the one to the other. The swelling caused no pain, and gave rise to no symptoms. All were agreed as to the nature of the swelling, and advised injection with Morton's fluid. Rather less than a drachm of the fluid contents having been drawn off, twenty-five minims of Morton's fluid were injected, with a marked decrease in the size of the tumour. The injection was repeated on 23rd February. When the patient left the Hospital, the tumour was much smaller and firmer, and very freely moveable on the deeper structures.—(*Notes by Mr. Arnold Lyndon.*)

CASE IV.—*Mr. Walsham* brought in a woman suffering from a swelling beneath the right breast. The swelling had increased rapidly, and was apparently attached to the upper rib. The superficial veins were enlarged, but the subjacent skin was not adherent. The surface of the swelling was hard and irregular, except at one spot, where there was just a suspicion of deep-seated fluctuation. The tumour, if such it were, was clearly unconnected with the breast, and Dr. Moore, under whose care the patient had been, was of the opinion that it did not involve the interior of the chest. That it might be a gumma had not been lost sight of. There was no history of syphilis, however, and mercury and iodide of potassium had no effect on the swelling. The diagnosis seemed

therefore to resolve itself into the question of its being a sarcoma or a deep-seated abscess. The general view taken was that it was of the former nature. The patient was subsequently admitted into the Hospital under the care of Mr. Willett, but no operation was considered advisable. The malignant nature of the tumour when she left the Hospital had fully declared itself.

THURSDAY, FEBRUARY 2.

I. *Swelling over right tibia—Sarcoma.*—II. *Swelling of upper jaw.*

CASE I.—*Mr. Smith.*—This patient, a custom-house officer, came to the Hospital in December 1887, complaining of a swelling in the right leg, which first appeared four or five months before. There was no history of any previous injury. He had slight pain in the foot and limitation of flexion and extension of the foot and toes, symptoms which were increasing in severity. The swelling was situated on the front of the leg, occupying the middle third of the tibia, and was oval and regular in shape, soft but elastic, and in parts gave a distinct sensation of fluctuation. The borders of the swelling were ill-defined, and it was immovable and adherent to the skin and deeper structures. The skin was smooth, slightly discoloured, stretched tightly over the swelling, and contained several enlarged veins. There was no pain or tenderness, and no pulsation, bruit, or crackling. No enlarged glands could be felt.

Here was one of those interesting cases shown from time to time at Consultations in which the diagnosis lay between a new growth and an inflammatory condition. The situation of the swelling, its oval and regular shape, the sensation in places of distinct fluctuation, and the redness of the skin pointed to inflammation; but, on the other hand, the absence of pain and tenderness, the history of the case and the enlarged veins were in favour of a new growth. It was pointed out that the temperature in such cases is not of much assistance, as it may be raised in the case of new growths, and remain normal in some inflammatory affections, and that the local condition of the swelling was compatible with either view. When first seen at Consultations (December 1887), very doubtful opinions were accordingly expressed, some inclining to the sarcomatous, some to the inflammatory view. It was agreed that the patient should be watched, but no active measures taken at present. The patient's leg was carefully measured, and he was kept under observation for a time. The swelling being found to increase very slightly in size, the part where apparent fluctuation was most

distinct was punctured, but no pus obtained. Complete rest in bed, moreover, had no effect in diminishing the size of the tumour. He once more came into Consultations on February 2, and this time the opinion expressed was unanimously in favour of sarcoma rather than inflammation, and amputation was recommended, but that first an exploratory incision should be made. The patient went home, and was readmitted early in March, with a view to undergoing the operation. This was performed on March 8. The preliminary incision showed that the swelling was due to a sarcomatous growth (round-celled, and of the consistence of brain substance), which had destroyed the tibialis anticus, penetrated the interosseous membrane, and extended upwards towards the head of the fibula, where bare bone was felt. The growth was easily shelled out, but not completely, and the tibial vessels were deeply involved, so amputation was performed above the knee. The patient's recovery was retarded by an attack of paroxysmal albuminuria, but was eventually complete; and he is now, eight months later, without any return of the disease, and earning his living in his former employ.—(Notes by Mr. Claude Evill.)

CASE II.—Mr. Langton raised the question whether in this case the swelling in the upper jaw was due to inflammation or to new growth. The majority were in favour of the latter view, and advised removal of the superior maxilla. The operation was subsequently undertaken.

THURSDAY, FEBRUARY 9.

I. Parotid growth.—II. Gangrene of the toes.—III. Lymphadenoma.—IV. Severe talipes.

CASE I.—Mr. Savory brought a patient into the theatre with a recurrent growth in the left parotid region. The first growth had been removed twenty years previously by Mr. Holmes Coote. Beneath the situation of the former scar was a large irregular oblong tumour, reaching from the ear to a little in front of the masseter. The first sign of a return was noticed in the scar two years after the removal of the tumour, that is, eighteen years ago; since that time it has very slowly increased till two years ago, when it began to grow more rapidly. The skin is now inflamed and adherent to a part of the tumour, which itself, however, is freely moveable on the deeper structures. At the lower part there is a distinct sense of fluctuation, which was attributed by the patient to a blow he had received a week before admission. The question arose whether this softer part was due to inflammatory

changes in the tumour, to the formation of a cyst, or to extravasation of blood. The heat and redness of the skin were in favour of inflammation. Removal of the tumour was advised. It proved to be an adeno-sarcoma, with, as is usual in these growths, masses of cartilage scattered through it. The fluctuating part appeared to depend upon the breaking down of the tumour structure and extravasation of blood, the result of the blow.—(*From notes by Mr. Farrar.*)

CASE II.—*Mr. Morratt Baker* showed a patient with gangrene of the toes. There was no pulse to be felt in the femoral, popliteal, tibial, and dorsalis pedis arteries. The woman, who was thirty-seven years old, had aborted ten weeks previously, and nine days later, whilst walking across the room, was suddenly seized with sharp pain in the left groin, followed by burning pain and numbness in the left foot, which at once began to swell, and looked as if it had been blistered. She was ordered by her medical man to rub it with a liniment; but the foot began to turn black, and later a red line at the margin of the black part appeared. On admission, the toes of the left foot were quite mummified, black, and in a condition of dry gangrene. A line of demarcation had already formed, and extended obliquely across the dorsum of the foot, one inch behind the cleft of the toes, the outer part of the foot being involved to a greater extent than the inner. A similar line of demarcation had also formed on the sole. The whole foot was cold; there was no plugging of the saphenous vein. The heart-sounds were feeble, but there was no murmur. It was considered at the consultation that the gangrene was the result of an embolus which had plugged the femoral artery, and no formal operation beyond removing the gangrenous part at the line of demarcation was recommended for fear of restarting the gangrene in the flaps. The slough was subsequently taken away, the bones being nipped through with the forceps. The gangrene, however, spread a little higher up the foot, and several fragments of necrosed bone from time to time separated. She was readmitted on May 21, with the foot again swollen and painful, and remained in the Hospital till June 20, during which time several small fragments of bone were removed. When discharged, no pulse could be felt in the dorsalis pedis artery, and that in the femoral artery was doubtful.—(*Notes by Mr. Arnold Lyndon.*)

CASE III.—*Mr. Marsh* showed a patient suffering from enlarged glands in the right side of the neck and in other situations, as the axilla and groin. He considered it a well-marked example of one of the forms of lymphadenoma, and pointed out the

chief characters that the case presented. All agreed in the diagnosis, and thought that no operation should be undertaken. Arsenic in large doses was advised.

CASE IV.—*Mr. Bruce-Clarke* asked the opinion of his colleagues as to the advisability of some operation for a case of severe talipes, probably of paralytic origin, in a young woman. The limb was much wasted, and some difference of opinion was expressed as to whether amputation or some form of tarsectomy would give the best result as regards the power of walking. The patient refused any operative treatment, and left the Hospital.

THURSDAY, FEBRUARY 16.

I. *Fæcal fistula*.—II. *Swelling of the lower end of the tibia*.—
III. *Divided ulnar nerve*.—IV. *Old excision of joint with flexion of the leg*.

CASE I.—*Mr. Savory* showed an interesting case of fæcal fistula. The various methods of treatment that had been proposed for these cases were discussed, but it was decided for the present to watch the patient and not undertake any operation.

CASE II.—*Mr. Savory*.—This patient, a woman aged 26, had a circumscribed swelling of the lower end of the tibia. Nineteen years ago she had suffered from a diseased knee, about which sinuses formed and portions of dead bone occasionally came away. These healed soundly about twelve years ago after having been scraped at the Margate Infirmary. Nine years ago she had a similar disease in the left ankle, from which dead bone was also removed some four years ago. Her present trouble dated from a kick on the ankle eight weeks before admission. There was no history of rheumatism, gout, or syphilis. The usual remedies, constitutional and local, having failed, *Mr. Savory* raised the question whether the lower end of the tibia should not now be explored, and if necessary trephined, in the hope of finding pus. An incision had already been made down to the bone, but no pus was discovered; the bone, however, was found greatly thickened. All agreed that trephining ought to be undertaken; the result being that an oval cavity lined with smooth membrane containing two drachms of thin watery fluid was discovered in the interior of the bone, but not communicating with the ankle-joint.

CASE III.—*Mr. Savory* also showed a patient who had accidentally divided his ulnar nerve. That part of the hand supplied

by the nerve presented the characteristic appearance of parts cut off from their nerve supply; it was cold, and the skin bluish red, congested and smooth, and the nails slightly cracked. There was loss of sensation in the little finger and ulnar side of the ring-finger, and wasting of the muscles of the little finger, of the interossei, of the adductor pollicis, and of half the flexor brevis pollicis. The bulbous upper end of the divided nerve could be clearly felt above the cicatrix. All agreed with Mr. Savory that suture should be undertaken. This was accordingly done with satisfactory results.

CASE IV.—*Mr. Marsh* brought in an out-patient who some years previously had had excision of the knee performed. The case after the operation, at which time the leg was left in the straight position, had been neglected, and as a consequence, although bony union had occurred, the limb had gradually become flexed. The question was discussed: Should another operation be performed, or should an attempt be made to straighten the limb by long-continued pressure or by mechanical means? It was feared, considering the patient's unfavourable surroundings, that were the limb straightened by operation, it would probably, from neglect after leaving the Hospital, soon again become flexed. Mr. Marsh therefore decided to do no operation at present, and the patient was not admitted into the Hospital.

THURSDAY, FEBRUARY 23.

I. *Tumour in the left loin.*—II. *Swelling in the upper third of the right tibia.*—III. *Old disease of the knee with outward displacement.*—IV. *Swelling in the parotid region.*

CASE I.—*Mr. Savory.*—The patient, a man aged 24, was suffering from a swelling in the left loin. He was admitted on September 29, 1887, and had had no previous illness, but his maternal grandfather had suffered from gravel. In July 1886 he had pain in the right loin for six weeks; in April 1887 another attack with blood in his urine; and in August 1887 a third attack. Since this he had got worse. On admission there was no swelling or tenderness in the loins, but the urine was smoky, and contained red corpuscles and crystals of oxalate of lime and a trace of albumen. It was acid, and had a specific gravity of 1027. The man was strong and healthy in appearance. He had pain on micturition, but nothing was discovered in the bladder. On September 27 he had pain in the left loin as well as the right, and the urine contained more blood and oxalates; and on November 10 pus was also present. At a Consultation held on this date,

it was decided to wait, since as no swelling could be detected in either loin and pain had been present in both, it was felt uncertain which kidney was affected. On February 19 he was allowed to get up for two days for three hours at a time. This was followed by pain in the loins (but chiefly in the right side), with more frequent micturition and increase of blood and oxalates in the urine. It was now considered that he had a stone, probably in the right kidney, and an exploratory incision was recommended. Mr. Savory stated at this Consultation that the prolonged rest and Contrexéville waters had done nothing for him, and that the patient was practically in the same condition as when he was admitted. All agreed in the view that exploration was advisable. On March 10 the kidney was exposed by the ordinary lumbar incision. A stone was detected in the pelvis of the kidney and was removed through an incision in the pelvis. The wound had quite healed when the patient left the Hospital.—(*From notes by Mr. E. Cautley.*)

CASE II.—*Mr. Smith.*—This patient was suffering from a swelling situated over the upper third of the right tibia. All agreed with Mr. Smith that it was probably due to malignant growth, and advised amputation.

CASE III.—*Mr. Marsh* brought in a patient who had suffered from long-continued chronic disease of the knee, and had now extreme outward displacement of the bones of the leg. The question of treatment was chiefly discussed: Should an excision or an amputation be done, or should some form of osteotomy be attempted, or the patient for the present be left alone? It was decided to do no operation at present.

CASE IV.—*Mr. Butlin* showed a girl with what was evidently malignant disease of the side of the neck about the region of the parotid. Ulceration had already occurred, and the growth was firmly adherent to the deeper parts. It was considered that under these circumstances no operation was justifiable.

THURSDAY, MARCH 1.

- I. *Epithelioma of the cheek.*—II. *Rodent ulcer of the face and tumour of the antrum.*—III. *Supernumary auricle.*—IV. *Indurated nodule in the corpus spongiosum.*—V. *Swelling of the left thigh.*

CASE I.—*Mr. Smith* presented a patient, aged 57, with an irregular ragged ulcer at the corner of the mouth, involving more or

less of the cheek. The edges were indurated, but to a somewhat less extent than is ordinarily met with in epithelioma. There were no enlarged glands to be felt beneath the jaw, and there was a distinct history of syphilis. The usual question of an epithelioma *versus* syphilis was discussed. On the whole, it was regarded as of a cancerous nature, and was subsequently removed. The microscope showed it to be an epithelioma.

CASE II.—*Mr. Langton.*—This case was of much interest. The patient presented a well-marked rodent ulcer on the cheek, which he had had for some years. He now came with a tumour in the antrum of the same side. Were the two diseases distinct, or was the growth in the antrum secondary to that of the face? The fact that rodent ulcer does not usually secondarily involve the glands or neighbouring organs except by extension, and that there was no evidence of the ulcer in this case having extended to the bone—indeed it was freely moveable on the deeper structures—led those present to the opinion that the growth in the antrum was independent of the rodent ulcer. Removal of the superior maxilla was recommended and undertaken. The growth in the antrum turned out, as was expected, to be a sarcoma. A portion of the flap on which was situated the rodent ulcer was cut away on the completion of the operation for the removal of the superior maxilla. The history of the rodent ulcer, which occupied a situation usual to these growths, just below the lower eyelid, was also interesting. In the first place, the patient was only 46 years old, and the ulcer had begun twelve years previously; and in the second place, it had been removed two years subsequent to its first appearance, then after an immunity of six years had recurred *in situ*, and was again removed; two years later it reappeared for a third time in the old spot, and was once more excised, only to return two or three months ago, when the swelling of the cheek and protrusion of the eye and the other signs of tumour in the antrum were first noticed. At the date of the patient's discharge there were no signs of recurrence either of the sarcoma or of the rodent ulcer.—*(From notes by Mr. Gow.)*

CASE III.—*Mr. Langton* also showed a patient with a supernumary auricle.

CASE IV.—*Mr. Marrant Baker* brought in a man, aged 50, with an induration in the corpus spongiosum penis. It was considered to be a fibroid thickening, or as some thought a gouty deposit of urate of soda in the tissues of the organ. There were other evidences of gout. Nothing in the way of operation was suggested or advised.

CASE V.—*Mr. Bruce-Clark* presented a patient with a soft, semi-fluctuating, circumscribed tumour, apparently somewhat deeply seated in the left thigh. As on puncture no fluid escaped, it was diagnosed as a lipoma, and such it proved to be on operation. What difficulty the diagnosis presented depended upon the unusual situation of such a tumour, namely, beneath the deep fascia of the thigh.

THURSDAY, MARCH 8.

I. *Injury of the coccyx.*—II. *Disease of the wrist-joint.*—
III. *Epitheliomatous ulcer of the leg.*

CASE I.—*Mr. Savory.*—A girl, aged 14, two years previously had received a blow over the coccyx. This bone was bent forward at right angles to the sacrum. During the last two months she had suffered from pain when sitting, but in no other position. There was some tenderness but no marked pain on pressure, nor was there any trouble in defæcation. The propriety of subcutaneous osteotomy or of division of the ligaments was mooted, but it was decided to do nothing. The patient made a spontaneous recovery as far as pain was concerned.

CASE II.—*Mr. Langton.*—This was a case of disease of the wrist-joint, with signs of tubercle in the lung. The patient was a boy aged 15, who had sprained his wrist three months previously. The joint was clearly disorganised; and save for the lung mischief there could be no question of the propriety of amputation. The interesting point was raised: Would the removal of the hand tend to stay the lung-trouble, or was the latter sufficiently advanced to counter-indicate amputation? It was considered on the whole that amputation would give the boy the best chance, in that if healing rapidly ensued, a grave source of irritation and drain to the system would be removed, and that in consequence of his improved health the disease in the lung might be arrested. Amputation was done, and the boy made a good recovery.

CASE III.—*Mr. Morratt Baker.*—The patient, aged 54, had suffered for twenty years with a chronic ulcer on the leg, the result of a kick. It had never healed, and the last two months had assumed the character of epithelioma—*i.e.*, it presented an irregular, exuberant, fungating, and warty-looking surface, and raised sinuous and everted edges. Whilst there was some enlargement of the femoral glands, there was not that amount of induration about the base and edges of the ulcer usually found in epithelioma in other situations. An absence of much induration,

it was pointed out, is not infrequent in epitheliomata following old ulceration of the leg. Amputation was considered advisable, but the patient refused treatment.

THURSDAY, MARCH 15.

I. *Swelling of the left knee.*—II. *Bursa under the annular ligament.*—III. *Recurrent carcinoma in the breast.*—IV. *Tumour in the breast, the other breast having been removed five years previously.*—V. *Ulcer on the tongue.*

CASE I.—*Mr. Willett.*—This patient, an otherwise healthy man, aged 25, was suffering from a swelling chiefly confined to the inner side of the left knee. He injured his knee in a fall (?) eight months ago, and it has troubled him ever since. The movements of the knee are free, and cause little or no pain. On the inner side of the knee is a circumscribed, fluctuating, and tense swelling. The patella does not ride, and fluctuation cannot be obtained across the joint from the inner to the outer side. The question raised was whether the case was one of chronic synovitis, with the effusion limited to the inner pouch of the synovial membrane, a tubercular infiltration of the synovial membrane, a periosteal abscess, an hæmatoma, a new growth, or an extra-capsular abscess. And further, assuming the case to be one of synovitis, was the effusion serous or purulent in character? All were of opinion that the swelling was of a fluid nature, and probably, on account of the history and the situation of the swelling which corresponded to the inner pouch of the synovial membrane, that notwithstanding the absence of signs of acute mischief, it was of purulent character. Some difference of opinion as regards treatment was expressed. The swelling was incised with antiseptic precautions. It proved to be tuberculous disease, the synovial membrane being the seat of a caseous abscess; whilst the edge of the condyle along the line of reflection of the synovial membrane was carious. All diseased tissue was scraped away. The patient convalesced most favourably, and with good prospect of permanent recovery.

CASE II.—*Mr. Morratt Baker* showed a patient with supuration of the bursa under the annular ligament, and called attention to the characteristic swellings in the palm and wrist, with the constriction produced by the annular ligament between them. He also pointed out how fluctuation could be obtained between the two swellings beneath the ligament.

CASE III.—*Mr. Morratt Baker* also showed a patient, aged 60,

with recurrent carcinoma of the right breast. Primary amputation of the breast had been performed on January 7, and some enlarged axillary glands removed. The tumour at that time was rather larger than an orange, and the skin over it was red, adherent, and beginning to ulcerate. It had only been growing nine months. The removal had been so free that the flaps could not be brought together, and when she was discharged on February 18, the wound had not quite closed. She had now in the situation of the wound a fungating growth rather larger than a shilling, and a hard adherent nodule in the skin near the axilla. She had lost much flesh the last few weeks. The liver was felt enlarged, and as this condition was believed by Mr. Baker to probably depend upon secondary deposits in that organ, this, together with the quick return of the growth, the mass of cancer in the skin near the axilla, the adhesion of the growth to the chest walls, and the rapid emaciation, counter-indicated any further operation. In this opinion the rest agreed, and nothing further was done.—(Notes by Mr. Arnold Lyndon.)

CASE IV.—*Mr. Marrant Baker.*—The patient presented the somewhat rare condition of a carcinoma in the breast, the other breast having been removed five years previously for primary carcinoma. As there was no evidence of dissemination of the growth in other organs, excision of the breast was considered advisable. This was done, and the patient made a good recovery.

CASE V.—*Mr. Butlin.*—This patient, aged 35, was suffering from ulcer of the tongue. The question of epithelioma or tubercle was raised. The edges were ragged, but did not present the characteristic hardness of epithelioma, and there were no enlarged glands beneath the jaw. The teeth had already been removed. The ulcer had some of the characters of tubercular disease. Some differences of opinion regarding its nature were expressed, but the majority considered, whichever affection it might be, it was desirable, seeing how circumscribed it was, that it should be removed. This was done, and the microscope showed it to be an epithelioma.

THURSDAY, MARCH 22.

- I. *Recurrent epithelioma beneath the jaw.*—II. *Fracture of the epiphysis of the femur with bare bone protruding.*—III. *Ununited fracture of the tibia.*—IV. *Epithelioma of the tongue.*
—V. *Tumour of the left epigastric region.*—VI. *Dry tongue.*

CASE I.—*Mr. Savory* brought in a patient, aged 60, with a recurrence of epithelioma in the glands beneath the jaw, following

the removal of a small epithelioma of the lip. The scar of the old operation appeared quite healthy. The secondary growth, which was about the size of an orange, was firmly adherent to the bone, and the patient was considered beyond the aid of surgery. With this view the rest agreed, and no operation was undertaken.

CASE II.—*Mr. Willett.*—A lad, aged 9, had received a fracture of the lower end of the femur about six months previously. A piece of the femur, which had necrosed and separated, showed clearly that the fracture had occurred through the epiphysial line. The knee-joint was healthy. On the outer side of the thigh, just above the knee, was a mass of prominent granulations, an inch and a half in diameter, covering a protruding portion of bone. The parts around were excessively tender. It was considered that he had sustained a separation of the lower epiphysis of the femur with much unreduced misplacement; that owing to the outward protrusion of the diaphysis the integument had ulcerated exposing the bone, and that, subsequent to the necrosis of a portion of the lower end of the femur, the bone had united in a faulty position, leaving the lower end of the upper fragment projecting on the outer side. It was decided that the protruding portion of bone should be removed. An incision was made over the prominence, and an inch or so of the bone cut away. The patient made an excellent recovery.

CASE III.—*Mr. Willett.*—The patient, a man aged 59, was suffering from an ununited fracture of the tibia, received two years previously. He had been treated elsewhere, and it appeared that the fragments had not been kept immoveable. He remained eight weeks in bed, and it was twelve months before he could walk at all. As he was walking about a fortnight ago, he was seized with a sudden pain just above the ankle. Since then he could not bear any weight on the leg. There was now a large amount of callus about the upper end of the lower fragment; and on this, as it were in a socket, the lower end of the upper fragment freely moved, but could not be felt. The fibula was moveable at the knee-joint. Looking to the patient's age, his obesity, general health, and the fact that the lesion appeared to be of the nature of a false-joint rather than a simple ununited fracture, no operation was deemed advisable. A stiff apparatus with leg irons was accordingly fitted on.—(*Notes by Mr. Napier.*)

CASE IV.—*Mr. Willett* also brought in a sailor, aged 52, with an ulcer on the side of the tongue. He had had a primary syphilitic sore twenty years previously, and had had tertiary manifestations

of the disease in the tongue for some years. Thus, soon after the primary sore, the tongue badly fissured on the right side. Since then he had constantly had what he called a pimple on the left side of the tongue. Three months ago, this pimple began to ulcerate, and increased in size notwithstanding the use of iodide of potassium. He now presented a large sloughing indurated ulcer on the left side of the tongue, extending for about an inch and a half back, the front inch of the tongue being healthy. There was also a small indurated swelling on the right half of the tongue, but continuous with the infiltration on the left side, and enlarged glands in the neck. It was diagnosed as an old syphilitic affection which had taken on epitheliomatous degeneration, the result of long-continued syphilitic irritation; but an operation was not undertaken, because the ulcer became smaller under treatment, and the patient was opposed to its performance. He was readmitted, however, on May 7th, with the disease greatly advanced and the glands in the neck much enlarged. It was then decided that no operation could be undertaken.—(*Notes by Mr. Napier.*)

CASE V.—*Mr. Langton.*—A woman aged 51, with a tumour in the left epigastric region behind the rectus muscle. Her abdomen had been opened at another London hospital, and the swelling, which was said to be the kidney, was found attached to the abdominal wall. The wound had therefore been closed, and nothing further done. The swelling was tender on handling, and resembled, as far as could be made out, the kidney in shape. She suffered from attacks of pain and swelling, and had urinary trouble, but never passed blood. Removal of the kidney (which the tumour was presumed to be from the account given when the abdomen was opened) was advised, and laparotomy was accordingly performed, and the swelling found to be due to the adhesion of the stomach to the abdominal wall, as the result of a chronic ulcer. The kidney was normal.

CASE VI.—*Mr. Butlin* showed a girl aged 24, with dry mouth and tongue. These parts appeared red, glazed, and dry. A drop of saliva was seen in Wharton's, but none in Steno's duct. Saliva was, however, said to flow during eating. The parotid glands were slightly swollen and hard, a condition which had existed for about a year. She had also atrophic rhinitis. She improved under the administration of pilocarpin.

THURSDAY, APRIL 12.

I. *Cervical rib.*—II. *Undescended testis.*—III. *Swelling of humerus.*

CASE I.—*Mr. Smith.*—This patient, a man aged 21, presented that interesting condition shown at our Consultations from time to time of a hard exostosis-like swelling situated in the region of the transverse process of the seventh cervical vertebra, and the usual question was discussed: Is the swelling an exostosis growing from the transverse process of the seventh cervical vertebra, or is it a cervical rib? In this case, partly from the history that it had grown somewhat of late, and partly from the fact that it had not been observed earlier in life, it was considered by the majority of those present to be an exostosis. Its exact nature, however, was thought to be of secondary consequence to the question of treatment. The removal of these growths is not to be lightly undertaken. They are surrounded by important structures in the neck, any one of which may be injured if care is not taken to keep close to the growth during the process of freeing it from the soft structures; and if too much is removed, the vertebral vein, or even artery, may run some risk of being wounded. It was decided that the growth, whatever its nature, should be watched, and that if it appeared to be growing larger and causing trouble by pressure on the brachial plexus or subclavian vessels, an attempt should be made to remove it. In a case under the care of Mr. Willett a short time previously, the pressure of the growth on the subclavian had caused a loss of pulse in the brachial artery and in the arteries of the fore-arm, whilst the pressure on the brachial plexus had given rise to impairment of sensation and motion in the fore-arm and hand. Indeed, the whole upper extremity was becoming powerless and useless. This patient refused treatment. Mr. Baker also had a similar case under his care a short time ago. The patient's condition was much improved by the removal of the growth. No operation has as yet become necessary in Mr. Smith's case.

CASE II.—*Mr. Smith* also showed a patient with an undescended testicle. No operative measure was suggested. The patient had a truss applied.

CASE III.—*Mr. Marrant Baker.*—A lad, aged 14, was shown with a tumour of the shoulder. A full account of this case is given by Mr. Watts at p. 207 of the present volume of the Reports. All

agreed as to the nature of the growth, and recommended amputation at the shoulder-joint. The tumour proved on removal to be a sarcoma. It recurred in the scapula; this bone was also removed, but the tumour again recurred, and the patient died September 23, 1888.

THURSDAY, APRIL 19.

I. *Hernia testis*.—II. *Irreducible inguinal hernia*.—III. *Tumour of the superior maxilla*.—IV. *Tumour of the bladder*.

CASE I.—*Mr. Savory* brought in a man, aged 40, with hernia testis. On admission into the Hospital, the left testicle was found to be of the size of a large hen's egg, and the epididymis and vas deferens were enlarged. The skin was moveable over the swelling, and there was loss of testicular sensation. He had been subject to transitory pain and swelling in the left testis for fifteen years, and an ulcer had formed in the right testicle, and had burst and healed. He had likewise had a large abscess over the left sternoclavicular joint, which had also burst and healed. There was no history or signs of syphilis. Notwithstanding rest, strapping with Scott's plaster, and constitutional treatment, an abscess formed in the left testicle, and since this was opened a fungus has protruded. The enlargement of the epididymis, the thickening of the vas, the involvement of the vesiculæ seminales, which were found enlarged on rectal palpation, together with the history of the case, pointed clearly to tubercular disease. As the testicle was evidently disorganised and treatment had failed, the removal of the organ was advised. The patient after excision made a good recovery. He had never any sign of tubercle in the lung.—(From notes by *Mr. E. Cautley*.)

CASE II.—*Mr. Savory*.—A man, aged 42, was the subject of an irreducible inguinal hernia, combined with some inflammation of the cellular tissue of the abdominal wall, on the left side, above the inner half of Poupart's ligament. The question for diagnosis was: Is the swelling due to an inflamed piece of irreducible omentum, or to inflammation of the cellular tissue in the abdominal wall? The last condition was considered the most probable. The swelling subsided completely under the use of rest, lead lotion, and low diet.—(From notes by *Mr. E. Cautley*.)

CASE III.—*Mr. Langton*.—This patient, a female aged 54, presented a tumour of the superior maxilla. Two months ago she first noticed a small lump in the gum of the right upper jaw;

this gradually increased in size till a fortnight ago, when an incision was made into it, but only blood escaped. On the right side of the face there is now a swelling which extends upwards as far as the lower part of the orbit, but does not apparently encroach upon that cavity, since there is no protrusion of the eye. Outwards it extends as far as the malar bone, and inwards it has invaded the cavity of the nose. There is also a soft knobby swelling on the right side of the hard palate. The swelling is painful, especially at night, but not very tender to the touch. There is no fluctuation; the skin over it is not adherent, and there are no glands felt beneath the jaw. It was considered by Mr. Langton and the rest of those present to be a rapidly-growing sarcoma, probably of the round-celled variety, and all advised complete removal of the upper jaw. On the 24th the superior maxillary bone was removed. The patient made a good recovery from the operation, but the growth soon returned *in situ*. It was again removed, and the patient died of bronchitis and exhaustion. On examination with the microscope, the growth was found to be a sarcoma.—(*From notes by Mr. C. J. Davenport.*)

CASE V.—*Mr. Marrant Baker.*—A boy, 6 years old, had been admitted for retention of urine. In the hypogastric region there was a tense swelling, the shape of a distended bladder, which had only been noticed by the parents for a few days. The boy was said to have passed no water for some hours. On introducing a catheter, the point of the instrument was deflected to the right, but no urine flowed. A puncture was made above the pubes, and an aspirator thrust into the swelling, but it gave exit only to blood. The swelling was therefore diagnosed as a new growth, probably of a cystic nature, and connected in some way with the bladder or parts in its neighbourhood. It proved a cystic sarcoma.—(*See a full note by Mr. H. Watts, p. 213.*)

THURSDAY, APRIL 26.

I. *Tumour at the back of the scalp.*—II. *Growth of a black colour over the gums and palate.*—III. *Tumour of the breast.*

CASE I.—*Mr. Willett.*—A man, aged 50, was shown with a tumour at the back of the scalp. It was first noticed three years previously, but only began to grow rapidly four months ago. Five weeks before his admission it had been removed by a surgeon. The wound healed, but two weeks subsequently the swelling reappeared in the scar. On microscopical examination the tumour

proved to be a glandular carcinoma. When the patient was shown, the tumour, which occupied the position of the old scar at the upper part of the occipital region, was irregular in shape, measuring $2\frac{1}{2}$ by $1\frac{3}{4}$ inches; it was fixed on the deeper structures, as well as to the skin. There were two or three enlarged glands at the posterior border of the right sterno-mastoid. All agreed that it should be freely removed. This was done, along with a portion of the pericranium, which was found involved in the growth. The patient made a good recovery. When last seen, the bare bone was becoming gradually covered. There is, as yet, no reappearance of the tumour.—(Notes by Mr. Napier.)

CASE II.—*Mr. Morratt Baker*.—A female, 64 years old, presented a black growth over the gums and hard palate. The discoloration appeared due more to an infiltration of the tissues than to the presence of a distinct growth. There was no induration, no enlarged glands to be felt, and no sign of any tumour in other parts of the body. It had been noticed for the last six weeks only. The question arose as to whether it was a melanotic sarcoma or a nævoid growth. It was thought, too, that possibly it was allied in its nature to the so-called "black-tongue." It was treated with caustics, as no cutting operation was considered advisable. The patient returned home after ten days' stay in Hospital, the growth not having changed materially in any respect. The woman has not been seen since.—(Notes by Mr. H. Watts.)

CASE III.—*Mr. Morratt Baker's* second case was a woman aged 49, with a tumour of the left breast and enlarged glands in the left axilla. It was thought to be a scirrhus carcinoma. She had been advised in Liverpool to have no operation performed, and the same opinion was adhered to by all of the surgeons present, on account of the glands being very numerous, close to artery, high up the axilla, and much matted together. Further, she did not appear to suffer excessive pain.—(Notes by Mr. H. Watts.)

THURSDAY, MAY 3.

I. *Pain in the right lumbar region*.—II. *Spastic condition of the muscles after amputation of the finger*.—III. *Old Pott's fracture*.

CASE I.—*Mr. Savory*.—The patient, a man aged 28, had complained for fifteen years, on and off, of pain in the right lumbar region. The pain was paroxysmal, and ran from the right loin downwards in the course of the ureter to the right groin, and

thence to the testis. At first he had enjoyed complete immunity for six weeks at a time, but for the last two years the pain had occurred almost daily, and was worse on exertion. The urine had a sp. gr. of 1010, and contained no blood, no gravel, no albumen. Under the microscope a few oxalates, broken-down blood corpuscles, and hyaline casts were seen. Nothing could be detected in the loin or abdomen on palpation, even under an anæsthetic, and a doctor had previously passed a needle into the kidney with a negative result. The question as to the presence of a stone in the kidney, and the advisability or not of exploring was raised. It was decided that considering the pain had existed for so long without any more definite signs of stone manifesting themselves, and that under an anæsthetic nothing could be detected in the lumbar region, although in the opinion of the majority a stone was probably present, on the whole it would be better to wait and watch the patient for a time before undertaking any exploration. The bladder, of course, was thoroughly examined, so as to exclude any suspicion of stone or other disease in that organ. The patient left the Hospital on May 24 in consequence of family trouble. Contrexéville waters seemed to produce no effect while he was under treatment.—(*From notes by Mr. E. Cautley.*)

CASE II. *Mr. Willett* showed a man, aged 52, who had the forefinger of the left hand and part of the corresponding metacarpal bone removed at another hospital nine months previously for a poisoned wound of the finger. Two months later he first had pain in the hand. The pain increased in severity, extending up the arm, and three months ago attacked the shoulder and back of the head and neck. Thirty-seven years ago he had had a paralytic stroke, but denied ever having had gonorrhœa or syphilis. The patient, who is very nervous and emotional, has fits of giddiness, lasting for twenty minutes at a time, and presents the following condition:—His fingers are flexed at the metacarpophalangeal joints, and extended at the phalangeal joints. The skin of the hand is glossy, shrivelled, livid, and in folds, the nails are furrowed. The stump of the finger is very painful when touched, and is subject to nervous twitchings. He has rhythmical movements of the thumb and tremulous movements of the arm. The voice is tremulous, but there is no tremor of the tongue. The condition seemed clearly to depend on some nerve implication in the cicatrix leading to ascending neuritis. The propriety of nerve-stretching was raised, but it was determined to keep the hand and fore-arm for some time wrapped up warmly in cotton-wool before undertaking any operative measures, and large doses of antipyrin were given with great benefit. On June 2, adhesions which

existed about the shoulder and elbow were broken down under an anæsthetic, and the fingers straightened at the same time and placed in a plaster-of-Paris bandage. Under this treatment his condition improved a good deal, and he was discharged on June 30. When last seen he had almost lost pain, and had regained some power over the hand. He was advised to return to work. The improvement was attributed by the patient to the antipyrin. —(*From notes by Mr. Napier.*)

CASE III.—*Mr. Willett.*—A case of old Pott's fracture with great impairment of movement and union in a faulty position, was shown with a view to treatment. The fracture, which had occurred on March 31, 1887, had been treated for fourteen weeks with a Cline's splint at an infirmary. There was some extension and outward and backward displacement of the foot, and prominence of the internal malleolus; and it was evident that the fibula had been fractured and the internal malleolus knocked off. The chief trouble was caused by the rigidity of the ankle; the foot could only be flexed to a right angle, though the lateral movements were free. The patient, who could walk thirty miles before the accident, could now only walk two. The advantages for and against an osteotomy were discussed, but it was considered on the whole that, beyond wrenching and the division of the tendo Achillis, nothing further in the way of operation was advisable. The foot was therefore wrenched under chloroform and put in plaster-of-Paris, and a week later wrenched again, the tendo Achillis divided, and plaster-of-Paris reapplied. On June 20 the plaster was removed. There was great improvement in position, and also in the movements of the foot.—(*From notes by Mr. Napier.*)

THURSDAY, MAY 10.

- I. *Tumour of the testis.*—II. *Tumour of the testis.*—III. *Tumour of the breast.*—IV. *Swelling of the left shoulder.*

CASE I.—*Mr. Langton.*—A man, 21 years old, was shown for a swelling of the testicle. The point of interest was the diagnosis. Was it a case of tubercle or sarcoma? He had only noticed pain and swelling in the testicle for one month, but the growth had been very rapid. There was a well-defined enlargement of the right testicle. It was not very hard, and the surface was irregular in front. The vas was somewhat enlarged, but the vesiculæ seminales did not appear increased in size on rectal palpation. Neither the lumbar or inguinal glands were affected. The lungs and urine were natural. The general opinion was in favour of

tubercle, though all admitted it might turn out malignant. He was watched for a short time, when, as the malignancy of the growth now declared itself, the testicle was removed. The microscope showed it to be a sarcoma. The patient made a good recovery, but returned to the Hospital on November 3, with symptoms of intestinal obstruction, there being distension of the abdomen, constant vomiting, and constipation. Since October 10 he has had aching pains in the abdomen, but the vomiting did not begin till November 1. On November 4, Mr. Langton opened the abdomen in the left iliac fossa, with a view to inguinal colotomy. Much peritoneal fluid escaped, and the abdominal cavity was found filled with masses of new growth. At the post-mortem examination the peritoneum was found involved in a mass of sarcoma, but there was no deposit in the lumbar glands, in any part of the pelvis, or in any of the internal viscera.

CASE II.—*Mr. Langton.*—A second patient with enlarged testicle was also brought in. In this case the diagnosis lay between sarcoma, syphilis, and tubercle. The man was 42 years old, and had noticed the swelling of the testicle for five months. For three months he had been an out-patient and treated with iodide of potassium and mercury, but no change had been observed during this time in the swelling. He acknowledged that he had a sore on the penis fifteen years ago. The testicle measured $3\frac{1}{2}$ by $2\frac{1}{2}$ inches; it was oval and flattened laterally, generally hard, but with a soft spot on the inner side. The surface was smooth, except in one or two places, where it was somewhat nodular. Though the body was the part chiefly affected, the epididymis was also slightly enlarged. The cord was thickened, measuring fully half an inch across, but its constituents could not be distinguished. The vesiculæ seminales were not increased in size. The skin was natural, the testicular sensation was almost lost, but no enlarged glands could be felt. There was also a small tumour in the perineum at the situation of the scrotal fold. This had enlarged lately, whilst no change had occurred in the testicle. The patient was somewhat spare and thin, and had recently lost flesh. The majority present, though of opinion that the enlargement was due to syphilis, admitted the second growth was not altogether like a gumma, and the thickening of the cord was unusual in syphilis. The failure of syphilitic remedies, too, and the loss of flesh, further pointed to a possibility of its being of a malignant nature. Later the lumbar glands became affected, and the malignant nature of the disease fully declared itself.

CASE III.—*Mr. Marrant Baker* showed a woman, aged 70, with

a scirrhus carcinoma of the left breast. Removal was advised, and the operation was performed. She made a good recovery, but died at her own home eight weeks after leaving the Hospital, with secondary growths in internal organs.—(*Notes by Mr. H. Watts.*)

CASE IV.—*Mr. Marrant Baker* also showed a man, aged 60, with a globular fluctuating tumour over the left shoulder. All advised that the swelling should be punctured. This was done, and fluid was let out of a purulent character. He had very limited movements in the shoulder-joint. After rest and fomentations the mobility of the joint slightly improved.—(*Notes by Mr. H. Watts.*)

THURSDAY, MAY 17.

I. Swelling in the left iliac region.—II. Malignant pustule.

CASE I.—*Mr. Smith.*—This patient, a man aged 52, was admitted for swelling in the abdominal wall in the left iliac region. Six or seven weeks ago he was attacked with sharp aching pain in the left side of the abdomen, attended by fever, thirst, and sweating. He had previously enjoyed good health. Four weeks ago he first noticed the swelling, and had some shivering followed by sweating. He now presents a flattened swelling in the left inguinal region, extending from the anterior superior spine of the ilium parallel to Poupart's ligament for about three inches towards the middle line. It is very tender to the touch, and is resonant on percussion. Nothing abnormal is felt on invaginating the scrotum into the external abdominal ring. The temperature is raised at night to about 101° . It was thought to be inflammatory, possibly a sarcoma. A poultice was applied, and subsequently the swelling was punctured and a drop of pus let out. On the 29th the opening was enlarged and pus evacuated. Notwithstanding the opening, the abscess burst into the peritoneum, and the patient died of peritonitis.—(*From notes by Mr. White.*)

CASE II.—*Mr. Langton.*—This patient had just been admitted with what was considered a malignant pustule. The patient was a lad 17 years old, a horsehair-dresser by trade. He handled the dry hair, never the hides. He first noticed a pimple on the side of the neck ten days ago. Three days later it began to increase in size, and on his admission was as large as a florin. The central part was of a dark colour, and around this was a bluish ring, produced apparently by the running together of vesicles. There was an absence of the usual induration in the tissues around; otherwise the appearance of the pustule was characteristic. The

anthrax bacillus was discovered in a drop of the serum. All present agreed that immediate excision should be done. The wound was dressed with iodoform, and the patient fed with raw-meat sandwiches. He made an excellent recovery.

THURSDAY, MAY 24.

I. *Tumour of the breast.*—II. *Swelling over the outer side of the patellar ligament.*

CASE I.—*Mr. Marrant Baker.*—A woman, aged 63, with well-marked scirrhus of the left breast, was shown by Mr. Baker. There were no glands enlarged. The tumour was freely moveable, and the skin was to no particular extent implicated. As the patient suffered considerable pain, removal, notwithstanding the comparatively slow growth of the tumour and the age of the patient, was recommended. This met with general support. The breast was excised, and the patient made a good recovery.—(*From notes by Mr. H. Watts.*)

CASE II.—*Mr. Marsh.*—This case was of considerable interest. The patient, who was aged 57, was, to a superficial examination, suffering from an enlargement of the bursa over the ligamentum patellæ. The swelling, however, instead of being over the centre of this ligament, was situated to the outer side, and was very much harder than usual. It was generally thought to be an enlargement of the normal bursa, with probably solid contents or localised thickening of the walls. There was evidently something more than an ordinary enlargement, and on operation it was found to consist of cartilage, and to be situated over, but not attached to, the head of the tibia. Some care was necessary to prevent opening the joint. This case is described in full in the *Lancet* for December 22, 1888.

THURSDAY, MAY 31.

I. *Tumour at the margin of the breast.*—II. *Tumour at the side of the neck.*—III. *Tumour in the left hypochondrium.*—IV. *Chronic disease of the wrist.*—V. *Tumour-like swelling of the skin of the scalp.*—VI. *Wrist-drop after fracture of the humerus.*—VII. *Tumour in both breasts.*—VIII. *Rodent ulcer.*

CASE I.—*Mr. Savory.*—A woman, 57 years of age, with a tumour at the upper and inner margin of the breast. The tumour was of interest from its situation and from the absence of the

amount of induration usually present in scirrhus carcinoma. However, the nodular feel of the tumour, the distinct puckering of the skin over it, and the age of the patient, made the diagnosis of hard carcinoma fairly certain. In this view of the case all agreed; and the majority advised the local removal of the tumour. This was done, and the microscopical examination verified the diagnosis.

CASE II.—*Mr. Savory* showed this patient, a man aged 42, on account of the unusual situation of the tumour, which was thought to be a lipoma. It had grown slowly for eight years, and was now the size of an orange. It was situated at the left side of the neck, but much farther forward than is usual in these growths. All agreed in the diagnosis, which was verified on removal of the tumour.

CASE III.—*Mr. Savory* also showed a second case of tumour, likewise believed to be a lipoma in the left hypochondrium. The characters of the tumour were well marked, although, as in the former case, the situation was somewhat unusual. Removal showed that the diagnosis was correct.

CASE IV.—*Mr. Savory*.—The patient, a man aged 62, had chronic disease of the left wrist-joint. Eighteen months ago he fell upon his wrist, and the joint became stiff and the fingers contracted, but he had no pain till Christmas 1887, when an abscess formed and broke just before Easter. A discharging sinus has remained since. The wrist is now much swollen, the carpus dislocated forward from the ulna, and there are two sinuses on the inner side. The temperature registers at night 102° to 103° . The heart and lungs are healthy and the urine normal. Rest, splinting, and all the usual remedies having been tried, *Mr. Savory* asked whether the time for amputation had not arrived. In this opinion the majority were unanimous. The patient's age and general condition of health, as well as the local state of the wrist, were considered to be such as to counter-indicate excision. Amputation through the fore-arm was performed. The wound healed by the first intention.—(*Notes by Mr. E. Cautley.*)

CASE V.—*Mr. Smith*.—A boy, aged 16, with a congenital tumour of the scalp. It was said at birth to have been about the size of a filbert. It had gradually and steadily increased to its present size (an orange), but more rapidly during the last year. It was soft, lumpy, and pendulous, hanging from the right mastoid region of the temporal bone, freely moveable on the deep structures, but adherent to the skin, non-translucent, non-fluctuating,

and non-pulsatile. At the lower border of the growth was a small mass of harder tissue feeling like a gland, but there was no distinct glandular enlargement to be detected. All agreed that it was of a nœvoid character and ought to be removed. This was done on June 6 by means of an incision carried round its base. It was very vascular. No skin could be obtained from the surface of the tumour in consequence of its firm adherence. A large raw surface was therefore necessarily left, which healed, however, before he left the Hospital. The tumour consisted of thickened skin and subcutaneous tissue. The glandular-like mass felt at the lower part turned out to be a globular mass of fat with a prolongation downwards. This mass strangely resembled in appearance a testis with its epididymis and cord.—(*Notes by Mr. White.*)

CASE VI.—*Mr. Smith.*—A man, aged 45, with wrist-drop and muscular atrophy of left arm. Four months ago he fractured his humerus at the junction of the upper with the middle third. It was put up in kettleholder splints, which were not removed for five weeks. The arm was then found stiff and useless. There is a large amount of callus at the seat of fracture, and wasting of the muscles supplied by the musculo-spiral nerve. The deltoid and dorsal muscles of the scapula are also wasted. The skin of the fore-arm is shiny and smooth, and the hand rather blue, but there is no loss of sensation. Supination of the fore-arm is impaired, and the wrist cannot be extended; flexion and extension of the fore-arm is natural. The electrical report states that the muscles supplied by the median and ulnar nerves react normally but weakly; the muscles supplied by the musculo-spiral nerve do not react to either current. There is also some loss of electric sensibility. With the dynamometer the grasp of the left hand equals 13 lbs. All agreed that the musculo-spiral nerve had probably been compressed between the splint and the callus, or had become involved in the callus. Electricity and massage were advised, and these failing, an operation to free the nerve from the callus. Under the influence of the former the movements of the fore-arm became nearly natural, and the arm was restored to usefulness. On July 14 the dynamometer registered in the left hand 20 lbs.—(*Notes by Mr. White.*)

CASE VII.—*Mr. Willett.*—A woman, aged 48, presented a tumour in both breasts. She was married, and had had four children, the last child twenty-four years ago. In November 1887 she first noticed a small swelling in the left breast, and shortly afterwards a similar swelling in the right breast. Both swellings had since slowly increased in size, and were attended

with sharp pricking pain. The swelling in the right breast was situated to the inner side of the nipple, and was about the size of a duck's egg. It was hard, smooth, and defined, slightly adherent to the skin, but moveable on the deeper structures. The skin over it was healthy and the nipple retracted. There were no enlarged glands. In the left breast there was a tumour to the outer side of the nipple, not quite so big as that in the right breast, and separated by a groove from the larger and lobulated mass below. It was harder, not so smooth, less defined, and less adherent to the skin. The nipple was retracted; there were no enlarged glands in the axilla, but enlarged glands in the supra-clavicular region, and the liver was slightly increased in size. Both tumours were considered to be scirrhus carcinoma. The rarity of cancer attacking both breasts simultaneously, or nearly simultaneously, or indeed of cancer occurring as a secondary growth in the breast opposite to that affected with cancer either before or after removal of the primary disease, was commented on, and no operation advised. The patient was discharged, and has not since been seen.—(Notes by Mr. Napier.)

CASE VIII.—*Mr. Willett.*—A man, aged 63, with a rodent ulcer of face. It had made fearful ravages, having destroyed the right eye, greater part of the nose and cheek, and perforated the palate, laying open the cavity of the nose, mouth, and orbit into a vast chasm. It was proposed to destroy the growth as thoroughly as possible with Bougard's paste in its deeper parts, at the same time cutting away any infiltrated skin at the margins of the ulcer. This met with general approval, and the result of the treatment was most satisfactory, the ravages of the disease being arrested, at least for the time, if not completely.

THURSDAY, JUNE 7.

- I. *Carcinomatous ulcer of the right breast; jaundice.*—II. *Spastic rigidity of the left arm after wound of the finger.*—III. *Epithelioma of the penis.*—IV. *Recurrent sarcoma of the scapula after amputation of the shoulder-joint for sarcoma of the humerus.*—V. *Disease of the knee-joint.*

CASE I.—*Mr. Savory.*—There was no question of diagnosis in this case, the characters not only of the tumour, but of the ulceration which had already taken place, being well marked. Neither was there practically any question as regards treatment by operation. The patient was jaundiced, and the liver enlarged and tender, a condition pointing to dissemination of the growth in

that organ; and the local condition—the involvement of the skin, partial fixity to the pectoral muscle, and enlargement of the glands—also forbade any operation. The case was of interest as showing the progress of carcinoma of the breast when there had been no surgical interference. The patient died shortly after leaving the Hospital, showing the propriety of the course adopted.

CASE II.—*Mr. Willett.*—The patient, aged 11, when three or four years old had smashed the middle finger of his left hand, since which time the present condition of the hand and arm had come on. When the child is told to extend the arm, the elbow-joint is hyper-extended, the wrist-joint flexed, the metacarpo-phalangeal joints also hyper-extended. As soon as he bends the elbow, all deformity ceases. The deformity increases when he is under observation, but is still noticed when asleep. The left side of the face is drawn down somewhat, and the left leg is shorter than the right. There are no fits. Some difference of opinion was expressed, some taking the view that the condition was mimetic, others that there was some neurotic lesion. He was consequently referred to the Electrical Department, and was discharged a month later slightly improved.—(*From notes by Mr. Napier.*)

CASE III.—*Mr. Morratt Baker* showed a man with epithelioma of the penis and enlargement of the glands in the groins. All advised removal, Mr. Baker remarking that he would perform the operation known as Gould's amputation. The man, however, refused treatment, and left the Hospital.—(*Notes by Mr. H. Watts.*)

CASE IV.—*Mr. Morratt Baker.*—This was the patient shown on April 12 with sarcoma of the humerus. Amputation had been done at the shoulder-joint, and there was now a recurrence in the scapula. A full note of the history of this case is published in the present volume by Mr. H. Watts, p. 207.

CASE IV.—*Mr. Morratt Baker* also showed a patient, aged 31, who had had his arm amputated at the left shoulder-joint two years previously, and had now recurrence of the growth (sarcoma) in the scapula. The removal of the scapula was advised. He recovered from the operation, but is now (Nov. 14) suffering from a dissemination of the growth in the left femur, right clavicle, and probably, since he has had hæmoptysis, in the lungs also.—(*Notes by Mr. H. Watts.*)

CASE V.—*Mr. Marsh.*—This patient, a girl aged 14, was suffering from disease of the knee-joint. The disease was evidently

beyond repair, and the question raised was amputation versus excision or arthroctomy. The last operation found favour with some; but Mr. Marsh considered that the disease was too acute and too far advanced for this procedure, and preferred amputation through the thigh. This was done subsequently.

THURSDAY, JUNE 14.

I. *Hallux valgus*.—II. *Hallux valgus, with flat-foot and hammer-toe*.—III. *Tumour over the parotid*.—IV. *Tumour of the left breast after removal of the right for carcinoma in 1887*.—V. *Old excision of the knee with sinus*.

CASE I.—*Mr. Savory*.—A man, aged 24, with severe hallux valgus was shown with a view to treatment. The great-toe was dislocated outwards to an extreme degree, and rigidly fixed in this position, both by the contraction of the tendinous and ligamentous structures and the alteration in the articular surfaces of the bone. There was an enlarged bursa over the metatarsal bone, and some thickening and inflammation of the tissues around. He lost two or three days' work a week on account of the pain. Difference of opinion was expressed as to whether a subcutaneous osteotomy of the metatarsal bone or phalanx, excision of the metacarpal bone, or complete excision of the joint should be practised. The preponderance of opinion was in favour of merely removing the head of the metatarsal bone. This was done, and an excellent result obtained, the great-toe though slightly shortened, coming into line with the inner side of the foot. The joint remained moveable when he left the Hospital. The advantages of leaving the cartilaginous surface of the first phalanx is that thereby a moveable joint is generally obtained.

CASE II.—*Mr. Savory* showed a second patient, a man aged 35, also with hallux valgus, with an additional deformity of hammer-toe and flat-foot. The condition of the great-toe was similar to that in the former case; the second toe presented the characteristic appearance known as hammer-toe. Subcutaneous division of the lateral and glenoid ligaments, amputation, and wrenching under chloroform, were severally advised. All were agreed as to the inutility of tenotomy. Amputation of the first and second toes was performed, and the foot wrenched and put up in plaster-of-Paris for the purpose of curing the flat condition of the sole. The flat-foot was much improved.—(*From notes by Mr. Farrar.*)

CASE III.—*Mr. Savory* likewise exhibited a case of parotid tumour in a man aged 24. It had been noticed eighteen months, but had given no trouble till two months ago, when it caused the jaw to open with a peculiar click. It was now the size of a small walnut, and situated over the parotid gland; not painful, nor tender, nor fluctuating, freely moveable on the deeper structures, but adherent to the skin. It was considered to be probably an enlargement of a lymphatic gland over the parotid. This it proved to be on removal, for it had a distinct capsule, and was composed of adenoid tissue. The patient made a speedy recovery.

CASE IV.—*Mr. Langton* showed a woman, aged 40, with a tumour in the left breast; the right breast had already been removed in 1887 for carcinoma. Was this a case in which, after the removal of one breast, a secondary growth had occurred in the opposite breast; or was it an example of a primary growth occurring in this breast also, and quite distinct from that which had affected the right?

CASE V.—*Mr. Marsh* brought in a patient, aged 23, who had had an excision of the knee done some length of time previously. There were now some obstinate sinuses remaining, which refused to heal in spite of rest, constitutional treatment, and local applications. The question was raised whether the joint should be let alone and the patient sent to Swanley for change of air, in the hope that the sinuses, as his health improved, would close, or whether the sinuses should be enlarged and the unhealthy granulation tissue scraped away, and any carious or necrosed bone that might be found removed?

THURSDAY, JUNE 21.

I. *Cyst in axilla.*—II. *Sarcoma of the femur.*—III. *Sarcoma of the femur.*—IV. *Elephantiasis.*

CASE I.—*Mr. Savory.*—A female, aged 26, presented a large swelling in the right axilla. It began eighteen months ago, and when first noticed was the size of a walnut. It gradually grew till it became as big as an orange, and in December 1887 was twice aspirated. She was confined in March 1888, and the cyst from that date increased rapidly to the size of a cocoa-nut, the skin over it becoming red and the veins much distended. It was decided to puncture in the first place, and this failing to cure it, to dissect it out. It was punctured on June 22, 29, and July 6,

and thirty-two ounces, thirty ounces, and sixteen ounces of brownish fluid were drawn off on each tapping respectively, the fluid on each occasion becoming more blood-stained. On July 21, the cyst having again filled, it was completely dissected out without puncturing it. It was found more firmly fixed to the subcutaneous tissue in the upper part of the axilla than to that of the lower part.—(*From notes by Mr. E. Cautley.*)

CASE II.—*Mr. Smith.*—This patient, a man aged 50, with a large swelling of the femur. The swelling was clearly connected with the bone, and presented all the characteristic signs of malignant disease. All were agreed that it was a case of sarcoma, and that amputation through the hip-joint should be undertaken. This, however, the patient refused to submit to, and left the Hospital. He was again admitted on June 29, and died August 3. No post-mortem was allowed.—(*Notes by Mr. White.*)

CASE III.—*Mr. Smith* also showed another patient, a woman aged 45, with sarcoma of the right thigh. She had complained for two years of pain like sciatica, but had never noticed any swelling till she came to the out-patient department to-day. She has now great pain on moving the hip-joint and on sitting. Two sisters have tumours, and one nephew has had a tumour removed. There is a large rounded swelling at the upper end of the right femur, about the size of a melon, the thigh being 23 inches at its largest circumference. The swelling is situated chiefly in front of the thigh, but seems to extend posteriorly under the glutei. It is hard, firmly fixed to the bone, painful on pressure and movement, and the skin over it is natural. The femoral glands are enlarged; the thigh below the tumour is wasted. The patient is very thin. All were agreed in the diagnosis, and nearly all advised amputation through the hip-joint. The common femoral artery and vein having first been tied in two places and cut between the ligatures, two lateral skin-flaps were shaped and the bone then disarticulated. Very little blood was lost. With the exception of some slight sloughing of the ends of the flaps, the patient did remarkably well, and gained flesh and strength, and was discharged on crutches on September 23.—(*Notes by Mr. White.*)

CASE IV.—*Mr. Marsh* showed a case of elephantiasis of the leg, and pointed out the characters of the swelling.

THURSDAY, JUNE 28.

I. *Osteitis of the lower end of the femur.*—II. *Chronic disease of the knee.*—III. *Cyst between the eyes.*—IV. *Chronic disease of the knee.*—V. *Entero-vesical fistula.*

CASE I.—*Mr. Savory.*—The patient presented a swelling of the lower part of the thigh. He was 24 years old, and dated his illness from six years ago, when an abscess formed and burst behind the biceps tendon. The sinus thus left closed after nine months, but reopened two years ago, and has discharged at intervals since. On admission he had a sinus at the back of the thigh, just above the knee-joint, running for about three inches in an upward and outward direction. No bare bone could be felt, but the lower end of the femur was much enlarged. Notwithstanding that he was kept at rest, another abscess formed on the inner side of the thigh, and from time to time there were exacerbations of inflammation. The sinus had been enlarged and explored, but no bare bone could be discovered. At Consultations it was submitted by Mr. Savory that three courses appeared open—to wait and employ no active treatment; to freely explore, and if necessary trephine the bone; or to amputate. Exploration met with the most favour; but Mr. Savory determined for the present to wait and send him to Swanley.—(*From notes by Mr. E. Cautley.*)

CASE II.—*Mr. Savory* had had this patient, a boy of 19, under his care since May 3 for chronic disease of the knee-joint. Nine years ago he fell three feet on to his left knee. Since that time it has remained swollen and painful, sometimes worse, sometimes better, and a year ago he had to take to crutches. On admission, the knee measured $15\frac{1}{2}$ inches in circumference against $13\frac{1}{2}$ on the opposite side. The patella was almost fixed; flexion and extension were very limited. There was much pulpy thickening of the synovial membrane, and wasting of the limb above and below the knee. There was but little increase of heat in the joint, and the general temperature was normal. It was placed on a back splint in Scott's dressing. Under this treatment it has diminished one inch in circumference in a month. Arthrectomy was advised by some, and a prolongation of the rest by others. Considering the improvement that had already taken place under the latter treatment, Mr. Savory decided to continue it, and the joint was rigidly fixed in plaster-of-Paris.—(*Notes by Mr. E. Cautley.*)

CASE III.—*Mr. Savory* also showed a dermoid cyst situated between the eyes in a lad of 17. The cyst was about the size of

a large marble, and was situated exactly between the eyes at the junction, between the frontal and nasal bones. It was freely moveable and distinctly circumscribed, and its contents had a semi-solid feel. Forced expirations, with the nose and mouth closed, caused no increase in size. The patient stated that the swelling had existed as long as he could remember, and had undergone no change within this time. The possibility of its being a meningocele or encephalocele was not lost sight of; but from the free mobility of the swelling, the absence of alteration on forcible expiration, and of any brain symptoms on making pressure on the swelling, pointed to its being of the nature of a dermoid cyst, rather than any protrusion of the brain and its membranes. It was therefore dissected out, and proved to be a simple dermoid cyst. The wound healed by the first intention.—(*From notes by Mr. E. Cautley.*)

CASE IV.—*Mr. Langton.*—A girl, aged 15, was brought in for Consultations with chronic disease of two years' duration in the right knee. Since December 1887 two abscesses had formed in connection with the joint, and now remained as discharging sinuses. The right knee-joint is flexed at an angle of 45° , is swollen and rounded in outline, lightly elastic, and the skin over it is red and shining. The sinuses are situated below and to the outer side. It was considered that the joint was completely disorganised, and that amputation would give the best result. The patient, however, refused treatment.—(*Notes by Mr. Gow.*)

CASE V.—*Mr. Harrison Cripps* showed a man, aged 28, who had been suffering from vague abdominal pains for over a year. During the last three months he had been passing air and fæces in considerable quantities by the urethra, and was now suffering severely from cystitis. It was advised that an exploratory operation should be done by abdominal section. The abdomen was opened by an oblique incision three inches from the middle line; the lower part of the sigmoid flexure was found firmly adherent to the fundus of the bladder. The bowel above the adherent part was attached to the skin and subsequently opened. After this the patient passed no more air or fæcal material with his urine, which became quite clear as the cystitis passed off.

THURSDAY, JULY 5.

I. *Injury of elbow.*—II. *Tumour of testicle.*—III. *Tumour of breast.*—IV. *Disease of knee and tubercle in other parts of body.*

CASE I.—*Mr. Smith.*—A woman, aged 69, was admitted for an injury to the right elbow, caused five weeks previously by a fall down-stairs. She has not been able to move the arm since, and has merely applied poultices to the elbow. At the elbow all movements were much limited and accompanied by pain. The head of the radius could be felt dislocated forwards and outwards. There was much thickening about the internal condyle, which was very prominent. The ulna was apparently displaced outwards. All agreed that the radius and ulna had been partially dislocated, and there had been probably in addition a fracture of the internal condyle; and although an attempt at reduction was generally advised, it was considered that such could hardly be expected to be completely successful, but nevertheless that a better position and more movement might thus be obtained. Reduction was therefore attempted, but failed. The patient, however, left the Hospital with the arm in a more useful condition.—(*Notes by Mr. White.*)

CASE II.—*Mr. Morratt Baker* showed a patient, 26 years old, with a swelling of the right testicle. It was considered to be tubercular; and as the testicle appeared disorganised, and the tubercle had not, as far as could be judged, become disseminated, it was thought that the removal of the organ should be undertaken. The microscope verified the diagnosis after excision.

CASE III.—*Mr. Morratt Baker* also showed a patient, a woman aged 43, with a tumour of the breast. The case presented the characters of hard carcinoma, and all agreed with *Mr. Baker* that removal was the best treatment.—(*From notes by Mr. H. Watts.*)

CASE IV.—*Mr. Morratt Baker.*—This child, a girl of 10, had suffered from disease of the knee-joint for the last four years. The knee was now strongly flexed, the tibia and fibula being dislocated backwards and outwards. Over the knee were several ulcers. She had also a marked angular curvature of the spine, which now, however, appeared to be quiescent. Further, she had tubercular disease of the right little finger and old scarrings—evidence of tubercular disease—in other situations. Considering

that there was evidently extensive dissemination of tubercle, it was thought best for the child not to actively interfere with the knee at present. The time for arthrorectomy, it was thought, had passed, and excision, considering the patient's constitutional condition, could not be regarded as hopeful. As the knee, moreover, was now quiet, it was considered best to trust to constitutional remedies, but amputate if any active treatment should become necessary. The child left the Hospital walking on crutches. No operation was done.—(*Notes by Mr. H. Watts.*)

THURSDAY, JULY 12.

I. *Recurrent scirrhus of the breast.*—II. *Disease of the wrist-joint.*—III. *Naso-pharyngeal polypus.*—IV. *Swelling in or about head of the radius.*—V. *Sarcoma of the upper jaw.*—VI. *Creeping epithelioma of the upper jaw.*

CASE I.—*Mr. Savory* showed a woman with recurrent scirrhus of the breast. She was 38 years of age, and two years ago had had the breast removed for scirrhus cancer. A year ago she first noticed a return in the form of a small hard lump in the outer angle of the scar. As no enlarged glands were to be felt in the axilla, and the tumour was fairly moveable on the deeper structures and the general health good, removal was advised and subsequently done. The patient made a good recovery.—(*From notes by Mr. E. Cautley.*)

CASE II.—*Mr. Savory.*—This patient, a man aged 48 years, whilst drawing a cork cut the palm of his left hand through the breaking of the bottle. The injury, which occurred on June 8, was followed by diffuse suppuration, and in spite of free incisions the wrist-joint ultimately became involved. He had drunk a good deal of beer daily, but was not addicted to spirits. All were agreed that the carpus was entirely disorganised, and advised amputation through the fore-arm. The patient after the removal of the hand made a rapid recovery.—(*From notes by Mr. E. Cautley.*)

CASE III.—*Mr. Savory.*—A lad, aged 17, had suffered from nasal obstruction for two months. He could not breathe through his right nostril at all; his mother noticed that he spoke thickly, snored at night, slept with his mouth open, and had a slight foetid discharge from the nostril on the affected side. He had had four or five attacks of epistaxis; but these had ceased two or three weeks ago after the removal of a polypus from the nose by a doctor

outside the Hospital. On introducing the finger behind the soft palate, a large, firm, naso-pharyngeal polypus was discovered growing from the base of the skull. At Consultations the propriety of removal by the galvanic *écraseur* or the forceps, or after some preliminary operations, as splitting the soft palate or removing the superior maxillary bone, was discussed. On the whole, it was advised that one of the simpler methods should be first tried. Forceps were therefore used behind the soft palate, and the greater part of the growth got away in this manner. When he left the Hospital, on August 4, the nostril was quite clear and no growth could be felt.—(*From notes by Mr. E. Cautley.*)

CASE IV.—*Mr. Smith.*—A girl, 15 years old, was brought into the theatre with a tumour of the left arm. Her attention was first called to it eight months ago by pain, and swelling began soon afterwards. Hitherto she had been in excellent health. In the situation of the head and upper third of the radius is a uniform, hard, and apparently solid oval swelling, which is painful on pressure. Pronation and supination are almost absent. Flexion can be carried to a right angle, but not beyond. Extension is limited. The ulna and humerus do not appear to be involved in the swelling. There are no enlarged glands at the bend of the elbow or in the axilla. Some doubt was expressed whether the swelling was due to inflammation or a new growth. All advised as a preliminary, that it should be cut down upon, and if found to be a sarcoma, either removed locally or the arm amputated. On July 18 an incision over the swelling was accordingly made; the soft tissues were found thickened, and the head and upper third of the radius surrounded by new bone. Just below the head was a cavity containing caseous matter, and evidently of tubercular origin. The upper two and a half inches of the radius were therefore excised. The wound did well, and the patient was discharged to Swanley with already a good elbow-joint.—(*Notes by Mr. White.*)

CASE V.—*Mr. Langton.*—A woman, aged 49, was brought in with a swelling of the upper jaw on the left side. The symptoms came on with pain two months ago, followed a week later by swelling of the face and prominence of the left eye. A month subsequently the swelling was punctured from the mouth by her medical attendant, and this gave her considerable relief, and it was punctured several times afterwards. She had lately lost flesh. There is now considerable swelling in the region of the left superior maxilla; the alveolar border is swollen and ulcerated, and presents at one spot a sinus through which a probe can pass into the antrum, but no dead bone is felt. The palate is depressed on

the left side; there is protosis of the left eye, and the glands beneath the lower jaw are enlarged. The opinion universally expressed was that the disease was malignant, and too far advanced to admit of operative treatment.—(*Notes by Mr. Gow.*)

CASE VI.—*Mr. Walsham* asked the opinion of his colleagues as to the advisability of removing the superior maxillary bone in this patient. The man, who is strong in health and 52 years of age, had never had a day's illness till Christmas 1887; then he began to suffer from neuralgic pains in the face on the left side. In March he had one of his left molar teeth removed, and its root was found much decayed. Since this time there had been a constant discharge of matter from the vacant socket, and a gradual swelling of the gum in the neighbourhood. More recently a sinus had formed in the swollen gum at the reflexion of the mucous membrane on to the cheek; whilst still more recently he has noticed an external bulging of the cheek, which has gradually extended beneath the malar bone. On admission, both sinuses were found discharging pus and surrounded by prominent granulations and indurated tissue; but on probing, no bare bone was discovered. There was considerable bulging of the left cheek, but the nostril was apparently free, and there was nothing to be detected with the finger behind the soft palate. There was an enlarged gland beneath the jaw on the left side. Was this a case of inflammation, or one of malignant disease? The discharge of pus at first sight pointed to the former condition, but the appearance of the ulcerated aperture, the absence of dead bone, and the history of the case made it more likely that the patient had malignant disease, and most probably that form of epithelioma known as the creeping variety, which, beginning in the gum, and generally as the result of irritation of a decayed tooth, slowly invades the antrum. All agreed in the latter view, and the majority advised excision of the superior maxilla. This was subsequently done. The growth was found to have made extensive ravages in the antrum, and to have invaded the tissues beneath the malar bone. It was, however, completely removed, and, with the exception of some inflammatory trouble in the glands beneath the lower jaw, the patient made a good recovery.

PROCEEDINGS
OF
THE ABERNETHIAN SOCIETY
FOR WINTER SESSION 1887-88.

OFFICERS.

<i>Presidents</i>	Dr. GOW and Mr. A. LYNDON.
<i>Vice-Presidents</i>	Mr. W. BALGARNIE and Mr. J. G. E. COLBY.
<i>Treasurer</i>	Mr. W. S. SAVORY.
<i>Secretaries</i>	Mr. L. ANDREWS and Mr. J. WILKIE.
<i>Additional Committee-men</i>	Mr. STEVENS and Mr. KENT HUGHES.

October 13.

Opening meeting.

Dr. Thorne Thorne gave the Introductory Address on 'Cleanliness in its Relations to Health.'

Dr. Thorne began by remarking that dirt was matter in the wrong place. For health we must have cleanliness in air, food, soil, and occupation. Typhus fever, a disease especially associated with dirt, poverty, and overcrowding, had been banished from London. But in Liverpool, with its dense immigrant population, its narrow alleys often closed at one end, and its dirt, there was now a typhus centre.

Typhoid fever, the endemic fever of our islands, now, through improved sanitation, caused a death-rate of only one-tenth what it was.

Our drainage system brought dangers: there must be an air-break between house and sewer.

The best treatment for disease was the nearest approach to open-air treatment. Dr. Thorne had himself urged the propriety of being able to wheel the sick to an open-air casement.

Let us have great care for cleanliness in food, and above all in milk. No one should eat in the sick-room except the sick. All others should wash hands and faces before their meals.

Let us remove all causes of disease. It is ignorance that we must banish. The people are destroyed for lack of knowledge.

October 20.

Mr. Lloyd Jones read a paper on the 'Specific Gravity of the Blood in Health and Disease.'

After some introductory observations about the information obtained by the knowledge of the specific gravity of a specimen of blood, he spoke of the variations in the physiological conditions due to the following cases:

(1.) Age and sex; (2.) Menstruation, pregnancy, and childbirth; (3.) The consumption of food and drink; (4.) The amount and character of exercise taken; (5.) Sleep; (6.) Seasonal causes and climate; (7.) Temperament; (8.) Race.

Local changes in the specific gravity of the blood were produced by causes acting through the nervous system; the specific gravity also varied normally in different parts of the body.

Speaking of the variation in pathological conditions he condemned the current use of the term 'anæmia' as unscientific, the name being recklessly applied to very different conditions. He used it in its etymological sense, and for denoting a deficiency in the quantity of blood. So far no method has been invented for determining the quantity of blood in the body. We could only estimate the amount of hæmoglobin which was to guide to the amount of blood. He suggested two methods with which he had made some experiments.

All blood conditions which were accompanied by any change in the specific gravity of the blood were divisible into two classes. In the first the specific gravity was diminished, in the second increased beyond the healthy limits.

The first condition he called 'light blood,' and spoke of the causes producing it; he condemned the use of such terms as 'hydræmia,' 'oligocythæmia,' &c., for denoting conditions which practically never existed singly.

He said he believed the nervous system to exercise a controlling effect upon the composition of the blood.

Discussing the changes in fevers he contrasted the effects of typhoid and scarlet fever upon the blood.

Speaking then of heavy blood he enumerated its causes and some of the conditions in which it occurred. On concluding he spoke of the local disorders of blood, and confessed a doubt

whether the atrophic changes following in the path of nerve lesions might not be more due to such vascular changes as he had described than to the action of the so-called trophic nerves.

October 27.

Mr. Lyndon read the notes of a case of malignant carbuncle of the face then in Coborn Ward.

A healthy boy, aged 19, on October 20th, noticed a slight swelling about the left eye. He had been exposed to cold, but there was no history of any injury. He was very ill on admission, October 24, there being a hard brawny swelling about the left eye.

There was some chemosis and exophthalmos and amaurosis. On the 25th he became delirious and drowsy, and some punctiform collections of pus appeared near the inner canthus. Incisions were made into the lachrymal sac and into the orbit, and a drop or two of pus let out, but he became more drowsy and died.

Mr. Lyndon referred to the diagnosis from malignant pustule, in which there is no pain, no suppuration, and a black slough surrounded by a ring of vesicles.

Mr. Sympson then read his paper on 'Hæmatemesis.' He began by defining hæmatemesis as vomiting of blood, thereby implying that it came from the stomach; he considered the difficulty of diagnosis and enumerated the causes—(1.) General conditions of the blood; (2.) Gastric ulcer; (3.) Congestion as in cirrhosis of the liver. He then narrated five cases, and just touched upon the pathology, especially in connection with melæna neonatorum and Virchow's theory of the production of a gastric ulcer. In the treatment of hæmatemesis he advised starvation by the mouth, nutrient enemata, and milk in doses of \bar{z} i. each hour.

November 3.

Mr. Robinson showed an apparatus for wryneck invented by himself. The firmness of the application around the chest lent efficient support to the neck.

Mr. Farrar showed a case of excision of the elbow-joint.

Dr. Gow then read his paper on 'Cirrhosis.'

He dealt mainly with that form of cirrhosis which is associated with abuse of alcohol. The morbid anatomy of the liver in this disease was briefly described, and it was afterwards pointed out how the changes that occur interfered with the normal functions of the liver.

The classification into atrophic and hypertrophic cirrhosis was discussed, and condemned on the ground that after the abuse of alcohol the liver might be either increased or diminished in size. Charcot's so-called hypertrophic cirrhosis was discussed, and some doubt expressed as to whether the disease ever existed in its idiopathic form.

The comparative rarity of symptoms of neuritis occurring in those presenting symptoms of cirrhosis of the liver and *vice versâ* was noted.

The symptoms of cirrhosis of the liver were enumerated, and it was shown that their onset might be sudden or gradual. The treatment was then discussed.

If the ascites was considerable, and sufficient to cause discomfort or danger to the patient, paracentesis with a small trocar was advised. In other cases no treatment was recommended.

November 10.

Mr. Balgarnie showed a specimen of acute œdema of the glottis, occurring in a subject of syphilis.

Mr. E. Willett opened the surgical discussion on 'Anæsthetics.' He began by stating that the paper was not so much on anæsthetics generally as remarks on over 2000 administrations in the Hospital, reference being made to two papers, one in Pye's Surgical Handicraft, the other in Treves's System of Surgery, by Mr. Mills, whom he wished to thank for instruction and assistance.

He was of the opinion that anæsthesia of over half an hour was in itself bad, hence the need for everything to be ready before the anæsthesia is commenced.

The anæsthetics used were chloroform, ether, gas, or gas and ether, and the A.C.E. mixture was tried in three test cases, but not found satisfactory.

As proof of complete anæsthesia the author thought that regular breathing, free from spasm, was a good, if not the best sign. In opposition to some authors he considered that the pulse as well as the breathing should be constantly and carefully watched, and that valuable assistance may also be obtained from the state of the pupil, which should be moderately contracted, as in natural sleep. He considered that no patient should be left till he had given a clear sign of consciousness. The simple question of asking him to put out his tongue is usually responded to before questions can be answered. When the salivation from ether is excessive, the head should be held

on one side to prevent the patient swallowing saliva mixed with ether, a not infrequent cause of excessive vomiting.

The various degrees of anæsthesia were alluded to: the patient may move, or even talk during an operation, and yet be completely unconscious. Children, the subjects of previous rickets, are bad subjects: the thickening of the costal cartilages was suggested as a cause.

From a purely physiological point of view the order in which the senses become inhibited is interesting, and the fact that threatened vomiting may be sometimes averted by increasing the anæsthetic points to the existence of a vomiting centre.

November 17.

Mr. Lyndon showed a case of a man with a large nævoid growth disfiguring the whole of one side of his face.

Mr. Lyndon also showed a case for Mr. Reece, a boy with a deposit of cholesterin in an injured eye.

Mr. Stephens showed a case of a man who had had double excision of the elbow performed, and who had very good use of his arms.

Dr. Hamer then read his paper on 'Tracheotomy,' which is published by the author in the present volume of the Hospital Reports.

November 24.

Mr. Farrar read a paper on 'General Paralysis of the Insane.

He said general paralysis is a form of insanity in which mental alienation is constantly associated with progressive paralysis of all the voluntary muscles. It accounts for 8.5 per cent. of all admissions into asylums: being about four times as common in men as in women. The prodromal period is characterised chiefly by the loss of moral and intellectual equilibrium. The psychological phenomena are more noticeable at this period than the somatic. The invasion of the disease is somewhat sudden, and marked by an attack of cerebral congestion. After the development of the disease, contentment is the most common symptom; large delusions occur in about half the cases, melancholia and hypochondriasis are less common. The chief somatic symptoms are pupillary abnormalities, facial and lingual tremors, and defective articulation. The mental alienation tends progressively towards dementia, simultaneously the muscular paralysis becomes more marked, and paralytic symptoms may be those of tabes dorsalis or disseminated sclerosis. Seizures of cerebral congestion occur in most cases. They take the form of apoplec-

tiform or epileptiform attacks, or of acute maniacal delirium. Some such attack is usually the proximate cause of death. The essential pathology of the disease is congestive hyperæmia tending to chronic cortical degenerative cerebritis, associated with patchy sclerosis of other parts of the cerebrospinal system.

December 1.

Mr. Reece showed a case of 'Atrophy of the Choroid.'

Dr. Tylden read his paper on 'Coma.'

(a.) Coma, an important and difficult subject: difficult in theory, more so in practice.

The word and condition described. The word is equal to deep sleep.

(b.) The condition is equal to loss of sensation and voluntary movement, with an affection of the lower vital functions, which, having set in from the first, intensifies as the coma deepens.

(c.) Diagnosis of the condition 'coma' from that of 'collapse' and that of 'cerebral irritation' usually easy, sometimes however impossible at the moment.

(d.) Diagnosis of cause of 'coma' involves a classification of coma.

For the purpose of the paper the following adopted:—

(1.) Cases which fall under the care of the House-Surgeon; (2.) Cases which fall under the care of the policeman; (3.) Cases which fall under the care of the Ward-Physicians.

Class 1 are not discussed here.

Under Class 2 the subject of alcoholic coma is treated. Its chief diagnostic sign is the presence of alcohol in the stomach, and the most important mode of treatment the stomach-pump.

The battery discussed. A method of treatment rather than an instrument of diagnosis.

Under Class 3 the subject of cerebral hæmorrhage is treated. The following points treated in relation to its diagnosis.

(1.) Age. While mature age greatly in favour of cerebral hæmorrhage, experience shows that youth does not exclude it.

(2.) History of onset. Speaking generally, the coma of cerebral hæmorrhage is nearly always ingravescent. There are however exceptions both apparent and real.

The coma of cerebral hæmorrhage is related by a variable interval to a state called by Trousseau 'cerebral surprise,' which seems to resemble collapse in many respects, but not to be identical with it.

(e.) The treatment of the coma of cerebral hæmorrhage has varied in different hands. Thus Trousseau and Abercrombie are

diametrically opposed in their views on 'Venesection.' Trousseau is probably more nearly right than Abercrombie. There are certain hypothetical cases suitable for venesection, but the recognition of these in practice must be always difficult.

(*f.*) Diabetic coma supervenes insidiously, and is nearly always fatal. In many respects the condition resembles collapse.

(*g.*) Inanition is sometimes the cause of profound coma.

December 8.

Mr. Davenport showed an incubator used in Martha.

Mr. Moberly showed a specimen of Hydrosalpinx.

Dr. Everley Taylor then read his paper entitled 'Jottings from General Practice by a General Practitioner.'

He discussed at some length the general duties of a medical practitioner, and insisted strongly on the importance of making always a thorough examination of all cases, especially at the first visit, and advised that a register should be kept of the results of the testing of urine in every case. Dr. Oliver's test papers were found very satisfactory. He recommended medical men to give their directions to patients in writing, especially with regard to food—its quality and quantity. He then discussed the importance of gaining the confidence of his patients, and gave advice with respect to bookkeeping, instruments, and some cautions about medico-legal cases. Dr. Taylor then related two cases of persons found dead; two cases of retroflexion of the gravid uterus; and one of death from moist gangrene occurring simultaneously in both legs in a patient suffering from heart disease.

December 15.

Mr. Colby showed some microscopic specimens of gallstones prepared from bilirubin.

Mr. Reece read his paper on 'The Medical Organisation of the Volunteer Force.' He described the growth of the medical organisation of the army from the period of great inefficiency at the time of the Crimean War to the adoption of the German system in 1878; and pointed out how that system was tested in the Egyptian campaign in 1882. He then showed a diagram explaining the progress of a wounded soldier from the fighting line, through the field hospital, and the base hospital, to the sick transport ships and to Netley. He explained how Dr. Evatt and Mr. Cantlie had with great energy and perseverance laid the foundations of the medical staff corps of the Volunteer

army; and in conclusion insisted on the desirability for all medical students to put themselves in such a position that, in time of need, they could serve their country as trained military surgeons.

January 5.

Dr. Sidebotham showed a case of probable 'Hereditary Ataxia' in a girl of 10.

Mr. Pickard showed a case of 'Multiple Sclerosis' in a man of 30.

Dr. Sidebotham then read his paper on 'The Treatment of Intestinal Obstruction.' He began by enunciating the principle that sound treatment can only rest on sound diagnosis, and then went on to consider the difficulties not only in ascertaining what form of obstruction existed, but even whether obstruction existed at all. He strongly maintained that no case should be considered as suffering from acute obstruction unless the four cardinal symptoms were present, and alluded to the many serious mistakes which have been made owing to neglect of this rule.

He divided treatment into medical and surgical, and then proceeded to discuss all the different methods in detail. In speaking of laparotomy he quoted the Hospital statistics to show how fatal an operation it had been; but he considered that the operation must not be condemned, as hitherto it had only been resorted to as a last resort. He wound up by recommending a short trial of opium, enemata, and manipulation, but if relief were not soon forthcoming he urged early laparotomy.

January 12.

Dr. Lauder Brunton read his paper on 'The Preventive Treatment of Hydrophobia and other Diseases.'

This paper has been printed *in extenso* for distribution among members.

It was illustrated by a number of magic-lantern photographs, which were thrown by limelight on to a sheet.

January 19.

Mr. Reece showed a man with a dislocated lens and a very deep anterior chamber, the result of an injury.

Mr. Lyndon showed a traumatic aneurysm of the radial artery at the wrist, about the size of a large pea, of two months'

duration. He stated that Mr. Baker proposed to treat it by tying the artery above the aneurysm.

Mr. Lyndon also showed a lad of 18 suffering from well-marked 'Psoriasis Circinata.'

Mr. Lyndon then read his paper on 'Erysipelas.'

Erysipelas was defined as a specific, rapidly spreading inflammation of the skin. The word 'erysipelas' had been in common use since the days of Hippocrates, and at that time included not only most of the acute inflammatory affections of the skin and subcutaneous tissues, but also certain inflammations of internal organs. Galen distinguished erysipelas proper from cellulitis, though he still confused it with many forms of skin disease. In 1881 Felheisen demonstrated the presence of micrococci in erysipelas, and afterwards showed that these micrococci stood in the relation of cause to effect. Among predisposing causes particular stress was laid on Bright's disease, diabetes, and alcoholic excess. So called medical or idiopathic erysipelas was mentioned. All forms of erysipelas are much commoner with suppurating than recent wounds. Erysipelas after operation occurred chiefly after sequestrotomies. Our hospital isolation system was condemned.

Mr. Lyndon divided erysipelas into (1) Cutaneous, and (2) Cellulitis, including in No. 2 both phlegmenous erysipelas and the cellulitis of authors.

The diagnosis, clinical course, prognosis, and treatment of cutaneous erysipelas was treated at some length, and several cases quoted to illustrate the more important points.

For the treatment of cellulitis early incisions were advocated; and the danger of giving anæsthetics, owing to their being bad subjects, was pointed out.

January 26.

Dr. Oswald Browne showed a tom-tom, a drum covered with the skin of the old serpent, which is the sole stock-in-trade of the medicine-men of Central Africa.

Mr. Davidson showed some antique medical books and plates.

Mr. Evill showed a specimen of sub-coracoid dislocation of the shoulder in which the capsule was not ruptured. The case is published in the present volume of Hospital Reports.

Mr. Lyndon showed a case of cystic hygroma of the neck. It was proposed to inject the sac with Morton's fluid.

Dr. Oswald Browne then read his paper on 'Peter Mere Latham as a Clinical Teacher.' He gave a short history of Dr.

Latham. His father was Physician here in 1793, and he himself was born in 1789, and was educated at Oxford and St. Bartholomew's, and was appointed Physician to the Middlesex Hospital in 1815, which post he resigned on being appointed Physician to St. Bartholomew's in 1824. In 1841 he resigned on account of ill-health, and died at Torquay, at the age of 87, in 1874. He was an example of that peculiarly English character, the unobtrusive but accomplished and high-minded English gentleman. Dr. Browne then discussed at length the principles of sound medical study which Dr. Latham has laid down, insisting very strongly that the end students should have in view was to obtain a thorough knowledge of the craft of healing, of detecting and of treating of disease, and that this could only be obtained by cultivating and training the powers of observation.

In conclusion Dr. Browne recommended a study of the works of Latham, several volumes of which he passed round.

February 2.

Mr. Reece showed a case of 'Hyphæma;' and also a case of 'dislocated lens,' the result of a blow with a bunch of keys.

Dr. Garrod opened the 'Medical Discussion on Rheumatism.' He suggested as points for discussion the relation of rheumatism to tonsillitis, the erythemata and chorea. He began by insisting upon the necessity of forming a clear notion as to the conditions to which the name rheumatism should be applied, and showed that a too lax use of the term had allowed the inclusion of a number of conditions which are not rheumatic at all. He then proceeded to point out the distinctive characters by which rheumatism may be recognised; its tendency to involve the endocardium and pericardium; the absence of any tendency to suppuration; the shifting character of the joint-lesions; the copious sour sweat—characters only well-marked in acute cases. He dwelt, moreover, on the value of the family and personal history of the patient; and pointed out the importance of tender subcutaneous nodules as indicating a rheumatic condition. To arguments derived from the effects of treatment by salicylates he did not attach any great importance, although in conjunction with other features of the case they may lend valuable aid in diagnosis. He then proceeded to apply these tests to the cases of scarlatinal rheumatism, and gonorrhœal arthritis, and showed that while the former is probably true rheumatism, the latter is probably a disease of a different order. Passing of

to the subject of tonsillitis, he pointed out that some have seen a connection between that disease and rheumatism, and expressed the opinion that the tonsillitis met with so frequently at the commencement of an attack of rheumatic fever is a true rheumatic inflammation, whereas we are far from having proof that the pains of infectious tonsillitis are rheumatic at all. Some statistics were quoted which have been brought forward to show that tonsillitis is especially apt to attack those who inherit, or have themselves suffered from rheumatism.

The relation of erythema multiforme and erythema nodosum was next discussed. Passing on to the subject of chorea, he discussed the occurrence of this disease in association with present and previous rheumatic attacks, and the special liability of members of rheumatic families. Lastly he adverted to the difficult question of the relation of morbus cordis to chorea, and spoke of the view that chorea is simply a manifestation of rheumatism, the accompanying endocarditis being of a rheumatic nature; of the embolic theory of chorea, which regards the endocarditis as the primary lesion; and of the view which regarded the chorea itself as the cause of the endocarditis.

February 9.

Mr. Bowlby read his paper on 'Hip Disease.'

THE TREATMENT OF HIP-DISEASE.

We must know the paths travelled by the morbid processes if we would apply in any intelligent manner our remedies; and although it may appear at first sight unnecessary, yet it is advisable that we should commence by defining as clearly as possible what we mean by the name 'hip-disease,' for there are many ways in which the hip-joint may be diseased, and yet the term we are employing to-night has a pretty definite meaning.

For myself, at any rate, it means strumous or tubercular disease of the articulation in question; and simple synovitis, acute suppuration, arthritis, &c., are not to be included under our heading.

And now for the disease itself, for I must ask your attention whilst I describe as briefly as I may the course of a case of morbus coxæ, for which no treatment is adopted.

From an examination of the parts in a considerable number of cases, I can have no doubt that the head of the femur is most commonly the locality in which the morbid processes

originate, and I would remind you that it is a well-ascertained pathological fact that all recently formed new bone, in the immediate neighbourhood of an epiphysis, is, as it were, unstable, and easily affected by injury, by exposure to cold and wet, &c.

In the head of the femur then a process of strumous osteitis is set up, and the cancellous spaces are soon crowded with leucocytes which erode and destroy the bony tissue around them. By a continuance of this process the walls of the cancelli are gradually removed, and two or more spaces are thrown into one, the inflamed bone is soft and crumbling, and more red and vascular than natural.

The exuded cells now undergo further change, and quickly break down into a caseous pulp, and by a continuance of this cell-exudation, absorption of bone, and caseation of the inflammatory products, the inflammatory process makes its way to the articular surface, and quickly involves the cartilages, synovial membrane, and ligaments in a similar slow but persistent destruction, and infects the opposed cartilaginous surface of the acetabulum. Both the microscope and experiments alike demonstrate the tubercular nature of the entire process.

Now, for an adequate conception of the disease, it must clearly be understood that considerable destruction of bone, of ligaments, and of cartilage may occur without the formation of any collection of pus, and that much of the head of the femur may be destroyed without any abscess resulting. On the other hand, however, abscesses form in almost all cases in which the patients are not subjected to treatment, and such a case we are now following. Of the locality of these abscesses I shall have more to say when we come to the clinical part of our subject, and here I shall content myself by mentioning that such abscesses are at first always chronic and frequently painless, but that after they burst and discharge their contents they are liable to form greater quantities of pus than formerly, and are accompanied by much high temperature and malaise.

From this time the progress of the patient is from bad to worse, and although some few cases, even if untreated, may recover with a wasted, distorted, and useless limb, the majority die of amyloid disease, induced by the prolonged suppuration, or of tubercle more or less diffused in the viscera.

Such then is the enemy we have to meet, and considering how subtle is the onset and how persistent the attack, it is evident that we must obtain the very earliest information to enable us to oppose a satisfactory resistance.

What then are the earliest symptoms of hip-disease? For-

tunately they are now so well known that a good surgeon will rarely overlook them, and as many of you are well aware of them, I do not propose to treat of them at length.

The patients in whom hip-disease is most common are children under six years of age, oftentimes meriting the appellation 'strumous,' and frequently the offspring of pthisical parents. The nearer a child over six approaches the period of puberty, the less likely is he or she to suffer from hip-disease, although it cannot be said that even adults are exempt.

The earliest symptom is commonly aching pain after walking, and a disinclination for exercise, the child appearing to tire more easily than natural. After this, pain is more definite, and is located in the knee or hip, whilst slight lameness is also early apparent.

It is at this stage that 'growing pains' and 'rheumatism' are called in to account for the symptoms, and the patient as often as not is encouraged to get about.

Soon, however, pain is more acute and lameness more marked, and after a variable number of weeks or months the limb starts and jerks at night, waking the patient up as soon as he begins to sleep. This jerking pain is to be thus explained. During the day the muscles about the hip, by their almost constant contraction, steady the joint and prevent the movement which would cause pain. When, however, the muscles relax in sleep, the joint-surfaces are allowed to rub together, pain is caused, and the muscles suddenly awakening to a sense of their duty, spasmodically contract and jar the head of the femur against the acetabulum. It is this jar that causes the shriek of pain with which the patient awakes, and so long as he remains wakeful and the muscles are on the alert all goes well, but before sleep is sound there may be many such screams, and, even when asleep, an inadvertent movement may at any time cause a fresh attack of pain.

But, however much a history of such symptoms may lead us to suspect hip-disease, our diagnosis must rest on yet surer foundations. An examination of the patient will usually set the matter at rest, and I shall now pass to a brief consideration of the physical signs of morbus coxæ.

The patient should be placed on his back on a flat couch, and all clothing should be removed from both the lower extremities and the abdomen. The *position of the diseased limb* should next be carefully noted. Rarely it lies flat on the couch. More often it is flexed, and either rotated out and abducted, or, as I think, more frequently rotated in and adducted.

If *abducted*, the limb on the affected side frequently appears

longer than the healthy limb; a fallacious appearance, which is readily explained when we consider that, if the limb be fixed in a position of abduction by the muscles, the patient would be unable to walk unless, by the movement of the pelvis on the spine, he brought the limb parallel with its fellow. But this rotation downward of the pelvis on the affected side is of course accompanied by a corresponding pushing downward of the whole limb, and thus an apparent increase of length.

Conversely, if the femur is fixed in a position of *adduction*, and the limbs are then placed parallel, the diseased limb will appear shorter than its fellow, for its parallel position is attained by a drawing up of the pelvis on the diseased side, and a consequent loss of length.

In order therefore to ascertain the real position of the femur relatively to the pelvic bones, we must see that the anterior superior spine of each side is on the same level, and if, when they are level, we find the thigh abducted or adducted, we may feel sure that this is the real position which the disease has caused it to assume.

In other cases again the thigh is flexed, and the femur may really be flexed on the pelvis; even although the patient lies on the back the limb is flat on the couch. This anomaly is easily explained by an examination of the spine, which in such a case will be carried forward in the lumbar region, and thus raised from the couch. The limb in fact has been placed flat, not by movement of the hip-joint, but by movement in the limb or vertebræ, and at the lumbo-sacral articulation.

The abnormal position is to be explained by saying that in all cases the limb is reflexly placed in that position which is most comfortable, most restful, and least painful.

Thus, the position of rest in all joints, normal as well as abnormal, is flexion, and in addition, flexion relaxes the most tense anterior of the segment of the capsule, and, by allowing the patient to walk on the toes, prevents the jar which would result from the impact of the heel on the ground.

Abduction and rotation outwards relax the inner part of the capsule and perhaps the ligamentum teres, and the limb is especially found in this position when there is fluid in the joint and the ligaments are yet tough and unyielding, as is the case in the early stages of the affection.

In the later stages, when the ligaments are softened and stretched, the thigh is adducted and rotated inwards, pain being now relieved by the displacing of the head of the bone from the floor of the acetabulum, at a time when each of the articular surfaces is ulcerated.

But meantime our patient is on the couch, and as yet we have only noticed whether the limb is in a normal position. What else is there to see? Well, just look at the muscles of the thigh and see how they are wasted, cast a glance at Scarpa's triangle and see how the fold of the groin is obliterated and notice the depression beneath. Poupart's ligament is often replaced by a slight rounded prominence. Then see, when the patient lies on the face, the wasting of the gluteus and the flattening of the buttock.

And now ask the patient to move the limb, or to walk, and notice the most important thing of all, namely, if the movements are free.

So far we have only been using our eyes, but our fingers will tell yet more. Press with your finger tips over the upper part of Scarpa's triangle, and notice not only the tenderness of the part, but also the increased sense of resistance, perhaps amounting to induration. Feel the flabby, wasted thigh muscles, and then firmly but gently grasp the thigh with one hand and the pelvis with the other, and notice whether the femur moves freely in the acetabulum, or if, on the other hand, the movements of the thigh are accompanied by similar movement of the pelvis, for this will tell you—not that the hip-joint is fixed by ankylosis, certainly not—but that the muscles are watching over the diseased joint, and refuse to allow you to move it on account of the pain which would result.

You have now done quite enough to establish a diagnosis, but you may yet make your examination more complete by measuring the length and circumference of the limb, and by seeing if the trochanter occupies its nominal position relative to the iliac spine. Lastly, feel if there is any fluctuations to indicate the presence of an abscess near the joint.

Now you may reasonably ask why all this care? Are not the symptoms of hip-disease very plain? Well, yes, in some cases they are; but you must consider that it is your aim to be capable of discovering the disease in its earliest stage, before irreparable mischief has occurred, at a time when it may best of all be treated. And in this stage the very greatest care is requisite, for there may be nothing else to notice except a little muscular wasting, and very slight impairment of flexion or outward rotation.

There are other troubles which may simulate hip-disease. I can only mention the chief. Sacro-iliac disease, psoas abscess, iliac abscess, deep seated acute abscess in the thigh, acute synovitis of the hip-joint, infantile paralysis, congenital dislocation of the hip, and perityphlitis.

After all, however, our chief interest must centre in the question of treatment, and without discussing other plans, I shall proceed at once to describe the treatment in common use at the Alexandra Hospital, only venturing to remind you at the outset that in this matter not only I, but all members of our profession, owe very much to Mr. Marsh.

The patient is confined to bed, and is kept throughout in a supine position. He lies upon a firm level mattress with a very small pillow under the head. Sitting up is prevented by the use of a broad strap which passes across the bed beneath the shoulders, and to which are attached two shoulder-straps of webbing. These latter fit lightly around the shoulders, and are united across the chest by a single broad band of webbing, and thus any attempt to sit up is at once checked by the resistance offered by the shoulder straps and chest-band.

A long Liston's splint is then placed on the sound limb, so as further to ensure the supine posture, and to prevent the child from wriggling into bad positions.

Extension is now applied to the affected limb by straps of strapping fastened to the thigh above the knee. The weight used differs with the case, but for children under ten it should seldom exceed three or four pounds.

The direction in which the weight exercises traction is carefully regulated by the positions which the diseased limb has acquired. If when the thigh lies flat on the bed there is lordosis, the thigh is flexed till the lordosis disappears, and with pillows placed to support the thigh and leg, the traction is applied in the axis of the flexed limb. Similarly, if the anterior superior spine is raised above its fellow, the limb is adducted till the two are on a level; or if it be below its fellow, the limb is adducted till the same result is obtained: a traction is thus always applied in the long axis of the limb when placed in the abnormal positions the disease has caused it to acquire.

At first sight it appears strange that the limb should thus be placed and maintained in its abnormal position, but it must be remembered that this position is the least painful one, and that any attempt to forcibly alter it would not only be unsuccessful, but would also cause great pain, and would probably set up fresh inflammation.

If an attempt is made to forcibly extend the flexed femur, the only result is that the carious head is pressed against the acetabulum, whilst forcible abduction or adduction may cause dislocation.

But mark what benefit results at once from the treatment adopted. The diseased parts are kept at absolute rest, and all

the stimulus to inflammation supplied by movement is immediately removed.

The starting pain at night ceases, for the constant steady extension prevents any movement of the articular surfaces, and the child sleeps soundly. The ever watchful muscles, finding their services no longer required to safeguard the immobility of the parts, gradually relax their spasmodic contraction.

In a few days the child is cheerful and free from pain.

For the next week or two I now find it best to maintain a masterly inactivity, to do nothing beyond gaining the confidence of the patient, and trying to get him accustomed to a little gentle handling of the limb. And then if there is no pain or spasm the thigh may very carefully be moved a little so as to lessen any flexion or other abnormal position there may be. No force is used, and in the absence of muscular resistance none is required. Thus, in about three or four weeks a limb flexed to half a right angle will slowly assume the extended position, and abduction or adduction will similarly yield. I do not usually attempt to alter the position of the diseased limb more than once a week, and if there is pain I never attempt to alter the position in any way whatever. So long as pain and spasm exists the part cannot be kept too quiet.

In some few cases, however, this method of gradual reposition fails on account of the fears entertained by the patient of all attempts at movement, and of the consequent resistance by the muscles. In such, chloroform should be used, and the limb placed in a better position during anæsthesia, though still without the use of any force.

And now, before we pass on to the question of suppuration, let me refer to one or two other complications which may prove troublesome.

Of these, 'starting pains' at night are both frequent and difficult to deal with, although in time they yield to the treatment described above.

I have tried various sedatives and antispasmodics without any particular success, and can recommend none for internal administration. Sometimes the application of a blister over the upper and outer part of the thigh is of service, but I have had much the best results from applying belladonna ointment spread on lint to the whole inguinal region and the outer part of the thigh, and then covering the parts with a poultice or wrapping them in wool. I have indeed now gained considerable confidence in this method.

When the limb is sufficiently straight the pains may be much alleviated by the application of a Thomas's splint, which

steadies the leg very effectually. In other cases sandbags judiciously applied serve the same purpose.

The application of extension is also liable to itself produce two other troubles unless they be carefully guarded against. The one is great laxity of the ligaments of the knee-joint by the application of the strapping below the knee, and this is a condition which is sometimes so troublesome that the knee is left too feeble to support the patient's weight.

The second trouble to which I refer is a similar condition of the ligaments of the hip, followed by eversion of the limb. You are all aware of the helpless way in which the lower extremity rolls out in cases of fracture of the neck of the femur. Still, when the head of the bone is partly absorbed and the ligaments softened, the thigh in hip-disease is liable to roll out in an exactly similar manner, and if ankylosis occurs the foot will be permanently turned out at a right angle. Of this deformity I have now seen so many examples that in all cases I take precautions to prevent it by applying to the leg a short outside splint with a broad and long transverse bar below the foot, as in a Liston's splint, and I should strongly advise you to adopt some such means in the treatment of cases under your own care.

Another trouble is more theoretical than real. It is supposed by many people, and especially by parents, that the prolonged rest in bed is itself a very harmful thing. I really do not think that this is the case, for although it is at first irksome, the child is usually soon happy and contented as soon as he is free from his pain.

I should, however, be misleading you were I to impress you with the idea that in all my cases I can get the limb into good position by the means I have mentioned. I feel sure that in all early cases, and in most of the late ones, such a result will be obtained, but there are others in which the limb has been long flexed and adducted, in which the head of the femur has been pushed up as the acetabulum has ulcerated away, or has been dislocated on to the dorsum ilii, and in these it may be an impossibility to bring the limb straight. I now treat all such on a uniform plan. Having made up my mind that the position is irremediable, I keep the limb at rest in its false position to allow it to become ankylosed, knowing that, at a future time, when the disease has passed away, I can place the limb straight by an osteotomy below the trochanters or through the neck of the femur.

The formation of abscesses is the matter which must next engage our attention, and indeed the complication is a serious one.

And first a few words about the locality of the abscesses in hip-disease. In all cases the pus is formed by a direct extension of inflammation from the diseased joint to the soft tissue around it, and it is really quite immaterial whether the abscesses always do or do not communicate with the interior of the joint by an aperture in the capsule.

In my own experience there are two common places for these abscesses: one at the upper part of Scarpa's triangle, close to the head of the bone, and generally on the inner side of the femoral vessels; the other on the outer side of the thigh, at the anterior margin of the tensor fasciæ femoris. When the pelvic bones are diseased the pus generally forms in the iliacus muscle and points above Poupart's ligament.

But though these are the common places for abscesses to form there are plenty of others. Thus, the pus may track down the thigh or into the gluteal region, may enter the sheath of the psoas or work its way into the pelvis; and having got into the latter cavity, it may pass out by the sciatic notch or by the ischio-rectal fossa, or, in more rare cases, burst into the rectum or the bladder.

So much from an anatomical point of view, and now let us look at the matter from the clinical aspect.

The idea of an abscess is too often associated with increased pain and redness, but let me assure you that in the early stage of the pus formation these symptoms are usually conspicuous by their absence, and you must be able to diagnose the presence of pus without any such aid. The two things to look out for are increased swelling and induration, and I make it a practice to pass my hand over the likely situation for abscesses whenever I see my patients. You will often find a little increased resistance or induration even before there is any collection of pus, and your touch must be trained to detect with certainty the slightest fluctuation which will indicate the presence of fluid in a closed cavity.

Now the proper treatment of these abscesses is a much vexed question, and very different opinions are held and expressed by surgeons of repute; but I think it will facilitate discussion if I first express to you my own views as to treatment, and the reasons for them, before passing on to criticise those of others.

My practice is to open all abscesses as early as possible, and as soon as I feel sure that even a tea-spoonful of pus is present. I have the patient placed under an anæsthetic, freely incise the skin, or fascia, and make such an opening as will readily allow a free escape of pus. A drainage tube is placed in the opening, and the wound dressed with any dry absorbent and antiseptic

material. None seems to answer better than the alembroth gauze and wool.

The wound is dressed as often as necessary, perhaps twice a week; the cavity is never syringed out unless the discharge is foul, and this will not be the case if the drainage is free, and instruments and fingers are clean. In the majority of cases treated this way, *i.e.*, in the majority of cases in which the abscess is yet *small* when opened, the whole cavity is firmly and soundly closed in a few weeks, without the patient ever having suffered pain or constitutional disturbance.

Now at present I can only say 'the majority,' for in some cases there is retention and decomposition of pus. In such I wash the cavity daily with a solution of tincture of iodine, 1 to 2000, and if necessary make additional incisions. Mr. Marsh and myself have each followed on such lines of practice for several years at the Alexandra Hospital, and I may say that the more we see the more we like our treatment.

On the other hand, there are many surgeons who consider that the abscesses which form in hip-disease should never be opened until it is absolutely necessary to do so, and I should much like to hear your own opinions on this matter. For myself, I shall try and justify the practice I adopt, and will attempt to place it on a sound basis.

Let us ask ourselves first, What is the cause of the suppuration? Why should the inflammation go on to the formation of pus? I think the answer is to be found in the nature of the inflammatory process itself. This is tubercular, and the cause of the suppuration is the irritation kept up by the presence of tubercular material. If this be true, then there is nothing septic in the process originally, there is no question of decomposition, and it has been clearly shown that the pus in such abscesses is free from all the micrococci which swarm in an acute abscess. The aseptic nature of the pus is further borne out by the absence of all fever.

But although this is true of the abscess in its first formation, and of a certain proportion of all abscesses throughout their course when left alone, it is a matter of observation that when such an abscess attains a great size, it not infrequently becomes more acutely inflamed, it increases with great rapidity, causes much pain or fever, and when it bursts the contents are found to be already septic.

But even if this does not occur, and the abscess is allowed to attain a great size before it is opened, you will have this great difficulty to encounter—on account of the ramification of the abscess amongst the muscles, the sac is infinitely more trouble-

some to drain. Further, because of imperfect drainage, because of the large cavity for retaining fluid, and of the amount of the discharge, the difficulties of maintaining such an abscess aseptic are almost insuperable. And what if you fail to keep it aseptic? This. The abscess sac will become the seat of a more acute inflammation, and whereas the pus has hitherto been formed very slowly, there will now ensue a profuse suppuration, the joint itself will share in this, pain will be severe, and suppurative fever will run high. I need scarcely tell you the sequel. Suppurative fever goes on to hectic, and the discharge of pus results in amyloid disease, a disease which you well know carries off so many of the sufferers from morbus coxæ.

On the other hand, I will venture to say with some assurance that amyloid disease is of very rare occurrence if the abscess is opened early, when it is yet small enough to be maintained aseptic.

But before leaving the question of abscess we must consider for a moment the very troublesome sinuses and unhealed sores which so often delay convalescence. In the treatment of these I have found much good result from iodine irrigation and dressing with either a weak solution of lotio nigra or with iodiform ointment. In some cases, perhaps, the shortest road to treatment is thorough scraping with a sharp spoon.

There is also another kind of abscess which is frequently associated with old hip-disease, namely, that called by Sir James Paget, residual.

Such abscesses are really not connected with any disease of the joint itself. They occur in connection with old caseated inflammatory products long after the joint-disease has passed away; and being thus a disease rather of the soft parts than of the articulation, they more readily heal if freely opened than do the abscesses we have been discussing.

These residual abscesses must always be carefully separated from abscesses occurring in connection with recurrence of the hip-disease.

I have now sketched the outlines of the treatment of morbus coxæ, which I consider applicable to the large majority of cases, and will conclude this part of my paper with the convalescence of the patient.

In a successful cure, when pain has long since ceased, when all tenderness and swelling have subsided, when abscesses have ceased to form and sinuses to discharge, we must be thinking of getting the patient out of bed. The first step I always take with this object is to leave off all extension and splints for a couple of hours in the afternoon, and if this is followed by no

pain, and by no flexion of the limb, in another week the weights are left off for double that time, and after yet another week are dispensed with during the whole day.

If symptoms are still absent, the patient is allowed to sit up in bed, and after another fortnight get up and learn to walk with crutches.

To facilitate this a high boot must be placed on the sound foot, so as to allow the diseased limb to readily clear the ground.

Except in those cases where I have exceptional reasons for fearing a relapse, or when I do not think the parents will look after the child properly, I do not use a Thomas's splint.

The limb is at best much wasted, and the continued bandaging and fixation only tends to still further hinder healthy growth.

I never allow a patient to walk on the diseased limb for at least a year after he begins to go on crutches.

And what about the prognosis of a case of hip-disease?

If seen and diagnosed early, and put under proper treatment before suppuration has commenced, some cases, at least, entirely recover. I could show you several patients with limbs as sound and as useful as my own. And even if so satisfactory a result is not obtained, the large majority, *if treated early*, recover with useful and movable joints.

If suppuration occurs the confinement to bed will probably be not less than a year, and it may be more, even though the abscesses heal. Suppuration is by no means always, or even in the majority of cases, followed by bony ankylosis. I have patients now under my care with limbs moveable to a right angle, but the limb will be more stiff on the average in cases of suppuration than in those where no pus is formed.

Shortening is another matter on which one is liable to be asked numerous questions. In most cases there is some, and it must constantly be borne in mind that even after the disease has ceased the limb will not grow so rapidly as its fellow, and will thus in process of time be relatively still shorter. This diminished growth results partly from the damage done to the epiphysis, and partly also from diminished use and nutrition of the whole extremity.

Well, then, some patients die. Not many if treated early; not more than 5 to 8 per cent. in the opinion of Mr. Marsh, who has had abundant opportunities of judging. And even this mortality will in time be further diminished. At present amyloid disease and tuberculosis are accountable for most of the fatalities.

And here I would willingly have brought this paper to a

close, but I felt that I could not pass by untouched the questions of excision and of amputation. I cannot help remembering that many good surgeons would condemn much that I have already said, that many would excise or amputate where I should hold my hand. Therefore I feel bound to say a few words concerning these questions.

In connection with excision I think the first question is, Which gives the best limb, excision or a natural cure? I have no hesitation whatever in deciding in favour of the latter. After excision the upper end of the femur is very easily displaced on to the dorsum ilii; there is more shortening, more flexion, and a more feeble and useless limb. On this point then I decide against excision.

Secondly, Is the mortality increased or diminished by excision? I answer unhesitatingly 'increased.'

Of 2461 excisions collected by Mr. Wright, 841 died, *i.e.*, about 34 per cent.

Thirdly, If successful, does excision shorten the period of confinement to bed? I think that, on the whole, it does, but it certainly does not do so in nearly all the cases.

And now, having given you my opinion on these leading questions, let us look at the matter in the light of those who advocate wholesale excision. Such surgeons would excise in *all* cases where there is suppuration, believing that in all of them the bone is so diseased that it is either incapable of undergoing a natural cure, or that this will occupy such a length of time that the patient will die before it is completed.

In proof that this is not the case, I have had under my own care dozens of cases of good recovery after suppuration without excision.

But you may perhaps ask whether I have had opportunities of seeing for myself cases where hips have been excised as soon as suppuration has appeared. Some years ago, when registrar at a Children's Hospital, I saw many cases of excision of the hip in the earliest stages of the disease, and being interested in the matter I collected many cases, and saw some of them years after operation. Of 35 such cases 5 died in the hospital, 4 others were discharged with profuse suppuration in progress, and in 2 others amputation was subsequently performed. I think you will allow that this is not encouraging.

But let us see what is the best light in which the matter is placed by one of the warmest advocates for excision—Mr. Wright of Manchester, who has lately written a most instructive work on the subject.

He tabulates 100 cases of excision, in many of which the

operation was performed within a few months of the first symptoms, *i.e.*, in patients not exhausted by suppuration, without sinuses, etc.

Of these 100, 15 died, and another 10 or more had useless flail-like limbs. But this is not all. A close reading of the cases shows that of those who recovered from the excision, 5 subsequently underwent amputation, and that of the remaining 80, 50 had unhealed sinuses when last examined, there being thus only 30 patients with sound limbs out of the 100. Mr. Wright thinks the results satisfactory, but here I cannot agree. Nevertheless these figures are the best that have been produced by the advocates of excision.

Would I ever do excision, then, you may ask?

Yes, I would.

First, Where suppuration is profuse, and temperature high in spite of free drainage, and when the patient is going down hill.

Second, Where a definite sequestrum can be felt in the joint.

Third, In cases of disease about the acetabulum where I could not otherwise obtain free drainage.

But I am sure that if excision is thus limited it becomes a rare operation, for, as I have already said, if abscesses are opened early, profuse suppuration is the exception, and not the rule.

With regard to the second class of cases, or those where a sequestrum is present, I am bound to say that I quite agree with Mr. Marsh, who declares that it is rare for sequestra to be found which are not soft and friable, and generally easily broken up and discharged in the process of suppuration long before the latter has existed for a sufficient length of time to cause amyloid disease. This is certainly true as far as the femur is concerned, but does not, I think, apply entirely to the pelvis, and when there is much necrosis of the latter in the neighbourhood of the acetabulum I am myself disposed to think that excision should be performed early. I do not agree with those authorities who consider that pelvic disease negatives the operation.

Lastly, there comes the question of amputation, and I suppose we should all agree that this should only be done as a last resort. No one has yet suggested the adoption of such an operation in the early stages of the disease.

There is one class of case especially in which I think amputation is indicated, namely, when there is extensive periostitis, or osteomyelitis of the femur, and these I think are not such rare complications as might be imagined. I am of course far from saying that in all such cases amputation is requisite, for I have seen several such make good recoveries. But if after free incision the patient is being worn out by a continuance of the

suppuration, amputation should certainly be performed, it being evident that excision could not remove all the disease.

Secondly, Amputation may be performed when excision has failed to check profuse suppuration.

Thirdly, Amputation may be preferred to excision when the patient is so ill as to render it improbable that he will survive the continuance of the suppurations which usually follow for some time after excision.

In any case the method of amputation known by the name of Furneaux Jordan should be preferred.

February 16.

Case of large hairless mole, by Mr. Gabriel.

Two cases of Hereditary Ataxy, by Mr. Moberly.

Polar and Lamellar cataract in the same subject, by Mr. Reece: also a case of Anterior Staphyloma in a young man.

Case of premature puberty in a boy, by Mr. Andrews.

Mr. Napier then read his paper on 'The Value of the Ophthalmoscope in Medical Diagnosis.' He began by saying that forty years ago the ophthalmoscope had not been invented, and that medical ophthalmoscopy was a science of the last few years. He then described carefully the method of performing an ophthalmoscopic examination clinically, and said that the ophthalmoscope reveals the condition of the terminal blood vessels in the vascular structure, the choroid, and the terminations of a nerve and a nervous structure in the retina. He divided the morbid appearances of the fundus found in connection with any disease into (1) associated, and (2) consecutive, and discussed the changes occurring in Bright's disease, syphilis, and disease of the cerebro-spinal system: and finally, as an instance of the use of ophthalmoscopy, he relates a case of vomiting cured by correcting an error of refraction.

February 23.

Case of congenital syphilis in a boy with two large nodes and specific teeth, by Mr. Evill.

Mr. Gardiner then read his paper on the 'Treatment of Heart Disease.'

He began by speaking of the importance of the subject and then, after dwelling on certain physiological considerations in connection with the heart's nutrition and mode of working, devoted himself to the details of the subject.

In the treatment of those who had never experienced loss of

compensation he said that the life which was a healthy one for a healthy man was also a healthy one for a man with a cardiac lesion, while that which was unhealthy for a healthy man was far more so for those with heart disease. He then spoke of cases in which compensation was broken; of mitral regurgitation and especially of the use of digitalis in it; of mitral stenosis when the most pressing indication is to relieve the overstrained right ventricle; and of aortic regurgitation when the chief aim is to keep up the nutrition and power of the left ventricle.

Having touched upon angina pectoris and the use of nitrite of amyl and nitro-glycerine, he proceeded to consider the principles in which cases are to be treated when compensation has been restored.

Finally he discussed in more detail the action of the various drugs and other therapeutic means which are employed in the treatment of cardiac cases.

March 1.

Specimen of bullet wound of the skull, and of diffuse carcinoma of the bladder, both by Mr. Lyndon.

Mr. Santi then read his paper on 'Malignant Disease of the Rectum.'

March 8.

Case of congenital cystic hygroma of neck twice injected with Morton's fluid, by Mr. Lyndon.

Case of persistent pupillary membrane, by Mr. Reece.

Mr. Evill then read his papers on 'Some Speculations on the Man of the Future.'

To theorise on the future of man it is first necessary to know the history of the past, and the laws by which the gradual development of man has been governed. Then taking Darwin as his guide, he enunciated the theory that man was descended from a four-handed, hairy, tailed animal of arboreal habits, an inhabitant of the old world; and after defining the laws of evolution—namely, those of inheritance, variability from conditions of life by use and disuse, reproduction, natural selection, or survival of the fittest, sexual selection and the effect of the social habit, he proceeded to show how through their influence this ape-like animal had developed into god-like man. Life without strife must lead to degradation of type, and also it was against all reason to suppose that woman should ever become physically and mentally the superior of man. The

man of the future would be a hairless, toothless, short-sighted being, with no toes and the nether limbs very imperfectly developed, but with hands far more delicate and skilful than our own. He would be healthy and moral, the possessor of one universal language, and with mental and moral qualities infinitely in advance of our own.

Hair was no longer required for warmth or as an attraction to the female sex, and was therefore becoming yearly thinner and weaker—how teeth were going because the quality of food now eaten no longer required strong teeth, and so on—and how, finally, the treatment of disease should be preventive. How the man of the future would be more moral than ourselves, because morality is an essential for the production of the best of the species. How the tendencies of the present day were leading to the use of some universal language, and finally how the greatest development would lie in the improvement of the mental qualities in the understanding of man, and how consequently the brain itself would increase in size. In conclusion, Mr. Evill apologised for the somewhat unflattering picture he had drawn, but pointed out the far greater probability of his picture being correct than those of more complimentary writers.

March 15.

Annual General Meeting.

The annual report and financial statement for the year were read and adopted.

The voting for the election of committee-men for the ensuing year then took place. Messrs. Evill and Farrar were elected scrutineers. The result of the voting was as follows:—

Presidents—Dr. F. W. Andrewes and Dr. Hamer.

Vice-Presidents—Mr. L. W. Andrews and Mr. Heaton.

Secretaries—Mr. Kent Hughes and Mr. Stevens.

Committee-men—Mr. Gane and Mr. Sargant.

DESCRIPTIVE LIST
OF
SPECIMENS ADDED TO THE MUSEUM
DURING THE YEAR 1888.

SPECIMENS ADDED TO THE MUSEUM

During the Year ending October 1, 1888.

BY

D'ARCY POWER.

DURING the year 1887 very important additions have been made to what may be called the teaching specimens in the Museum. This has been especially the case in Series xvii. and xviii., illustrating the diseases and injuries of the stomach and intestines, where a number of preparations have been added to show the effects of various poisons upon the alimentary canal. The series of diseases of the spleen has been considerably enlarged, whilst the number of casts added is greater than on any previous occasion. Care has been taken to enlarge, and render as complete as possible, the collection of Pathological Histology, and increased facilities of access to the microscopical cabinet have been afforded to the students.

Mr. Leonard Mark has been appointed to the post of Pathological draughtsman, rendered vacant by the resignation of the late Mr. Thomas Godart.

At the present time the Pathological portion of the Museum contains 3832 wet preparations, 1039 drawings and photographs, 789 bones, 439 calculi, 429 casts, and about 1200 microscopical preparations. From statistics collected by Dr. Billings of the Surgeon-General's Office at Washington, I find that this number of Pathological specimens is only exceeded by the Museum of the Pathological Institute at Berlin, which contains 17,600 preparations, by the Army Medical Museum in Washington with 8300, and by the Pathological Institute at Strasburg with 8000.

Nov. 1888.

SERIES I.

DISEASES OF BONE.

- 1b. Portion of a Calvaria which has undergone considerable thickening. The outer table of the parietal bone has a circular porous patch in it. The inner table is everywhere roughened from a deposit of new

bone. The skull-cap was very adherent to the dura mater, and the surface of the latter was much roughened by the development of fibrin. It was very thick, but its under surface was natural. The other meninges and the brain were normal.

From a bricklayer aged 68, who had pericarditis and chronic pachymeningitis. He fell a distance of eleven feet, striking the left side of his head, about a fortnight before his death. Two years previously he was struck on the left eye by a piece of scaffolding, and was laid up for six months.

See *Male Surgical Register* for the Ophthalmic Wards (1888), s.v. Ed. Barney.

TUBERCULAR ULCERATION OF THE CRANIAL BONES, LEADING TO PERFORATION.

133a. The Base of a Skull, from a young subject, exhibiting extensive ulceration through a part of the parietal and temporal bones, the effects of tubercular disease. (In Case F.) A. 75.

190b. A Section of the Lower Two-Thirds of the Shaft of the Right Femur, showing a cavity in the anterior surface containing a sequestrum measuring an inch and a half in length. The walls of the cavity are very dense and thick; its bottom is formed by a mass of sclerosed bone, and its roof by a similar mass of bone, which has been newly formed by the periosteum, as a result of the continued irritation. The cavity communicates with the exterior by means of two apertures. The edges of the sequestrum are thinned, as if they were undergoing absorption, and it lies quite loosely in the cavity. The shaft of the femur in the neighbourhood of the sequestrum is of the density of ivory. (In Case F.)

From a coachmaker aged 25, who had typhoid fever in October 1885. He felt shooting pains in his thigh during convalescence, and an abscess subsequently developed in the popliteal space. The abscess healed, but was followed by many others, which healed like the first. The amputation was performed on May 21, 1887. The sequestrum could not be felt during life, and was not detected until the femur had been divided.

See *Male Surgical Register*, vol. i. (1887), No. 141, and *St. Bartholomew's Hospital Reports*, vol. xxiii. pp. 220-222.

293b. The Right Ilium and Femur, showing a condition of mollities ossium combined with osteo-arthritis, from a patient who was said to be more than a hundred years of age. The os innominatum is extremely thin and friable, whilst the acetabulum and head of the femur present the "lipping" which is characteristic of osteo-arthritis. (In Case F.)

From a woman who was brought to the Hospital for dissection.

315a. A Skull-Cap in which a large portion of the outer table of the frontal bone and of the whole thickness of the parietal bones has ulcerated. The bone is rough and tuberculated, presenting the features which are characteristic of advanced syphilitic disease. The sutures between the bones have disappeared. (In Case F.)

From a man aged 25, who was probably congenitally affected with syphilis. He died of Bright's disease and œdema of the glottis. He does not appear to have been treated with mercury.

See *Male Surgical Register*, vol. i. (1886), No. 713.

329a. A Tibia which has become thickened and bent as a result of chronic syphilitic osteitis. The anterior portion of the shaft presents a rough oval node, which marks the situation of a long-standing ulcer. Below the node are several irregular thickenings of the bone. (In Case F.)

FATTY TUMOUR GROWING IN CONNECTION WITH BONE.

436a. A Large irregular Fatty Tumour, weighing fifteen ounces, and measuring six inches by five. The growth is divided into several lobes, which are held together by a little areolar connective tissue, but it is only partially encapsuled. It is extremely firm, and consists of fat held together by trabeculæ of dense fibrous tissue. Microscopical examination confirms the naked-eye appearances, for the sections show collections of fat-cells separated by thick bundles of connective tissue. There is no muscular fibre in the growth, nor does it appear to be undergoing any degenerative change.

The tumour grew from the periosteum of the femur of a boy aged 9 years. It was attached by a firm broad base, which commenced just below the lesser trochanter, and extended downwards along the upper third of the left thigh on its outer aspect. Before removal the swelling was supposed to contain pus. It was probably congenital.

See *Male Surgical Register*, vol. ii. (1886), No. 3749*, and *Transactions of the Pathological Society*, vol. xxxix. p. 270.

438a. A Portion of the Spinal Column, showing a mass of sarcomatous tissue. The growth arises from the laminæ of the sixth, seventh, and eighth dorsal vertebræ, and extended outwards amongst the muscles of the back for about an inch and a half on the right side. It encroached upon the spinal canal to such an extent as to destroy the cord. Microscopically, the tumour was found to be a round-celled sarcoma. (Cf. 517a.)

From a lighterman aged 18, who was admitted to the Victoria Park Hospital for aortic valvular disease. Whilst he was in the Hospital he suddenly became paraplegic. He suffered some pain, which was at first localised to the chest, and the paralysis did not extend upwards. The paraplegia was diagnosed as being the effect of pressure upon the cord. An acute bed sore developed forty-eight hours after the attack of paraplegia. The total duration of the growth of the tumour appears to have been about six months. At the autopsy, the spinal cord, where it was invaded by the growth, was found to be very much softened. The membranes were unduly adherent to the bone and were a little thickened. On removing the thoracic organs, the growth was seen to have extended from the spine into the thorax.

See the *British Medical Journal*, vol. ii. (1887), p. 1380.

Presented by Dr. Vincent Harris.

441b. A Section through the Head and Upper Portion of a Humerus, to show an endosteal sarcoma growing in the surgical neck. The head, and to a less extent the upper portion of the shaft, are infiltrated by the growth, which extends outside the bone as an encapsuled tumour. The bone has been fractured, but the upper end of the medullary canal is closed. Microscopically, the new growth consists of cells, which are

not larger than those of a lympho-sarcoma, and which are arranged in masses of irregular shape and size. The matrix is chiefly fibrous, though it is in parts hyaline.

From a woman aged 26, who was admitted to the Hospital with an obscure swelling of the shoulder, which she had noticed for two years.

See *Female Surgical Register*, vol. i. (1886), No. 899, and vol. i. (1887), No. 449.

446a. A Section of the Left Humerus, showing a subperiosteal sarcoma springing from the lower third of the shaft. The growth is well circumscribed and is very firm. It has caused considerable absorption of the posterior wall of the shaft, but as compensatory thickening of the bone has occurred, there is no weakening of the shaft. Microscopically, the growth is a mixed-celled sarcoma, in the substance of which much blood has been extravasated; some of the cells have degenerated into semi-caseous masses.

From a man aged 31 years, who had noticed the swelling for two years. A rapid increase in the size of the growth took place after a fall upon it, which occurred a year before the amputation was performed.

A microscopical section is preserved in Series lv. No. 14a. The scapula from the same case is preserved in the next specimen.

See *Male Surgical Register*, vol. v. (1886), No. 696.

446b. Section through a Scapula from which a large sarcoma is growing. The tumour springs from the periosteum covering the infra-spinous fossa; it has infiltrated and destroyed almost the whole of the infra-spinatus muscle, and it surrounds the outer portion of the clavicle.

From a man aged 33, whose left humerus had been amputated at the shoulder twenty-seven months previously, on account of a sub-periosteal sarcoma growing in its lower third. There was no recurrence in the scar until three months before the scapula was removed. The patient made a good recovery.

See *Male Surgical Register*, vol. v. (1888), No. 1640. The humerus is preserved in Series i. No. 446a.

446c. A Section through a Scapula infiltrated with a sarcoma. The growth involves the subscapular and the upper part of the supra-spinous fossæ. It appears to have completely destroyed the bone as well as the neighbouring muscles.

From a boy aged 14, who had a periosteal sarcoma of the upper two-thirds of the left humerus, which he had noticed for three months. The arm was amputated at the shoulder-joint, but before the wound had healed the scapula became affected. The scapula and an inch of the clavicle were therefore removed, and the patient made a good recovery.

The humerus from the same patient is preserved in the next specimen, No. 446d, a section in Series lv. No. 14b.

See *Male Surgical Register*, vol. v. (1888), No. 1019.

446d. A Section of a Humerus showing a periosteal sarcoma. The growth is pyriform in shape, and surrounds the upper two-thirds of the shaft. The whole diaphysis is infiltrated with the growth from the upper

epiphysis to within an inch and a half of the lower epiphysis. The upper epiphysis forms a sharp line of demarcation, which limits the growth in its upward direction.

From the same case as the preceding specimen.

481a. A Section through the Lower Half of a Femur, to show the manner in which its condylar portion has been invaded by a new growth, which is apparently sarcomatous in character. The tumour extends over the outer and external portions of the femur for a distance of four inches from the condyles. It projects for two inches beyond the outer limit of the femur, and of this projection one inch nearest to the bone is calcified, whilst the inch immediately beneath the periosteum is a soft tissue, which readily breaks down. The growth infiltrates the cancellous tissue in its whole extent, and it is just entering upon the lower epiphysis at the external condyle; it is subperiosteal in origin. Microscopically, it is a sarcoma, the fibrous stroma containing numerous small round and oval connective tissue cells. The anterior surface of the inferior portion of the shaft of the bone carries a large craggy exostosis, measuring three and a half inches in length by an inch in breadth at its broadest part.

From a boy aged 17, whose knee became hot and painful three months before amputation was performed. There was no history of injury. The leg presented an abruptly defined enlargement of the lower end of the femur, which was warmer than the surrounding tissues, and which gave a doubtful feeling of fluctuation at one spot on its outer side. After amputation of the limb the patient made an excellent recovery.

See *Male Surgical Register*, vol. iii. (1887), No. 1310.

510a. A Section of the Left Humerus, removed after death from a woman aged 48. The humerus is the seat of a secondary deposit of scirrhus carcinoma, which involves its middle third. As a result of the scirrhus infiltration, a fracture occurred through the middle of the shaft about twelve months before death. Firm fibrous union, however, has taken place along the line marked out in the specimen by black bristles, and although the position is very bad, yet a fairly useful arm resulted.

From a woman who had for eight years been the subject of a scirrhus cancer of the right breast. She had always declined operative interference, and the axillary glands became affected, so that at the time of her death the whole axilla and the breast formed a large ulcerating mass. The patient was bedridden during the last eighteen months of her life, and whilst in this condition a swelling commenced at the centre of the left humerus, and the bone broke spontaneously. The arm was never painful, however, and did not even give rise to any discomfort. Two months after the fracture firm union had taken place, and the patient was able to use the arm as well as her right. No other long bone was in any way bent or softened. During life she had symptoms of secondary deposits in the liver and brain, but no post-mortem examination of these organs was made.

Presented by E. G. Colville, Esq.

549a. A Calvaria showing partial Perforations of the Skull in a case of cerebral tumour. In the right frontal region is seen the upper part of a large opening, which is somewhat square in shape. The greater part

of this opening was made in the course of a surgical operation, but there existed beforehand a complete though small perforation in this situation, which was caused by the growth of a cerebral tumour. In the rest of the skull-cap are many holes, about thirty in number, rounded in shape, and varying in size from that of a large pin-head to a quarter of an inch in diameter. The edges of the apertures are clean-cut and are not thickened; in many cases they extend through the inner table, and sometimes almost through the outer table, so that their base is only covered by an extremely thin layer of bone. The holes are scattered over the frontal and parietal bones, the largest being on the left side. There is some general thickening of the skull at the upper part of the parietal bones and in the neighbourhood of the large perforation. The bone between the holes is remarkably roughened, the inner table being studded with little eminences, which have sharp and almost thorny apices.

From a police-constable aged 30, who had suffered from severe frontal headache, chiefly on the right side, for six months, with vomiting and loss of memory. He had bladder trouble for six weeks, and some paresis of the legs for twelve months. On admission he had double optic neuritis, and was drowsy. The sleepiness increased from 25th September 1886 until April 1887, when he was quite comatose, a condition which continued until his death in November of the same year. At the autopsy it was found that the perforations in the skull corresponded to small outgrowths from the brain, which had sprouted through the dura mater. Microscopically, these growths were sarcomata.

The dura mater is preserved in Series xxx. 2468b.

See *Mark Ward Book* for 1887, and *Transactions of the Pathological Society*, vol. xxxix. p. 1.

SERIES II.

DISEASES OF JOINTS.

564a. A Section of the Head and Neck of the Right Femur, from a case of hip-joint disease in an early stage. The cartilage of the head of the femur and of the acetabulum has been in great part removed. The head of the bone is softened, but is not at all destroyed or altered in shape.

From a boy aged 11, who had symptoms of hip-joint disease for eleven months before his death. The disease appeared to have commenced in the synovial membrane.

See *Male Surgical Register*, vol. ii. (1886), No. 3613*.

ACUTE SUPPURATIVE ARTHRITIS.

567b. The Right Knee-Joint in a condition of acute suppurative arthritis. The ligaments of the joint are almost entirely destroyed. The cartilage covering the inner facet on the head of the tibia is eroded, and that covering the outer facet is inflamed but not eroded. There is roughen-

ing of the edge of the outer condyle of the femur both anteriorly and posteriorly. The whole of the synovial membrane is thickened and vascular.

From a patient aged 36, who had a miscarriage ten weeks before amputation of the limb. A week after the abortion, swelling of the right knee-joint, and subsequently septicæmia, set in, with thrombosis of the iliac vein. The patient died a week after the amputation had been performed.

See *Female Surgical Register*, vol. iii. (1884), No. 2226.

569c. A Knee-Joint exhibiting typical tubercular synovitis (pulpy degeneration). Nearly the whole of the articular surfaces are overgrown by the thickened synovial membrane. The articular cartilages everywhere appear healthy, and no morbid change is visible in the bones.

From a man aged 34, whose left knee became swollen and painful two years before the amputation was performed.

See *Male Surgical Register*, vol. iii. (1887), No. 631.

570a. The Left Hip-Joint, showing the changes which occur at an early period of tubercular arthritis. The cartilage covering the head of the femur is eroded on its anterior surface close to the neck. The ligaments are softened and the synovial membrane is slightly thickened, but it was not hyperæmic.

From a woman aged 33, who died of exhaustion consequent upon necrosis of the sacrum. At the time of her admission to the Hospital, there was considerable thickening of the tissues about the great trochanter. The movements of the hip-joint were good, except that external and internal rotation were limited.

See *Female Surgical Register*, vol. iv. (1885), No. 1762.

596a. The Head of the Right Humerus, removed by the operation of excision. The cartilage over the whole articular surface is ulcerated, and at one spot there is a deep carious hole in the bone. The ligaments were completely softened.

From an unmarried woman aged 30, who had observed some stiffness of the right shoulder-joint for ten years. For two years she had a sinus on the outer side of her right arm.

See *Female Surgical Register*, vol. i. (1887), No. 2315.

621b. The Left Femur from a case of hip-disease. The head of the bone is ulcerated in parts, and the cartilage covering it has been completely destroyed. The epiphysis is almost separated and has undergone a process of rarefying osteitis. A series of abscesses have eroded the posterior aspect of the upper half of the bone.

From a girl aged 3 years, who died of broncho-pneumonia the day after her admission to the Hospital, and before any notes of her case had been taken. At the autopsy the cartilage of the acetabulum was found to be slightly ulcerated.

See *Surgical Post-Mortem Book* for 1887, p. 156.

624b. Fourteen small Fragments of Bone, which were removed on three separate occasions from the bladder. The total weight of the fragments is 0.28 grammes.

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 bone were removed by lithotrixy.

The bladder is preserved in Series xxix.

See *Male Surgical Register*, vol. v. (1887), Nos. 1481 and 3674.

650c. A Section of the Right Hip-Joint, from a case in which bony ankylosis of all the large joints of the lower extremity followed an attack of rheumatic fever. The femur is fixed to the os innominatum by bone, the ankylosis being firm and smooth. The union between the ilium and the head of the femur is only complete at those points where they were in contact; at the bottom of the acetabulum, where the two bones did not touch, there is a space. The cartilage covering the head of the femur has entirely disappeared, whilst the bottom of the acetabulum is so thinned that only a transparent membrane remains. The great trochanter also has undergone so much atrophy that its free margins present sharp edges.

The femur has been divided below the lesser trochanter. The upper portion of the bone is fixed in a position of flexion and adduction, whilst the lower portion is displaced behind and to the outer side, so that it lies upon the lower portion of the great trochanter. The two fragments are firmly united by bone. The projecting extremity of the upper fragment is covered by dense fibrous tissue, in the centre of which is a small abscess cavity.

From a man aged 22, who had bony ankylosis of the right hip, knee, and ankle, after an attack of rheumatic fever five and a half years before his death. Excision of the right ankle was performed on January 14, excision of the right knee on February 19, and division of the right femur in its upper third on July 16. The patient died of amyloid disease on October 23 in the same year. On admission to the Hospital he had a mitral murmur, but the heart was found to be normal at the autopsy.

See *Male Surgical Register*, vol. i. (1887), No. 1480.

657a. A Section through the Right Knee-Joint, from the same case as No. 650c. Excision had been performed eight months previously. There is complete bony union of the tibia and femur. The ivory pegs which were used at the time of the operation to fix the two bones together are seen to be vascularised from the neighbouring cancellous tissue; in the one which has been divided longitudinally, some amount of absorption has taken place, and it is so completely continuous with the bones as to form an integral portion of them.

657c. A Section through the Left Knee-Joint of the patient from whom the two preceding specimens and No. 650c were taken. The femur is firmly united by bone with the tibia, the joint being in a condition of

flexion. The patella is so completely ankylosed with the femur, that the cancellous tissue of the two bones appears to be continuous. (Cf. 659a.)

659a. A Section through the Right Tibia and Ankle-Joint, also taken from the same patient. There is complete bony ankylosis between the tibia and astragalus, and between the astragalus and os calcis. All the bones are much atrophied from disuse.

Other specimens from the same case are preserved in Series ii. Nos. 650c and 657 a and c.

692b. The Lower Portion of the Femur with the Patella, showing the changes which result from osteo-arthritis. There is considerable lipping of the bones, and the articular cartilage has almost disappeared from the patella and the internal condyle of the femur. In the intercondylar notch is a pendulous ecchondrosis, which has a smaller nodule lying by its side.

ACUTE SUPPURATION OCCURRING IN GOUT.

711b. Section through a Knee-Joint, from a gouty patient in whom acute suppuration had taken place. The bones are bare of cartilage, rarefied, and superficially ulcerated, without any marked eburnation or lipping. The crucial ligaments are gone, the synovial membrane is thick, soft, and in parts destroyed by the suppuration.

From a man aged 49, who had suffered for seventeen years from gout.
See *Transactions of the Clinical Society*, vol. xx. p. 232.

Presented by Stephen Paget, Esq.

717a. A Small Cartilaginous Body which lay free in the elbow-joint. It is oval in shape, measuring three-quarters of an inch in length, and half an inch in diameter. It is gritty in parts, owing to the deposition of lime-salts.

From a boy aged 15, who had symptoms of a loose body in his elbow-joint for eleven months.

See *Male Surgical Register*, vol. iii. (1887), No. 3621.

721a. A Portion of Fibro-Cartilage which was removed from the knee-joint by an incision carried along the inner side of the knee. The piece of cartilage measures five-eighths of an inch in length, and one-eighth in thickness. It was firmly attached by one of its ends, and probably formed a portion of the internal semilunar cartilage.

From a man aged 25, who had felt occasional pain and weakness in his left knee for about a year. A month before admission to the Hospital, he first noticed a loose body on the inner side of the joint. He had more than once wrenched it severely at football and at cricket.

See *Male Surgical Register*, vol. iv. (1888), No. 957; see also *Transactions of the Pathological Society*, vol. xxxix. p. 282.

725a. A Section through the Left Elbow, from a case in which excision of the joint had been performed four years previously. The ends of the bones are connected by bands of dense fibrous tissue. The radius and ulna are dislocated forwards upon the humerus.

From a man aged 41, who had a freely movable joint.
See *Male Surgical Register*, vol. iii. (1887), No. 2024.

SERIES III.

INJURIES OF BONE (FRACTURES).

761c. A Calvaria, showing the apertures of ingress and egress of a bullet which passed through it transversely. The aperture of ingress, situated at the end of the coronal suture, is small and round; that of egress, in the left parietal bone, is larger and irregular, the bone being broken away externally. (In Case H.)

From a man aged 39, a compositor by trade, who thought that he had a mission "to set the Book of Life." The wound was self-inflicted, and the patient died six hours after the injury.

See *Male Surgical Register*, vol. iv. (1888), s.v. H. G. Agnew.

807d. A Portion of the Right Femur and Tibia, showing the condition of parts two years after Macewen's operation of osteotomy for the relief of genu valgum. The result of the operation was unsuccessful, owing to the bad position in which the fragments of the femur united.

The femur has been divided somewhat obliquely at a point $2\frac{1}{2}$ inches above the line of the epiphysis, or $3\frac{1}{2}$ inches above the knee-joint, and has united again without the formation of any provisional callus. The lower fragment has slipped up behind the upper fragment in such a manner that a distinct elbow is formed at the point of union between the two. The lower extremity of the upper fragment has become rounded off, so that a great prominence is situated upon the outer side of the femur, marking the point where the bone has been divided. All the articular surfaces at the lower joint are covered by fibrous tissue, resulting from long-standing inflammation, so that the joint is useless. The articular cartilage has everywhere disappeared except over a small portion of the internal condyle of the femur.

From a man aged 19, who died of pulmonary phthisis. Osteotomy was performed nearly two years before death. When the patient was admitted to the Hospital, the right femur was in a position of abduction and rotation outwards. There was complete union, but the distal end of the upper fragment was closely adherent to a large scar on the outer side of the leg, just above the level of the patella. The proximal end of the lower fragment lay to the outer side of the upper fragment.

See *Male Surgical Register*, vol. iii. (1886), No. 2237; *Luke Ward Book* for 1886, No. 310; *Medical Post-Mortem Book*, vol. xiii. p. 57.

874a. The Lower End of the Tibia, including nearly the whole of its articular surface, which separated by exfoliation in a case of compound fracture. (In Case H.) A. 113.

Presented by R. S. Eyles, Esq.

890a. The Left Temporal Bone, showing an oblique fracture extending through the external auditory meatus into the tympanum, and involving the petrous and mastoid portions of the bone.

The left facial nerve was exposed as it lay in its canal.

From a man aged 43, who was thrown from a mail-cart. The patient was conscious on admission to the Hospital; he had hæmorrhage from the left ear and left nostril, with paralysis of the left side of his face. The pupils were equal. The patient died a fortnight after the accident, and at the autopsy he was found to have an abscess in the left lobe of the cerebellum.

See *Male Surgical Register*, vol. ii. (1886), No. 3410.

897b. A Lower Jaw with the Tongue and Muscles attached to it. The bone has been fractured immediately to the right of the symphysis, between the central and lateral incisor teeth, and the coronoid process has been separated by a fracture passing obliquely through its base.

From a man aged 35, who had sustained many other serious fractures of the skull. See *Male Surgical Register*, vol. iii. (1886), No. 1132.

898b. A Complete Transverse Fracture extending through the lower portion of the manubrium sterni.

908a. An Extra-Capsular Fracture of the Right Humerus. The greater tuberosity has been entirely separated, whilst the shaft of the bone is fractured spirally.

From a man aged 72, who was knocked down and run over by a van a week before his death.

See *Male Surgical Register*, vol. v. (1886), No. 3337.

949a. Section through the Shaft of a Femur, from a case of intra-capsular fracture of the neck with some impaction. The posterior and lateral portions of the capsule were torn, but the anterior part is entire. There is no bony union, and the fractured surfaces are only held together by a few filaments of fibrous tissue.

From a woman aged 64, who, a month before her death, fell from some steps a distance of about two feet on to her hip. On admission, the hip and thigh were bruised, the foot and leg were everted, and the limb was powerless. There was no shortening or crepitus. The fracture was treated by keeping the limb at rest with sand-bags.

See *Female Surgical Register*, vol. ii. (1886), No. 1768.

988a. A Section of a Patella in which there has been a transverse fracture. The fractured surfaces of the bone are united by a band of ligament,

which measures nearly half an inch in thickness. The fragments of bone are in excellent apposition, and they appear to be normal in texture.

From a patient who died shortly after he had been run over. No history of the injury was obtained.

The other section of the bone, which shows the changes occurring in osteo-arthritis, is preserved in Series ii. 690a.

See *Male Surgical Register*, vol. ii. (1885), No. 3466.

- 990a. The Head of the Right Tibia, which has sustained a comminuted fracture with impaction. The lower fragment or shaft of the tibia has been driven upwards and forwards into the head of the bone, whilst a longitudinal fracture runs across the articular surface of the internal tuberosity. This fracture is longitudinal and simple until it reaches the posterior border of the tibia, when it divides into two branches, one running directly backwards, and the other running outwards splits off a small portion of the articular surface of the external tuberosity. The head of the fibula is broken into several pieces.

From a woman aged 76, who fell downstairs with her leg doubled under her. She died a fortnight after the accident.

See *Female Surgical Register*, vol. v. (1886), No. 2184.

SERIES IV.

INJURIES OF JOINTS (DISLOCATIONS).

DISLOCATION OF THE KNEE.

- 1051a. The Left Knee-Joint, in which the tibia and fibula have been dislocated backwards and outwards, whilst the patella was dislocated upwards and outwards. There is a large rent in the capsule of the joint on its inner side, whilst the internal lateral ligament is torn completely across. The vastus internus has been lacerated and some of the fibres of the sartorius are torn. The whole of the lower end of the femur readily passes through the rent in the capsule. There is much extravasated blood in the tissues.

From a man aged 36, who falling a distance of fifty feet, sustained such severe injuries that he died five days later.

See *Male Surgical Register*, vol. i. (1886), No. 3725.

SERIES V.

DISEASES AND DEFORMITIES OF THE SPINE.

- 1089b. A Spinal Column exhibiting a slight amount of lateral curvature, with some rarefying osteitis and lipping of the lower dorsal and lumbar

vertebræ. The left transverse process of the third lumbar vertebra is prolonged downwards, and articulates by a broad plate of bone with the transverse process of the fourth vertebra. The left transverse process of the fourth lumbar vertebra is enlarged and roughened. (In Case C.)

From a skeleton which was purchased.

SERIES VI.

DISEASES AND INJURIES OF MUSCLES, TENDONS, AND BURSÆ.

1181a. A Piece of the Distal Phalanx of the Index Finger to which the flexor tendon is attached. At the end of the tendon are a few muscular fibres.

From a boy who was cleaning a ginger-beer bottle placed in a rotating machine. The loop of string which is seen in the specimen caught the end of his finger, leading to the evulsion of the tendon. The patient made a good recovery.

Presented by A. Matthey, Esq.

1203c. Contraction of the Palmar Fascia, or Dupuytren's Contraction. The palmar fascia is greatly thickened in the middle line, where it was closely adherent to the skin. As a result of its contraction, the ring and little fingers are partially flexed at their metacarpo-phalangeal joints.

From the body of an old man brought for dissection.

1205h. The Right Knee-Joint dissected to show an enlargement of the semi-membranosus bursa. The bursa, which is pyriform in shape, measuring $2\frac{1}{4}$ inches in length, is situated between the tendon of the semi-membranosus and the inner head of the gastrocnemius.

From a subject brought in for dissection.

Presented by E. Fincham, Esq.

SERIES VII.

DISEASES AND INJURIES OF THE PERICARDIUM AND OF THE HEART.

1268a. Portions of a Heart, to show an aneurysm of the sinus of Valsalva. The orifice of the aneurysm is behind the middle aortic valve, at the lowest part of the sinus of Valsalva, and is one-third of an inch in diameter. The edge of the orifice is thick, rounded, and with outgrowths upon it.

The aortic valves are all fringed with soft ragged growths, and are partly destroyed. The aneurysm projects as a bilobed tumour, about a quarter of an inch broad, into the right auricle on the upper surface of the tricuspid valve. Between its orifice in the sinus of Valsalva and the tricuspid valve, the aneurysm extends downwards between the layers of the upper part of the undefended space, and into the substance of the tricuspid valve. The interior of the aneurysmal sac is roughened and partly filled with fibrin.

From a man aged 21, who died after six attacks of rheumatic fever. In addition to the aneurysm there was well-marked mitral stenosis and a slight degree of tricuspid stenosis. The left ventricle was much dilated, and is slightly hypertrophied. The heart weighed $15\frac{1}{2}$ ounces.

See *Transactions of the Pathological Society*, vol. xxxviii. p. 100.

1271b. A Heart showing an ante-mortem clot firmly adherent to the pulmonary valves. There are several smaller clots, which also appear to have been formed before death, entangled in the columnæ carneæ of the right ventricle.

From a girl aged 19 years, who died of phthisis. She was *in articulo mortis* for two days.

See *Medical Post-Mortem Register*, vol. xii. p. 320.

1300a. A Heart from a case of tetanus. A fringe of small, semi-transparent pinkish growths lines the free edge of the mitral valve. Many of the growths are very small, though two are slightly larger than the rest. None of the cords are thickened. Two of the aortic valves are adherent, but not to so great an extent as to permit regurgitation to take place. The posterior valve is fenestrated. The pulmonary and tricuspid valves are normal.

From a man aged 33, who was only ill a fortnight before his death. His illness began suddenly after exposure to cold.

See *Matthew Ward Book* for 1887, No. 19.

1304a. A Heart from a case of chronic endocarditis. As a result of the long-continued inflammation, there has been a fusion of the cusps of both the mitral and tricuspid valves, to such an extent as to produce well-marked stenosis of both auriculo-ventricular orifices. The heart weighs eighteen ounces. The right auricle was much dilated, and its walls were very thin. The right ventricle was dilated, and its walls were thinner than normal. The left auricle was much dilated, but the left ventricle was of normal size and thickness.

From a girl aged 17, who had an adherent pericardium and cirrhosis of the liver. During life the patient had a well-marked double mitral murmur. There was no history of rheumatism.

See *Faith Ward Book* for 1887, No. 166.

1316a. A Heart in which all the cavities are greatly dilated. It weighs twenty-four ounces. The right ventricle is dilated, but is not greatly

hypertrophied. The tricuspid valve is stenosed, so that it barely admits two fingers, and its edge is thickened. The calibre of the pulmonary artery is much larger than usual, as it measures one inch more in diameter than the aorta. One of the pulmonary valves is absent, a commencing aneurysm occupying its situation. The aortic valves are normal, whilst the mitral orifice is somewhat dilated. The pericardium was natural.

From a nulliparous married woman aged 23, who was admitted with general dropsy and dyspnoea. She had passed through an attack of scarlet fever in early life: there was no history of rheumatism. She had suffered from dyspnoea from the age of fourteen. On admission to the Hospital, the cardiac impulse was diffused, and the apex-beat was outside the left nipple-line. A presystolic murmur, followed by a systolic one, was heard at the apex. A systolic murmur with accentuation of the second pulmonary sound was audible in the right ventricle.

See *Elizabeth Ward Book* for 1887, No. 195, and *Transactions of the Clinical Society*, vol. xxi. p. 114.

A drawing of the heart is preserved in Series lvii. No. 100a.

1487b. The Heart and Aorta, with a portion of the Thoracic Wall, showing the seat of an aneurysm, and the manner in which it has ruptured through the chest wall. The heart is healthy, but the aorta is greatly dilated, and is very atheromatous. The aneurysm extends from the transverse part of the arch downwards and forwards to the thorax, where it opens by an irregularly oval aperture through the sternum on a level with the third intercostal space. The aneurysmal sac is very large, and tracks downwards. It contains a large amount of clot.

From a man aged 38, who had syphilis fifteen years before his death. On admission to the Hospital, he had a prominent swelling extending from the sternal end of the clavicle to the cartilage of the fourth rib, with the left border of the sternum as an axis. In the swelling was well-marked expansile pulsation. The pulse was equal in both wrists; the pupils were equal. The aneurysm gradually pointed, the first drop of blood oozing out four weeks before his death.

A series of casts of the thorax, made by the patient himself, and showing the gradual increase in the size of the aneurysm, are preserved in Series lvi. No. 98b.

See *John Ward Book* for 1887, Case xi.

SERIES VIII.

DISEASES AND INJURIES OF ARTERIES.

1532a. The Abdominal Aorta, showing an aneurysm situated an inch above its bifurcation. The aneurysm is sacculated, and measures $2\frac{1}{2}$ inches in length by one inch in breadth. It is filled to the level of the vessel with firm clot. The iliac vessels are very atheromatous and calcareous.

From a man aged 87, who was admitted for an injury to the left hip.

See *Male Surgical Register*, vol. i. (1887), No. 1878.

1552a. A Portion of the Arch of the Aorta, with the Larynx and Trachea, from a case of aneurysm of the arch simulating an aneurysm of the innominate artery. The common carotid artery of the right side was ligatured thirty days before the death of the patient. The aneurysm arises from the transverse part of the arch, and extends upwards for a distance of five inches behind the right common carotid artery. It is conical in shape, and nearly filled with a laminated clot; its sac wall is complete, but thin. It overlies the innominate artery, and has compressed it at its bifurcation. The trachea throughout its whole course has been flattened laterally by its pressure. The right carotid artery is compressed at its origin by the aneurysm; its upper portion is filled with recent clot. The seat of ligature presents an ulcerated appearance where the artery has been divided, and its ends have retracted for a distance of nearly an inch. In the distal end is a little adherent clot, which extends as high as the bifurcation of the vessel. There is no sign of repair in either of the cut ends, nor is there any thickening in their walls.

From a sailor aged 59, who first noticed a swelling in the right side of his neck two years before he came under observation. When the swelling first appeared he had an attack of "asthma." He never had syphilis, and he had always been a sober man. The swelling, which increased slowly, was diagnosed as an aneurysm of the innominate artery. Thirty days before the death of the patient, his right common carotid was ligatured with silk in two places, and was subsequently divided between the ligatures. Pulsation recurred in the temporal artery within an hour of the operation. Thirteen days later, he suddenly lost consciousness for a short time, and on the fourteenth day after the operation he lost perception of light in his right eye.

At the post-mortem examination slight superficial softening of the left temporo-sphenoidal lobe was observed. The aneurysm was found to be in close contact with the sternum; it had compressed the vagus and root of the right lung, and had pushed upward and compressed the left innominate vein. It was closely adherent to the right clavicle and the first and second ribs on the right side. The whole aorta was very atheromatous.

See *Male Surgical Register*, vol. ii. (1886), No. 2663, and *Surgical Post-Mortem Register* for 1886, pp. 162, 163.

SERIES X.

DISEASES AND INJURIES OF THE LARYNX AND TRACHEA.

1612a. The Larynx, with the base of the Tongue and a portion of the Trachea, from a patient aged 28, who died with acute laryngitis. The mucous membrane covering the epiglottis and lining the upper part of the glottis is swollen, and appears to be thickened. The openings of the ventricles of the larynx appear as mere slits, in consequence of the swelling of the mucous membrane. The subglottic portion of the

larynx is superficially ulcerated. The site of a tracheotomy wound made during life is seen in the upper portion of the trachea.

See *Lazarus Ward Book* for 1887, No. 2694.

A portion of the skin of the leg is preserved in Series xxxv. No. 2703a.

1631h. The Larynx and Trachea from a case of phthisis. The posterior end of the right vocal cord is destroyed by tubercular ulceration. The mucous membrane covering the posterior portion of the trachea is deeply and extensively ulcerated, the ulceration extending into the left bronchus.

From a girl aged 18, who, after acute pneumonia, had chronic pulmonary phthisis. See *Elizabeth Ward Book* for 1887, No. 14.

1645a. A Larynx showing a papillomatous growth on the left vocal cord. The growth was probably congenital.

From a child aged 3 years and 9 months. He was said to have suffered from repeated attacks of dyspnoea, and his mother noticed that he never cried like other children. Tracheotomy was performed, but the child died cyanosed.

The specimen was prepared and presented by J. F. Steedman, Esq.

1655b. A Larynx with a Portion of the Trachea. The whole of its inner surface is occupied by an ulcer, which extends from the middle of the epiglottis to the first ring of the trachea. From its surface numerous cauliflower vegetations, for the most part of small size, project into the interior. On the left side, the only remains of the thyroid cartilage is a loose fragment measuring about an inch square, but of the cricoid cartilage the greater part remains. Of the arytenoid cartilage on this side there is no trace. All the cartilages are left on the right side at the lateral and posterior parts. The base of the epiglottis and root of the tongue immediately below it are involved in the ulceration. There are a few vegetations round the tracheotomy hole, but there was no direct continuity of ulceration towards the front. There was no enlargement of the glands. Microscopical examination showed the ulcer to be an epithelioma.

From a man aged 43, who was well until nine months before his death. He gradually lost his voice, although he continued to work up to six weeks before his admission to the Hospital. After suffering greatly from dyspnoea, he died from exhaustion and gradual suffocation.

See *Transactions of the Pathological Society*, vol. xxxviii. pp. 85-89.

Presented by Dr. Samuel West.

SERIES XI.

DISEASES AND INJURIES OF THE PLEURA,
BRONCHIAL TUBES, AND LUNGS.

1668a. The Lung with a Portion of the Chest Wall. The lung is puckered and contracted over a considerable portion of its extent. The puckering appears to be the result of a localised pleuritic inflammation. The adjoining portion of the parietal layer of the pleura also presents an oval thickened patch, which is probably due to the same cause.

From a subject brought to the Hospital for dissection.

1679a. A Portion of the Lower Lobe of the Lung, showing exaggerated fibroid change in the pulmonary tissue. The lung is consolidated, its vesicles being occupied by a soft caseous material; the bronchi are dilated and their walls are thickened. The changes were much more marked in the lower than in the upper lobe, indicating a basic phthisis.

Presented by Dr. Vincent Harris.

1707a. A Portion of the Lower Lobe of the Lung of a man aged 50, who died from hæmoptysis. The majority of the air vesicles and bronchi are seen to be filled with blood, but the lung does not appear to have undergone any structural change. The hæmorrhage was capillary, and no plug was found in any pulmonary vessel.

Presented by Dr. Vincent Harris.

1724c. The Right Lung of a child aged 6 months. In the middle lobe is a cavity as large as a marble, which communicates with the pleura by an aperture through which a piece of red glass rod has been passed. The cavity is divided by a septum, which is formed by an occluded artery. The lung is solidified by grey tubercle; the bronchial glands were enlarged, and contained tubercle bacilli, and there were tubercular deposits in the spleen.

The child was admitted into the Hospital on account of its marasmic condition; a sudden attack of dyspnœa terminated its existence. The mother was said to be phthisical, but there was no other phthisical history.

See *Medical Post-Mortem Book*, vol. xiv. p. 185.

1759c. A Portion of the Right Lung which is much torn; the main vessels have not, however, parted, though the root and the lower lobe are almost completely separated.

From a man aged 23, who was dead when he was brought to the Hospital. There were no external signs of injury, nor was there any fracture of the ribs, costal cartilages, or sternum. The right pleura was filled with blood.

See *Surgical Post-Mortem Register* for 1887, p. 32.

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 penetrated 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 2½ years, who had pericarditis with effusion.
See *Mary Ward Book* for 1887, No. 7.

SERIES XII.

DISEASES AND INJURIES OF THE NOSE, MOUTH,
TONGUE, PALATE, AND FAUCES.

1777b. The Free Margin of the Lower Lip, showing a very considerable ulceration. On the right side is a punched-out cavity, which measured in the fresh condition three-quarters of an inch in length by half an inch in width. The ulcer is epitheliomatous; it is oval in shape and has everted edges. The mucous membrane is involved by a papillomatous ulceration which extends beyond the angle of the mouth. The left side of the lip is also hard and papillomatous.

From a man aged 49. Thirteen years before the removal of the lip he noticed a hard, painless, immovable lump on the right side of his lower lip, of the size of a small shot, which grew slowly, and eventually began to ulcerate.

See *Male Surgical Register*, vol. v. (1887), No. 1604.

1785b. A Small Pedunculated Tumour removed from the left side of the tongue. The tumour is of the size of a bean. It was hard and painful. Microscopically, the growth was composed of fibrous tissue.

From a woman aged 30, who had noticed the presence of a tumour on her tongue for five years.

A section of the growth is preserved in Series Iv. No. 76d.

See *Female Surgical Register*, vol. i. (1887), No. 1122.

1788h. The Anterior Two-thirds of a Tongue affected with epithelioma. The front portion of the dorsum is smooth and fissured; it was the seat of chronic glossitis. The left margin presents an extensive epitheliomatous ulcer. The ingrowth extends deeply beneath the ulcer, so that it invades the muscular tissue.

From a man aged 44, who appears to have suffered from syphilis twenty years previously. The growth on his tongue was only noticed for two months before the operation.

See *Male Surgical Register*, vol. i. (1886), No. 3367.

1788i. The Larynx and Trachea with the Stump of the Tongue. The entire tongue had been removed fourteen days previously for epithelioma, the patient subsequently dying from suppurative phlebitis of the internal jugular vein. The surface of the tongue presents a well-formed cicatrix, and the ligatures applied at the time of the operation are seen to be still *in situ*.

From a man aged 53, who had the anterior portion of his tongue removed for epithelioma in December 1884. There was no recurrence of the growth until February 1887.

See *Male Surgical Register*, vol. iii. (1887), No. 788.

1799a. A Pedunculated Calcifying Fibroma, which grew from the upper jaw of a man aged 46. The tumour had been growing for twenty-seven years, causing so little inconvenience that the patient was unwilling to have it removed. It sprang from the palate, just behind the incisor teeth.

See *Male Surgical Register*, vol. iii. (1886), No. 1706.

1807a. A Polypoid Growth which was removed from the tonsil. The tumour consists of a larger and a smaller portion, each of which is crescentic in shape. The two portions of the growth are attached to each other by a narrow bridge of tissue. Microscopically, the tissue is a soft fibroma, consisting entirely of connective tissue.

From a man aged 25, who stated that for ten years he had repeatedly suffered from sore throat. The swelling, however, gave him no inconvenience, and he did not know how long it had been growing.

See *Male Surgical Register*, vol. iii. (1886), No. 360.

SERIES XIII.

DISEASES OF THE TEETH.

1823a. An Ivory Tooth-Plate carved to fit the lower jaw. There are sockets for the reception of the front teeth, which have been fixed into the ivory base by pegs; but the molars are represented by square blocks of ivory. On the under surface is a groove for the alveolar border of the inferior maxilla.

The plate was found in a well at Brighton. Similar appliances were in use in England at the commencement of the present century.

Presented by Henry Willett, Esq.

SERIES XIV.

DISEASES OF THE SALIVARY GLANDS.

EXTIRPATION OF THE SUBMAXILLARY GLAND.

1826a. A Submaxillary Gland removed with a large submaxillary calculus. There is a deep depression at the upper and inner part of the gland, where the calculus lay. At the bottom of this depression is Wharton's duct, cut across at the point where it leaves the gland. A piece of glass rod has been passed along its lumen into the gland tissue. The gland itself is indurated, but otherwise appears to be healthy.

The gland was removed from a gentleman aged 52 through an incision in the neck. The presence of the calculus was suspected, but was not discovered until after the removal of the gland. The patient had been subject to occasional swelling of the submaxillary region for more than forty years. There had been permanent enlargement and suppuration of the salivary gland for some time before the operation was performed.

The calculus is preserved in Series liii. No. 245a, and a cast of it in Series lvi. No. 117a.

Presented by H. T. Butlin, Esq.

SERIES XVI.

DISEASES OF THE PERITONEUM, OMENTUM,
AND MESENTERY.

1885a. A Small Calcified Mass developed in the mesentery of the small intestine. It did not give rise to any symptoms during life.

SERIES XVII.

DISEASES AND INJURIES OF THE STOMACH.

1913a. A Portion of a Stomach showing an ulcer situated within the pylorus, exactly at the end of the lesser curvature. The ulcer measures a quarter of an inch in diameter, and has perforated into the pericardium.

From a man aged 58, who had suffered for some time with pain after food, and occasional vomiting, but who had never brought up any blood. At 10 A.M. he was seized with severe abdominal pain, which was relieved by pressure, and he died in the early morning of the following day.

See *John Ward Book* for 1885, No. 57.

- 1946b. A Portion of a Stomach from a patient who was poisoned with hydrochloric acid. Three ounces of "spirits of salt" was taken at half-past three in the afternoon, and the patient died at half-past six the next morning. The mucous membrane is blackened and corrugated.

Presented by W. T. Strugnell, Esq.

- 1949a. A Portion of the Stomach from a man who died from the effects of taking corrosive sublimate. The mucous membrane was at first of an ashen-grey colour, which has deepened to a brown as a result of exposure to the light. It was slightly congested in the neighbourhood of the cardiac orifice.

From a man aged 76, who swallowed a large quantity of corrosive sublimate in a glass of water. He rapidly became collapsed, and died two hours and a half after taking the poison. For further details of the case, see *The British Medical Journal*, vol. ii. (1885), pp. 599-600.

The duodenum from this case is preserved in Series xviii. No. 2043a.

A drawing of the stomach whilst it was still fresh is preserved in Series lvii. No. 221a.

Presented by Dr. C. R. Walker.

- 1949b. A Portion of the Stomach from a case of acute phosphorus-poisoning. The mucous membrane appears to be normal, but microscopically there is a general degeneration of the gland cells; the degeneration is best marked in the ovoid cells.

From a man aged 36, who accidentally ate some bread and butter on which phosphorus paste had been spread. He became drowsy and giddy an hour afterwards, and subsequently vomited and had great epigastric pain. On admission to the Hospital, four days after the accident, he was slightly jaundiced, and had marked abdominal tenderness. The eructations were said to taste of phosphorus. The liver and spleen could not be felt on palpation. The patient died in a collapsed condition eight days after eating the phosphorus.

See *Luke Ward Book* for 1884, No. 1534.

The liver is preserved in Series xxi. No. 2238a.

- 1949c. A Portion of a Stomach showing the changes which have resulted from the ingestion of carbolic acid. The mucous membrane is congested, swollen, and velvety in appearance, and there are numerous small hæmorrhages upon it. (Cf. No. 2044a.)

From a man aged 70 years, who drank four ounces of a solution of impure carbolic acid. He was not found until two days after his death. His lips were burnt. The spleen and stomach smelt very strongly, the kidneys slightly, and the liver still less of carbolic acid. There was intense congestion of the duodenum, which gradually decreased to the colon.

Presented by John Adams, Esq.

SERIES XVIII.

DISEASES AND INJURIES OF THE INTESTINES.

AMYLOID DEGENERATION OF THE INTESTINE.

1952a. A Portion of Small Intestine which has undergone amyloid degeneration. The amyloid substance is stained with iodine.

DUODENUM INFECTED WITH THE ANCHYLOSTOMA DUODENALE.

1956a. A Piece of Intestine infested with the *Anchylostoma* (*Sclerostoma* or *Dochmius*) duodenale. A few of the worms still remain adherent to the intestinal wall, but for their better display the greater number have been placed upon a piece of talc beneath the preparation. In the recent condition the mucous membrane of the intestine was covered with mucus and granular lymph, in which the parasites were partially embedded.

A microscopical preparation of an anchylostoma duodenale is preserved in the Histological Cabinet, No. 149a.

Obtained in exchange from the Hunterian Museum.

1968a. A Portion of the Small Intestine with the Cæcum, and a part of the Large Intestine. In the cæcum, and again in the large intestine, are two circular ulcers with thickened edges, resembling the chronic ulcers found in the stomach. Midway between the two ulcers is a thinner portion of intestinal wall. The ulcers have perforated all the intestinal coats, and the fæcal extravasation which occurred led to death from peritonitis.

From a woman aged 49, who stated that she had been quite well until she had been thrown out of a cart two days before her admission to the Hospital. On the day following the accident she suffered great pain in her abdomen and was constantly sick. A fortnight later an ill-defined swelling, giving a sense of resistance upon pressure, was observed in the course of the ascending colon and half-way across the transverse colon. She had some diarrhœa, and her temperature rose gradually to 101.2° F. The patient gradually became weaker, and died about two months after her admission.

See *Female Surgical Register*, vol. i. (1887), No. 1746, and *St. Bartholomew's Hospital Reports*, vol. xxiii. pp. 215-217.

1984a. A Piece of the Large Intestine from a case of dysentery. There is throughout very extensive superficial ulceration of the mucous membrane. Numerous small ulcers, which vary considerably in depth, are scattered over the surface of the intestine. One of the ulcers near the head of the colon had perforated, and near the perforation was a small collection of fæces bounded by lymph.

From a woman aged 31, who had suffered for four months from acute dysenteric diarrhœa, which confined her to bed.

See *Faith Ward Book* for 1885, No. 444.

2029a. The Cæcum with a Portion of the Large Intestine, in which, as a result of a malignant growth of the transverse colon, a rupture of the cæcum has occurred. In the anterior wall of the cæcum are two irregular jagged apertures, one measuring half an inch in diameter, and the other about a quarter of that size. In the transverse colon, just above the splenic flexure, is a malignant growth which infiltrates and completely encircles the walls of the great intestine. The growth is soft, with raised edges, and is extensively ulcerated in its centre. Microscopically, the growth is an adenoid cancer, which is undergoing colloid degeneration.

From a man aged 54, who suffered from symptoms of intestinal obstruction for five months before his death. The patient died on the day after left lumbar colotomy had been performed.

See *Male Surgical Register*, vol. iii. (1887), No. 73.

2031b. A Mass of Hardened Fæces, about the size of a hazel-nut, which was found lying loosely in the iliac fossa. It is laminated in structure, and has evidently been formed in the vermiform appendix.

From a boy aged 14, in whom the vermiform appendix had sloughed, leading to death from peritonitis.

See *Male Surgical Register*, vol. iv. (1887), No. 1829.

2032b. A Pin which was found projecting from the vermiform appendix of a man aged 36, who died from pyæmia. There was no history of the pin having been swallowed. It is coated with gritty matter, so that it had probably remained in the intestine for a considerable period. The vermiform appendix was thickened and ulcerated.

From a man aged 42, who had been in good health until five months before his death, when he began to complain of a constant gnawing pain on the right side of his abdomen. He subsequently had pyæmia with phlebitis of his iliac veins, secondary multiple abscesses of his liver and broncho-pneumonia. The presence of the pin was not suspected until it was found at the autopsy. The patient was admitted to John Ward.

See *Male Surgical Register*, vol. iv. (1888), s.v. W. Torode.

2044a. A Portion of the Small Intestine, showing the changes which have occurred as a result of carbolic acid poisoning. The mucous membrane is much swollen, and has a velvety appearance, owing to the enlargement of the villi and the effusion of lymph. (Cf. No. 1949c.)

The stomach and duodenum from the same case are preserved in the Hunterian Museum, Nos. 2386a and b. The patient only lived for three hours after taking the poison.

Obtained in exchange from the Royal College of Surgeons of England.

SERIES XIX.

DISEASES OF THE RECTUM AND ANUS.

MULTIPLE POLYPI OF THE RECTUM.

2065a. The Rectum, with the Anus and a portion of the Sigmoid Flexure, from a case of multiple polypi of the rectum. There is a considerable deposit of adenoid cancer at the junction of the sigmoid flexure with the rectum. It surrounds the bowel and almost obliterates its canal. A glass rod has been passed through the stricture thus formed. The rectum below the constriction contains a large number of polypoid growths. The polypi are more or less globose in shape, having slender stalks, but here and there are ribbon-like, ragged, slender, and branched outgrowths, whilst some of the smaller growths are sessile. Above the seat of cancer there are but few to be found, and in the ascending and transverse colon there were not more than three or four, and these were small and rudimentary. The rectum, where it passed over the concavity of the sacrum, was adherent to the neighbouring parietal peritoneum. The large intestine above the stricture was enormously distended by fæces. The peritoneum over the anterior longitudinal muscular band of the cæcum had been split by the excessive stretching. Microscopical examination of the growth surrounding the intestine at the seat of stricture showed that it was an adenoid cancer. The polypi consist of simple glandular tissue, but their bases are continuous with the carcinomatous growth, which has infiltrated the whole thickness of the wall of the rectum.

From a man aged 20 years. Ten years previously he was taken to the London Hospital for hæmorrhage from the bowel, and was operated upon. For three or four months he remained well, but the bleeding returned, and recurred at intervals during four years. He was subsequently operated on several times with temporary relief. His appearance on admission was that of extreme anæmia. He complained of pain in the rectum, especially on defecation. He had an almost constant discharge of bloody mucus from the bowel, and frequent attacks of hæmorrhage. He could protrude from the anus at will a polypoid mass the size of a plover's egg. The polypi could be seen by dilating the rectum, and some were removed after passing a ligature round their pedicles. After being thrice discharged and readmitted, the patient was brought to the Hospital moribund and with signs of peritonitis. A brother and sister of this patient presented themselves for treatment, and they were found to be suffering in exactly the same manner from multiple polypi of the lower bowel.

See *Male Surgical Register*, vol. ii. (1887), Nos. 183 and 1908, and *St. Bartholomew's Hospital Reports*, vol. xxiii. pp. 225-227.

Sections of the growth are preserved in Series lv. Nos. 87 k and l.

2065b. A Pedunculated Polypus removed from the rectum of a younger brother of the patient from whom the preceding preparation was obtained. It resembles in every respect the polypoid growths which have already been described.

From a young man aged 17 years, whose bowel had been liable to become prolapsed and to bleed as long as he could remember. For the last four or five years the

patient had suffered pain on going to stool, and had great difficulty in passing his motions. On admission to the Hospital, he was found to be suffering from great anæmia. There was no external swelling, but on introducing the finger, the rectum was found full of soft, vascular, and pedunculated polypi, varying in size from a pea to a small cherry. Eight or nine of the largest polypi were ligatured and removed under chloroform. The patient ceased to bleed and gradually recovered his strength. Other polypi were removed at subsequent periods.

See *St. Bartholomew's Hospital Reports*, vol. xxiii. Case ii. p. 227.

SERIES XX.

HERNIÆ OR PROTRUSIONS, AND OTHER DIS- PLACEMENTS OF THE INTESTINAL CANAL AND OMENTUM.

CONDITIONS WHICH PREDISPOSE TO HERNIA.

- 2081a. A Testicle and Cord in which the tunica vaginalis is patent as far as the internal abdominal ring. A small pouch of peritoneum descends at the internal abdominal ring, and ends behind the unclosed upper part of the tunica vaginalis, so that it really presents a very early stage of funicular hernia. The plica vascularis is very prominent.
- 2111a. Hernia of the Vermiform Appendix. The hernia is funicular. The cæcum was found after death lying immediately within the neck of the sac, the vermiform appendix extending downwards half-way along the back of the sac. The upper two-thirds of the appendix is devoid of mesentery; the lower third lies free in the sac. The spermatic artery and vein lie upon the back of the sac, exactly opposite the attachment of the vermiform appendix. The vas deferens and its artery are situated a little to the inner side. The tunica vaginalis is very thick, and is puckered over the testis.

- 2115a. Sac of a Femoral Hernia, from an aged female. The walls of the sac are exceedingly thin, and it only contains a mass of fibrous substance with a laminated calcareous centre.

Presented by C. B. Lockwood, Esq.

HERNIA OF THE SIGMOID FLEXURE.

- 2139a. A Congenital Hernia of the Sigmoid Flexure. The intestine was held in the mouth of the sac by a fold of peritoneum—the plica vascularis—which contained the spermatic vessels and a quantity of muscular fibres. The fold was situated towards the outer side of the sac. The vas deferens, under which a red rod is placed, lies towards the inner side of the sac, and is also accompanied by muscular fibres. The hernial sac

appears to be continuous with the tunica vaginalis, although their cavities do not communicate.

Examples of cæocele are preserved in the Teratological Series vi. Nos. 3632 a and b.

Presented by C. B. Lockwood, Esq.

2163c. A Portion of the Liver with the Diaphragm. In the middle of the right half of the diaphragm is a ragged oval rent, measuring $2\frac{1}{2}$ inches by $1\frac{1}{2}$, through which in the fresh state the convex surface of the liver protruded into the right pleural cavity.

From a man aged 58, who jumped from a first-floor window, and died soon after admission to the Hospital.

See *Surgical Post-Mortem Book* for 1887, p. 74.

VOLVULUS OF THE CÆCUM.

2177b. The Cæcum, the lowest part of the Ileum, and the beginning of the Colon are involved in a volvulus, which has resulted in the intestine being twisted three times on its transverse axis from right to left. The cæcum is attached by sutures to the abdominal wall, a portion of which is left in the preparation; it is gangrenous in patches, and in one place has completely ulcerated, so as to lead to a perforation of the intestine. No fæces have escaped, however, owing to the surrounding adhesions. On tracing the gut backwards, it is seen that the colon beyond the splenic flexure, instead of passing across the abdomen to form the transverse arch, descends vertically to the left iliac fossa. From this point it returns to the lower border of the stomach, forming a U-shaped bend. It then turns to the right, and having reached the median line of the abdomen, again runs downwards to end in the cæcum, which was situated over the last lumbar vertebra, almost in the middle line. (Cf. 2176a.)

From a man aged 63, who was seized suddenly with severe abdominal pain and vomiting. His bowels, which had been regular up to the time of the seizure, became obstinately confined. On his admission to the Hospital, two days later, nothing could be found to account for the pain, but there was a slight fulness and tenderness in the right iliac region. Stercoraceous vomiting set in eight days after the initial symptoms had appeared, and the abdomen was opened in the middle line, and a portion of inflamed and distended cæcum was secured by sutures to the abdominal wall. The patient died on the following day.

See *Male Surgical Register*, vol. iii. (1887), No. 495, and *Transactions of the Clinical Society*, vol. xxi. p. 139.

2182a. The Ileo-Cæcal Valve, with a portion of Small Intestine, showing an intussusception. About six inches of the small intestine have become intussuscepted, the end of it being gangrenous where it protrudes into the cæcum. The sheath of small intestine which contains the intussuscepted portion has ulcerated in two places in a line transverse to the long axis of the gut.

From a girl aged 9, who seven days before her death was suddenly seized with great abdominal pain and vomiting. Enterotomy was performed through an abdo-

minal incision, the intestine being opened four inches above the site of the intussusception; but the patient died two days after the operation. At the autopsy it was found that there had been no fecal extravasation, and that neither the constricting portion of the intestine nor the sheath were in a state of tension.

See *Female Surgical Register*, vol. iv. (1885), No. 1975.

SERIES XXI.

DISEASES AND INJURIES OF THE LIVER.

2194d. A Portion of a Liver which has been very greatly enlarged, as a result of amyloid degeneration. It weighed 10 lbs. 9 oz., and its surface was scarred, puckered, and contracted. Its section is firm, and the glandular substance is seen to be replaced by the small, shining masses which are characteristic of amyloid degeneration. Microscopically, the organ was found to have undergone typically the changes which result from amyloid degeneration, but without any increase of fibrous tissue.

From a boy aged 18, who had a remarkable ulceration of many of his joints. The spleen was enormously enlarged. For further history of the case, see No. 312a.

The joints are preserved in Series i. Nos. 312 a, b, c, d.

The spleen is preserved in Series xxv. No. 2295a.

See *Male Surgical Register*, vol. v. (1886), No. 2691*.

2196a. Section of a Portion of Liver containing a circumscribed tubercular abscess. The abscess wall is covered with shreds of partially organised lymph. The specimen was obtained from a patient who died of pulmonary phthisis.

Presented by Dr. Vincent Harris.

2216a. The Right Lobe of a Liver which is the seat of numerous secondary deposits of cancer. The nodules of cancer are large, white, and firm, with depressed centres. The liver weighed seventy ounces. Microscopically, the organ is infiltrated with a well-marked columnar carcinoma.

From a man aged 52, who had cancer of the rectum.

The pelvis with the rectum *in situ* is preserved in Series xviii.

A section of the liver is preserved in Series lv. No. 90y.

See *Medical Post-Mortem Book*, vol. xiii. p. 14.

2216b. A Portion of the Right Lobe of the Liver infiltrated by a large mass of new growth. Microscopical examination showed it to consist of encephaloid cancer. The growth is dense and firm, and has entirely destroyed the hepatic tissue. It was secondary to a carcinoma of the rectum in a man aged 62 years. The liver weighed seven pounds.

Sections are preserved in Series lv. No. 90ll.

See *Male Surgical Register*, vol. iv. (1887), No. 1753.

2217b. A Section through a Liver infiltrated with a carcinomatous growth which is undergoing colloid degeneration. The nodules of new growth are numerous. They are circumscribed, and are for the most part situated immediately beneath the capsule of the liver. The surface of the liver is slightly dimpled immediately over the largest mass of cancer.

From a woman aged 21, who had been ailing for eleven months before her death. She presented all the symptoms of a cerebral tumour, but there was no evidence before death of any hepatic or renal disease. The patient had syphilis.

See *May Ward Book* for 1887, *s.v.* Maude Pocock. The kidney is preserved in Series xxviii. No. 2392c.

ACUTE PHOSPHORUS-POISONING.

2238a. A Section of a Liver from a case of acute phosphorus-poisoning. The liver was of normal size. It is of a uniform orange colour. Microscopically, it showed abundant fatty degeneration with some amount of fatty infiltration.

From a man aged 36, who accidentally ate some bread and butter on which phosphorous paste had been spread. He became drowsy and giddy an hour afterwards, and subsequently vomited, and had great pain in the epigastrium. On admission to the Hospital, four days after the accident, he was slightly jaundiced and had marked abdominal tenderness. The liver and spleen were impalpable. The eructations were said to taste of phosphorus. The patient died in a collapsed condition eight days after eating the phosphorus.

See *Luke Ward Book* for 1884, No. 1534.

A portion of the stomach is preserved in Series xvii. No. 1949b, and a section of the liver in Series lv. No. 90n.

SERIES XXII.

DISEASES AND INJURIES OF THE GALL BLADDER AND BILIARY DUCTS.

2248a. A Portion of the Right Lobe of the Liver with the Gall Bladder. The cystic duct and gall bladder are both greatly distended, owing to the impaction of a calculus in the former just after it leaves the gall bladder. In the fresh state the gall bladder contained four ounces of clear mucus and a large number of small biliary calculi.

SERIES XXV.

DISEASES AND INJURIES OF THE SPLEEN.

HYPERTROPHY.

2295a. A Section of a Spleen which was very greatly enlarged. It weighed rather more than three pounds, and the section measures 10½

inches in length by 4 inches in breadth at its widest part. Microscopically, the tissue is blurred and indistinct, with a slight infiltration of amyloid disease.

It was obtained from a boy aged 18, who had an unusual form of ulceration in several joints. The liver was undergoing amyloid degeneration, and weighed 10 lbs. 9 oz. The kidneys were large and pale, presenting the appearance of catarrhal inflammation, with commencing amyloid degeneration of the glomeruli.

The joints are preserved in Series i. Nos. 312 a, b, c, d, and a section of the liver in Series xxi. No. 2194d.

See *Male Surgical Register*, vol. v. (1885), No. 2691*.

CHANGES IN THE SPLEEN IN RICKETS.

2298b. A Large firm Spleen, from a case of well-marked rickets. Microscopically, the increase in size of the spleen is due to hyperplasia of the normal elements.

From a small emaciated child aged 11 months. The anterior fontanelle was widely open, and the ribs were characteristically beaded.

See *Medical Post-Mortem Book*, vol. xiii. p. 198.

2301a. Section of a Spleen with an Accessory Spleen infiltrated with tubercle. The spleen is greatly enlarged, and is seen to be filled with large numbers of yellowish-white nodules.

From a child aged 5 years, who died from general tuberculosis. The tubercular deposits were most marked in the lungs, spleen, and liver.

See *Medical Post-Mortem Register*, vol. xiv. p. 325.

MELANOTIC SARCOMA.

2304a. Section through the Spleen of a Horse, showing a great increase in the pigment. The whole organ is infiltrated with a growth of melanotic sarcoma, only a small portion remaining unaffected. The growths were secondary to a melanotic tumour occurring in the skin.

Obtained in exchange from the Hunterian Museum.

2305a. Section of a Spleen from a case of osteitis deformans. It is studded with many round white nodules of lymphomatous material.

2308a. A Spleen which has been torn upon its anterior and external surfaces, the laceration extending completely across the organ. The site of the injury is occupied by a firm white scar, measuring one-eighth of an inch across. The outermost convex border is still soft and lacerable; it tore when it was separated from the superjacent clot.

From a woman aged 42, who jumped out of a second-floor window ten weeks before her death. She sustained a fracture of the left femur in addition to the abdominal injury.

See *Female Surgical Register*, vol. ii. (1887), No. 3519*.

SERIES XXVI.

DISEASES OF THE THYMUS AND THYROID
GLANDS.

INJURIES TO AND OPERATIONS UPON THE THYROID
GLAND.

2319d. A Larynx and Trachea from a case in which the removal of a thyroid cyst was followed by suppuration, which led to an opening into the trachea. There is a great deal of inflammatory thickening and infiltration, extending down the right side of the trachea as far as the arch of the aorta. A cavity is situated in front of this thickened mass which communicates by a fistulous track (along which a green glass rod has been passed) with the trachea. The opening into the trachea in the recent state was only about as large as a pin's head; it was situated between the second and third rings. The whole trachea is very much softened.

From a man aged 41, who was admitted into the Hospital with a cyst of the thyroid gland, which was subsequently dissected away from the surrounding structures. Diffuse suppuration took place round the wound, and a month after the operation had been performed it was found that the bottom of the wound communicated with the trachea. Two days later the patient died. At the autopsy the heart and pericardium were normal, and there was no pleurisy. There was general diffuse broncho-pneumonia of both lungs, with pus in the tubes and a gangrenous condition of a small portion of the right base.

See *Male Surgical Register*, vol. i. (1886), No. 2948, and *St. Bartholomew's Hospital Reports*, vol. xxiii. (1887), pp. 218-220.

SERIES XXVII.

DISEASES OF THE SUPRARENAL CAPSULES.

SARCOMA OF THE SUPRARENAL BODIES.

2330a. The Right Kidney and Suprarenal Body of a Child. The kidney is normal, but the adrenal is greatly enlarged, and is infiltrated, and surrounded by a tough red sarcomatous growth.

M. æt. 1½. The child was almost a mass of sarcomatous tissue. From the first symptoms of his illness to the time of his death five months elapsed, whilst from the observation of the first swelling which appeared on his skull till the time of his death was a period of thirteen weeks. The growth is a round-celled sarcoma.

See also Series i. Nos. 437 b, c, d.

See *Transactions of the Pathological Society*, vol. xxxvi. (1885), pp. 393-395.

2330b. The Right Suprarenal Capsule with a section of the Kidney attached to it. The adrenal is infiltrated with a carcinomatous growth, which has produced a great increase in its size.

From a male adult who was treated for dyspepsia two years before his death, and who subsequently developed symptoms of phthisis. During the last fourteen days of his life he was deeply jaundiced and was very delirious. At the autopsy large nodules of cancer were found in the pancreas, lungs, and adrenals.

The pancreas is preserved in Series xxiii. No. 2276a.

Presented by Dr. S. H. Habershon.

SERIES XXVIII.

DISEASES AND INJURIES OF THE KIDNEYS, THEIR PELVES, AND THE URETERS.

2335c. A Kidney from a case of chronic interstitial nephritis. Its surface is granular, the capsule was adherent, and it presents one or two cysts. The cortex was very narrow. The whole organ weighed four ounces. Microscopical examination showed abundant connective tissue increase; many tubules were quite denuded of epithelium, others contained blood-casts; some of the glomeruli were natural, whilst others were shrivelled and degenerate. The arteries were greatly thickened.

From a married woman aged 28, who had no history of scarlet fever, but who had twice suffered from acute rheumatism. Thirteen months before her admission to the Hospital she had been laid up with pleurisy and bronchitis, and six months later her legs began to swell. She had abundant albumin in her urine, and at the post-mortem examination her heart was found to be hypertrophied.

See *Faith Ward Book* for 1886, No. 1562.

2341c. Section of a Tubercular Kidney. The organ was firmly adherent to the intestines and vertebral column by dense fibrous tissue, which enclosed the renal vessels and surrounded the vena cava. The kidney is filled with soft caseous matter, which is inspissated, and is converted into a series of cysts which open into a distended calyx. The ureter was thickened for about four inches and contained a little curdy pus.

From a woman aged 47.

See *Female Surgical Register*, vol. i. (1887), No. 1088.

2345b. The Left Kidney, which has been converted into a series of cysts, which were filled with pus and urine. A large branched stone extends from the pelvis into all the calyces. The organ itself is dilated to about three times its ordinary size, whilst the ureter is much thickened and dilated. (Cf. 2355a.)

From a man aged 30, who was admitted to the Hospital with a suppurating bursa patellæ. His urine was found to be loaded with pus, but he did not complain of any urinary trouble. About a week after his admission he had suppression of urine and died.

See *Male Surgical Register*, vol. iv. (1888), No. 1372.

2355a. The Right Kidney from a case in which suppurative nephritis occurred in both organs, owing to the presence of calculi. The kidney is enlarged to nearly three times its normal size. The glandular portion is converted into a number of cysts, whilst the pelvis is completely obliterated by a dense growth, which is found on microscopic examination to consist of inflamed fat and fibrous tissue. A small oblong calculus of uric acid completely blocks the upper part of the ureter. The ureter near the kidney is constricted, but as it passes downwards it gradually dilates, until it attains nearly four times its natural diameter.

The left kidney is preserved as a specimen in No. 2345b.

2358b. The Right Kidney, which is sacculated and distended to about twice its natural size. A sinus in the groin led into the pelvis of the organ. The greater part of the renal tissue is absorbed. A calculus, which sent its branches a short distance up the calyces, was firmly wedged into the ureter and pelvis, which it completely occluded.

From a girl aged 20, who suffered from pyonephrosis. An incision was made into the kidney, and the patient died six months later from chronic pyæmia.

See *Female Surgical Register*, vol. i. (1887), No. 1512*.

2359a. A Pair of Kidneys. The left one, as a result of the long-continued irritation of a branched calculus, is atrophied, and is converted into a mere membranous sac. The calculus extends into and plugs the ureter. The right kidney is hypertrophied, weighing twelve ounces. It has undergone some amount of fatty degeneration.

From a man aged 61, who had diabetes with albuminuria, and subsequently gangrene of the left foot.

See *Male Surgical Register*, vol. i. (1887), No. 275.

2381a. Section of a Kidney affected with chronic interstitial nephritis. The organ is much smaller than usual, and its cortex is narrowed. Numerous small cysts are situated upon its surface, lying beneath the capsule.

From a man aged 59, who died of hæmorrhage into the pons Varolii. The opposite kidney was in a similar condition.

See *Medical Post-Mortem Book*, vol. xiii. p. 61.

2384a. The Left Kidney, whose substance is transformed into a large number of thin-walled cysts. The cysts vary in size from a small shot to a pigeon's egg. They were filled with a yellow viscid and transparent fluid.

From a married woman aged 59, who suffered from ascites. Both kidneys were equally affected.

See *Martha Ward Book* for 1887, No. 42.

2384b. The Right Kidney from the same case as the preceding. It shows the same changes as those which have already been described.

2390c. A Section through a Kidney infiltrated with a carcinoma which is undergoing colloid degeneration. The growth extends as a pyramidal mass through the whole thickness of the organ from the capsule to the calyx.

From a woman aged 21, who had been ailing for eleven months before her death. She presented all the symptoms of cerebral tumour, but there was no evidence before death of any hepatic or renal disease. The patient had syphilis.

See *May Ward Book* for 1887, s.v. Maude Pocock. The liver is preserved in Series xxi. No. 2217b.

2392b. The Left Kidney from a patient upon whom nephrotomy had been unsuccessfully performed fifty hours before death. The operation wound is seen as a slit in the pelvis of the organ. Two small calculi lie in the uppermost calyx, the one smooth and oval, and the other spiculated. The pelvic portion of the ureter is considerably dilated. The greater part of the kidney appears to be healthy.

From a boy aged 15 years, who had suffered from several attacks of renal colic during a period of ten years. A calculus was felt in the pelvis of the kidney after laparotomy had been performed on the left side, but it could not be detected when an incision into the kidney was made through the lumbar region. Death occurred from shock. The right kidney was healthy.

See *Male Surgical Register*, vol. iii. (1886), No. 1312.

SERIES XXIX.

DISEASES AND INJURIES OF THE URINARY BLADDER.

2408a. A Bladder from which the whole of the mucous lining, preserved in specimen No. 2408b, has sloughed. The bladder wall is soft and easily lacerated, and its inner surface is rough and ulcerated. The prostate is natural, but the urethra has sloughed round an aperture in the perineum. The cæcum was found to be adherent to the upper surface of the bladder; but on separating the two surfaces, the whole of the fundus separated as a slough, leaving the aperture seen in the specimen. The edges of the bladder after the separation of the slough presented a ragged border. The kidneys were in a condition of tubal nephritis. There was no stricture of the urethra.

See *Transactions of the Pathological Society*, vol. xxxix. p. 164.

2408b. The whole of the Mucous Membrane of the Urinary Bladder, with a portion of the muscular coat, which was found as a slough in the bladder, preserved as specimen No. 2408a. The surface of the slough is covered with a rough phosphatic deposit.

From a man aged 36, who was admitted with retention of urine of three days' duration. A small catgut was passed upon a railroad catheter and retained, three or four

pints of urine draining away. Much blood passed, and it was conjectured that the bladder contained blood-clot. Though the urethra admitted a No. 10 English catheter five days after admission, the patient was unable to void urine spontaneously, and in spite of antiseptic precautions, the urine became foul and ammoniacal. A month after admission perineal cystotomy was performed, but was followed by only temporary improvement; suppuration continued, and he died two months after admission. See *Male Surgical Register*, vol. v. (1887), No. 2487.

2417a. A Bladder containing Multiple Mucous Polypi. The organ is much hypertrophied and somewhat dilated. The trigone, and the whole wall over an area which extends in all directions from the urethral orifice for a distance of about an inch, is occupied by polypoid growths. The polypi are numerous, and their stalks are, in the majority of cases, slender. In many places the growths are compound, one stalk bearing several tumours. The growths vary in size; some are no larger than a pea, and closely resemble the small hypertrophied synovial fringes met with in osteo-arthritis, whilst others are as large as the top of the finger or thumb. The two largest polypi (which are suspended below the preparation) were found loose in the bladder on the left side of the bladder wall, and to a less extent upon its posterior surface are some sessile growths which closely resemble the polypi. In the parts where the sessile growths are found the mucous membrane is ulcerated. The polypi on section are soft, fleshy, and gelatinous. Microscopical examination showed that they consisted of myxomatous tissue, in which are numerous oval connective tissue capsules. The muscular coat of the bladder is inflamed, but not ulcerated.

From a boy aged 9 years, who had incontinence of urine for four months before his death, and who suffered great pain in his hypogastrium and loins. The pain was worse on defecation and when he passed his water voluntarily. It was also increased by exercise and jolting. The urine, which passed in a full stream, was very foetid, and contained albumin, urates, and pus. No stone was discovered on sounding, but a soft mass was felt in the region of the trigone. He passed blood in his water only on one occasion. At the autopsy the kidneys were found to be much enlarged and the pelves and calyces were dilated. The glandular substance was dark red, with numerous patches of suppuration. The capsule was thickened and easily separated, whilst the ureters were dilated to the size of the little finger.

See *Male Surgical Register*, vol. ii. (1887), Nos. 183 and 1908, and *St. Bartholomew's Hospital Reports*, vol. xxiii. pp. 236-238.

2421a. Portions of a Papillomatous Growth removed from the bladder during life by an opening made through the abdominal walls. The growth, which was of about the size of a small walnut, was attached to the side of the bladder, a little above and behind the left ureter. Microscopically, the growth consists of branching processes of fibrous tissue covered by one or more layers of oval epithelial cells.

From a man aged 46, who had observed blood in his urine for five years before his death. The urine sometimes stopped whilst he was micturating. There was much pain after micturition and during defecation, as well as when pressure was made over the pubes. The patient died two days after the bladder was opened. At the autopsy the bladder was found to contain much blood.

See *Male Surgical Register*, vol. v. (1887), No. 3296.

2426a. A Bladder which is Symmetrically Ulcerated in two places. The ulceration is situated upon either side of the trigone. There is also extensive ulceration at the upper and back of the bladder, where a small perforation has taken place into the peritoneal cavity. Through the perforation a glass rod has been passed.

From a man aged 60, who had several attacks of hæmaturia during the years 1883 and 1884. From Christmas 1885 until his death in August 1886 the hæmaturia was constant but painless. At the post-mortem examination general peritonitis was found. There were no secondary growths or enlarged glands.

See *Transactions of the Pathological Society*, vol. xxxviii. p. 181.

Presented by W. Bruce-Clarke, Esq.

2426b. The Bladder and Left Kidney, showing an epithelioma of the bladder leading to occlusion of the ureter. The bladder is ulcerated over the whole extent of the trigone, and presents in this region a slightly raised epitheliomatous appearance. The left ureter is completely blocked for about half an inch by the extension of the growth into it, and as a result of this occlusion it is greatly distended, and was filled with thick creamy pus. The kidney is converted into a large sacculated cyst, the renal substance being completely absorbed. Microscopical examination of the ulcerated portion of the bladder shows that it is infiltrated by a typical epithelioma.

From a man aged 44, who had suffered for eighteen months from hæmaturia and difficulty in passing water.

See *Male Surgical Register*, vol. iii. (1886), No. 3136.

2439a. A Piece of Solder removed from the bladder by the operation of median perineal urethrotomy.

From a watchmaker aged 47, who had been cut for stone twenty-two years previously. He always suffered pain before passing water, which he relieved by passing a No. 10 catheter. He passed a piece of solder along his urethra on one occasion when he had no catheter, but in withdrawing it the stick broke, and a part passed into his bladder.

See *Male Surgical Register*, vol. iv. (1888), No. 898.

2440c. A Bladder which has undergone extensive extra-peritoneal laceration. A large rent is situated on either side of the organ, about three-quarters of an inch above the vesical orifice of the urethra. The lacerations communicate with a cavity large enough to hold a small orange, which existed between the back of the pubes and the front of the bladder. The membranous portion of the urethra is also torn transversely. The peritoneum was not ruptured, but there was extensive extravasation of urine into the cellular tissue of the pelvis and the back of the abdomen.

From a boy aged 14, who fell between a railway platform and a moving train. There was a fracture through both horizontal rami of the pubes as well as through the descending ramus of the ischium. The patient survived the injury for thirty-three hours.

See *Male Surgical Register*, vol. iii. (1887), No. 1181.

2443a. A Bladder upon which the operation of suprapubic lithotomy was performed three days before the death of the patient, for the removal of an encysted calculus. The bladder is somewhat hypertrophied, and in addition to the pouch and depression which are seen in the specimen, there is a cavity in the left side of the prostate, which was filled with prostatic calculi. A few of these calculi have dropped out, and are seen at the bottom of the bottle.

From a man aged 57, who had for some years suffered from slight hæmaturia and cystitis, with frequent micturition. He had been sounded several times, but always with a negative result. In 1886 he came under the care of Mr. Swinford Edwards, and after a prolonged examination under chloroform, a stone was detected. As it was impossible to seize the stone with a lithotrite, suprapubic lithotomy was performed, and a stone was found impacted in the pouch at the left side of the bladder. The stone was removed with some little difficulty, and with it some calculous material from the depression situated near the apex of the bladder, into which a glass rod has been inserted. The patient died three days later with suppression of urine. At the autopsy the kidneys were found to be granular.

Presented by F. Swinford Edwards, Esq.

SERIES XXX.

DISEASES AND INJURIES OF THE BRAIN AND ITS MEMBRANES.

2446b. A Portion of the Calvaria which has been fractured on the right side in the temporal region. The fracture has led to rupture of the middle meningeal artery. As a result of the rupture, a free hæmorrhage has taken place between the dura mater and the skull, and this has formed a large and very dense clot, which is well seen in the specimen.

From a woman aged 65, who was run over by a van. She had a fracture extending through the middle fossa of the skull, with much laceration of the brain substance.

See *Female Surgical Register*, vol. ii. (1888), No. 2052.

ANGIOMA OF THE CEREBRAL MEMBRANES.

2466c. The Angioma forms an oval swelling, situated upon a vein, and lying upon the under surface of the pia mater, covering the angular gyrus. The vessels around the tumour are numerous and enlarged. The tumour itself measures, after preservation in spirit, one inch in length by three-quarters of an inch in diameter. It consists of a close plexus of blood-vessels, which have an average diameter of one-eighth of an inch, and are of sufficient size to take a coarse injection of gelatine and carmine. The vessels appear to be derived from the vein upon which they lie, reinforced by branches from the neighbouring veins.

From a man aged 20, who suddenly became comatose after returning from work in an apparently healthy condition. He very soon became semi-conscious, with symptoms of left-sided hemiplegia and divergent squint. Two days after the seizure

the patient had several attacks of opisthotonus, with spasm of the left limbs; and he died two days later. At the post-mortem examination a large irregular hæmorrhage was found in the right cerebral hemisphere. The origin of the hæmorrhage was evidently the tumour situated upon the surface of the right angular gyrus. The hæmorrhage extended from the surface of the brain to the posterior part of the internal capsule, and had neither burst into the lateral ventricle nor externally. The spinal cord and other organs of the body were quite healthy.

See *Luke Ward Book* for 1887, No. 159; *St. Bartholomew's Hospital Reports*, vol. xxiii. pp. 179-181; *Transactions of the Pathological Society*, vol. xxxix. p. 4.

2468b. The Dura Mater from a case of partial perforation of the skull by a sarcoma of the brain. The membrane presents numerous clean-cut perforations answering to the holes in the skull.

The calvaria is preserved in Series i. No. 549a.

See also the *Transactions of the Pathological Society*, vol. xxxix. p. 1.

2483b. The Left Cerebral Hemisphere of a Microcephalic Brain. The whole brain only weighed 28½ ounces, the left hemisphere weighing 12½ ounces and the right 12¼ ounces. The dura mater was thickened and adherent to the skull in several places. The pia mater was adherent over the middle third of the ascending frontal convolution.

From a married woman aged 30 years, who had borne no children. There was a history of fracture of the skull, and it was probable that she had been a drunkard. She had hallucinations of sight, fancying that people were coming to kill her. After admission into Broadmoor, her history was one of progressive general paralysis—restlessness, destructiveness, grandiose ideas, followed by general paresis and dementia, with frequent attacks of epileptiform convulsions. She rapidly wasted during the last two months of her life.

Presented by David Nicolson, Esq., M.D.

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 1¼ inches 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 Majendie 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.

2523a. The Left Cerebral Hemisphere, showing extensive laceration of the under surfaces of the frontal and temporo-sphenoidal lobes. The pia mater has been extensively torn, and the cerebral substance in the neighbourhood of the lacerated portions is contused.

From a builder aged 26, who fell twenty-five feet. He had a fracture of the skull extending across the right frontal, parietal, and occipital bones, and passing through the petrous portion of the temporal to the foramen lacerum medium.

See *Male Surgical Register*, vol. v. (1887), No. 519.

SERIES XXXIII.

DISEASES AND INJURIES OF THE EYE AND ITS APPENDAGES.

2570a. Section through an Eye embedded in a round-celled sarcoma, which appears to have sprung from the connective tissue lying in the lower and back part of the orbit. The pressure of the growth has compressed the eyeball until it is almost triangular in shape, whilst the sclerotic coat is atrophied.

From a boy aged 8 years, who complained of a dimness in his left eye four months before his death. Ophthalmoscopic examination revealed the presence of yellow patches upon the retina. In a week or two the eyeball began to protrude, and the eye was removed. Two months after the first appearance of the symptoms in the left eye the right eye became affected in the same manner, and the patient died after a severe hæmorrhage from the left orbit. At the autopsy sarcomatous growths were found in the falx cerebri and in the posterior portion of the brain. The glands of the neck were involved.

The boy had two severe falls, one on the crown of his head four years before his death, and the other on his forehead from the eaves of a house eighteen months later. The maternal grandmother died of cancer of the breast.

A photograph of the boy as he appeared a month before his death is preserved in Series lvii. No. 392c.

Presented by H. C. Alderton, Esq.

SARCOMA OF THE CONJUNCTIVA.

2578a. A Section through an Eyeball, showing a tumour growing beneath the conjunctiva at the upper sclero-corneal margin. The growth spreads downwards towards the cornea, which it covers but does not infiltrate. Whilst it was fresh, the tumour was a roundish, lobulated, and vascular

growth, protruding about half an inch beyond the orbit. It was firm to the touch, and was not tender. Microscopically, it is a round-celled sarcoma.

From a woman aged 67, who had suffered pain and gradual loss of vision in her right eye for a period of five years. For two months preceding the extirpation of the globe the patient noticed that her eye protruded a good deal, and that an increased quantity of discharge came from it.

A drawing of the patient is preserved in Series lvii. No. 392b, and a section of the growth in Series lv. No. 111e.

See *Alexandra Ward Book* for 1887, No. 1597.

2619a. The Posterior Portion of the Right Eyeball, showing the advanced degenerative changes which have resulted from intraocular hæmorrhage. The cavity of the eyeball is divided by the detached retina into two portions, each of which is filled with blood-clot. The hæmorrhage appears to have taken place between the sclerotic and the choroid.

From a woman aged 58, whose globe was extirpated on account of a severe attack of sympathetic iritis, set up by suppuration in the left eye. The suppuration followed upon an extraction of the lens.

See *Alexandra Ward Book* for 1887, No. 1745.

2634a. Posterior Half of the Right Eyeball, showing a dark-coloured tumour springing from the choroid, and pushing the retina in front of it. The growth arises from the posterior portion of the orbit. Microscopically, it consists of a round-celled melanotic sarcoma.

From a woman aged 52, whose globe was extirpated for the relief of chronic glaucoma.

See *Alexandra Ward Book* for 1886, No. 1840, and for 1887, No. 2669.

2637a. A Segment of the Posterior Half of the Eyeball, showing a small round and deeply pigmented melanotic sarcoma growing from the choroid. In its growth the tumour has detached and pushed forward the retina. Microscopically, the growth is a spindle-celled sarcoma, containing an unusually large amount of pigment.

The growth of the tumour gave rise to chronic glaucoma, which culminated in an acute attack.

A section of the tumour is preserved in Series lv. No. 111c.

Presented by Sir Henry Wentworth Acland, K. C. B.

2651b. The Anterior Portion of the Left Eye, showing a piece of spectacle glass firmly lodged between the remains of the lens and the margin of the ciliary processes. The anterior chamber was filled with cholesterin.

From a gentleman aged 27, whose spectacles were broken by a blow from a stone seven years before removal of the eyeball. An iridectomy was performed one month after the injury and after a traumatic cataract had been formed. A year after the iridectomy the capsule of the lens was divided with two needles. For six years the eye gave no trouble, but it was then affected with repeated attacks of inflammation, and the right eye showed signs of sympathetic irritation. The patient made a good recovery.

A drawing is preserved in Series lvii. No. 395i.

See *Albert Edward Ward Book* for 1887, No. 3773, and *St. Bartholomew's Hospital Reports* for 1889, vol. xxiv. p. 201.

SERIES XXXIV.

DISEASES OF THE EAR AND ITS APPENDAGES.

2670b. An Epithelioma involving the Right Auricle. The disease occupies a large portion of the external surface of the auricle, including the concha and antihelix, but it does not penetrate through its whole thickness. The growth forms an irregular sprouting mass, which is in parts coloured black with blood. Microscopically, the growth is a typical epithelioma.

From a man aged 62, who noticed a small pimple on his ear eighteen months before the operation. The growth remained quiescent for fifteen months, and then rapidly increased in size and began to ulcerate.

See *Male Surgical Register*, vol. ii. (1886), No. 2692.

SERIES XXXV.

DISEASES AND INJURIES OF THE SKIN AND ITS APPENDAGES.

SYPHILIS.

2703a. A Portion of Skin of the Leg, showing the marks of a squamous syphilide.

From a man aged 28, who died of œdema glottidis. The larynx is preserved in Series x. No. 1612a.

HAIRY MOLE.

2707b. A Hairy Mole removed from the left cheek of a girl aged 22. It is covered with numerous long silky hairs.

See *Female Surgical Register*, vol. v. (1886), No. 384.

2717a. A Recurrent Tumour removed from the Scalp. It is nodular, and has infiltrated the deep tissues. The section shows that it consists of a dense white tissue. Microscopically, it is an alveolar carcinoma. The stroma is exceedingly scanty; the alveoli are large, and are packed with epithelial cells. The surface of the epithelium is not involved. The growth appears to have originated in some of the glandular structures of the skin.

See *Male Surgical Register*, vol. iii. (1888), No. 1244.

Sections of the primary and recurrent growths are preserved in Series Iv. Nos. 113h and i.

SERIES XXXVI.

DISEASES OF THE TESTICLE, ITS COVERINGS,
AND OF THE SPERMATIC CORD.

ABSCESS OF THE TESTIS.

2762a. A Section of the Left Testicle with a Portion of the Cord. The body of the testis presents a large oval abscess cavity partially filled with caseating material. The abscess has a very thick wall, and has destroyed almost the whole of the glandular substance. The globus major has also a small abscess in its substance.

From a man aged 36, who noticed a swelling in his left testis for two years. The right testis began to swell eighteen months after he first observed the enlargement of the left. Before removal, the left testis was of the size of a lemon, and felt hard and uneven. There was no pain on pressure; the epididymis was hard and thickened, and the spermatic cord was thickened.

See *Male Surgical Register*, vol. v. (1888), No. 2227.

2780a. The Right Testicle and Epididymis laid open to show tubercular deposits. The epididymis is enlarged and infiltrated with caseous material, which has broken down into an abscess in the globus minor. The testis is not enlarged, but it contains several nodules of recent tubercle. The vas deferens has been dissected out. It is blocked with caseous material, but it is not greatly thickened.

2780b. The Left Testicle from the same case as the preceding. The tunica vaginalis has been laid open to show the position of a hydrocele which existed during life. The epididymis is very greatly enlarged, but the testis is not affected, so far as can be seen without laying it open. The vas deferens is slightly thickened, and is blocked by caseating material.

From a man aged 41, a valet by occupation, who died of general tuberculosis. Ten months before his death he observed a swelling on the inner side of his right knee. The swelling was said to have attained its maximum size in two or three days, and the patient was certain that it was not the result of an injury. The cyst was aspirated on two occasions, and synovial fluid containing flakes of mucus was removed.

See *Male Surgical Register*, vol. ii. (1886), Nos. 449, 1353, 2021, and 2868.

The knee is preserved in Series vi. No. 1205f.

2797e. A Testicle with its Epididymis infiltrated with a chondro-cystic sarcoma. The gland is greatly enlarged, measuring 4 inches in length by $2\frac{3}{4}$ inches in diameter. The testicular substance is replaced by cysts and nodules of cartilage. Externally the tumour is hard and lobulated. Microscopically, the nodules consist of hyaline cartilage with a slightly fibrillated matrix, whilst the softer parts consist of a fibrous and homo-

geneous stroma containing numerous round and oval connective tissue cells. The cysts are formed from the glandular substance of the testis; they are lined with a layer of columnar epithelial cells.

From a clerk aged 28, who first noticed a swelling in his left testicle five years before his admission to the Hospital. The swelling was painless and only caused inconvenience by its weight. It was densely hard. There was no enlargement of the spermatic cord nor of the glands, and the skin over it was not adherent. The patient died ten months after the operation from a recurrence of the growth in the abdominal viscera.

See *Male Surgical Register*, vol. ii. (1886), No. 2487.

VARICOCELE.

2816a. A Spermatic Cord in which the veins of the pampiniform plexus have been dissected out after having been partially injected. Many of the veins are enlarged and tortuous, exhibiting the condition found in an early stage of varicocele.

From a man aged about 30 years.

2816b. A Spermatic Cord which has been treated in the same way as the previous one. The spermatic veins are less numerous and tortuous.

2816c. A Spermatic Cord in which the veins of the spermatic plexus have been dissected out and painted blue. It will be seen that they are large, numerous, and tortuous.

See also microscopical sections preserved in the Cabinet, Nos. 1121 a and b.

SERIES XXXIX.

DISEASES OF THE PROSTATE GLAND.

2842b. A Bladder in which senile enlargement of the prostate was treated by electrolysis. The bladder is hypertrophied and a little sacculated. The whole thickness of the bladder wall, and of the contiguous rectum in the region of the trigone, has completely sloughed, and a ragged opening of the size of a shilling unites the cavities of the rectum and bladder. The prostate gland is enlarged to about three times its natural size. The middle lobe is as large as a hazel-nut; it is detached on its left side, and is only united to the rest of the gland by a thin pedicle. It was sloughing.

From a man aged 70, who had suffered for two years from symptoms of enlarged prostate. After the performance of median cystotomy a current from ten cells of a Stohrer's battery was applied for half an hour to the middle lobe of the prostate. The patient died twelve days after the operation.

See *Male Surgical Register*, vol. v. (1885), No. 2477.

SERIES XLI.

DISEASES OF THE OVARIES.

INTERSTITIAL HYPERPLASIA OF THE OVARY.

2903a. A much Hypertrophied and Elongated Right Ovary, which contains a small unilocular cyst at its outer extremity. The Fallopian tube is enormously thickened and enlarged, the thickening being chiefly due to an increase in the muscular tissue contained in its wall. The specimen shows the changes in the ovary and Fallopian tube which are often found in cases where large myo-fibromata of the uterus have existed.

From the preparation of uterine fibroid preserved in Series xliii. No. 2956a.

2903b. A greatly Enlarged Ovary, which is covered by old adhesions. There are numerous cysts on the surface, probably dilated Graafian follicles.

2904d. A Large and absolutely Unilocular Ovarian Cyst, removed from a patient at the Samaritan Hospital. The fluid was viscid, like that usually found in the multilocular variety. The interior of the cyst is free from any trace of septa.

Presented by W. A. Meredith, Esq.

2924b. A Specimen illustrating the formation of a Tubo-Ovarian Cyst. It consists of the right Fallopian tube, which is adherent by its fimbriated extremity to the outer end of the ovary. The closure and dilatation of the fimbriated extremity of the tube has led to the formation of a small hydro-salpinx. There is a unilocular cyst of the size of a pigeon's egg at the outer side of the ovary, and between this cyst and the hydro-salpinx, *i.e.*, at the outer end of the hilum, is a small papillomatous cyst containing warty growths. No communication has as yet taken place between them.

2924c. A Specimen showing the Formation of a Tubo-Ovarian Cyst. The uterus is anteflexed, and the pouch of Douglas is occupied by the distended Fallopian tubes, which, with the ovaries, are bound down by peritonitic adhesions of long standing. The left Fallopian tube, which encircles an otherwise healthy ovary, presents the usual characters of hydro-salpinx. Its uterine extremity appears to be obliterated at a point which is just external to the uterus. The right Fallopian tube is adherent to, and communicates with, a cyst which was originally bilocular. The cyst is of very small size, but it involves the whole of the ovary. No trace of the free ends of the fimbriæ can be found, but the tube is patent throughout its course. It is dilated up to the uterine extremity, its interstitial portion remaining normal.

A drawing is preserved in Series lvii. No. 501b.

CYSTIC FIBROMA OF THE OVARY.

2927a. One Half of a Large Solid Tumour of the Ovary, removed by abdominal section. The tumour consists of connective tissue of the same type as the stroma of the ovary, but in every stage of development into pure connective tissue. Some parts of the tissue are much less dense, and are of looser texture than others, which are hard and nodular. The less dense portions are undergoing mucoid degeneration, and are probably the first stages in the formation of the cysts. The cysts are simply cavities bounded by dense connective tissue; they have no epithelial lining; they contained a large quantity of thin greenish straw-coloured alkaline fluid, which coagulated spontaneously.

From a woman aged 47, who had been married fourteen years, and was the mother of three children, the youngest being seven years old. The tumour was first noticed five years before she applied for relief. It was situated in the lower part of the abdomen, and after remaining nearly stationary for two years, it began to increase rapidly in size. The patient developed whilst she was in the Hospital a large pelvic abscess, which caused an attack of acute intestinal obstruction, but the abscess eventually discharged itself per vaginam. A good recovery was made after the performance of ovariectomy.

See *Martha Ward Book* for 1888, No. 25.

SERIES XLII.**DISEASES OF THE UTERINE APPENDAGES.**

2934b. A 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.

SERIES XLIII.**DISEASES OF THE UTERUS.**

2950a. An Inverted Uterus, with portions of the Fallopian Tubes removed by the écraseur. The fundus of the uterus is affected by a myxo-sarcoma. The organ was removed whilst extirpating the malignant growth. The mass was of a soft, gelatinous, and very vascular consistency. Microscopically, it is a round-celled myxo-sarcoma.

From a woman aged 48, who had not menstruated for four years. For eight months she had suffered from menorrhagia and offensive discharge. She died of acute peritonitis six days after the operation.

See *Martha Ward Book* for 1887, No. 96.

PARAMETRITIS DEXTRA (PURULENT).

2951e. The Uterus with its Appendages and the Lower Portion of the Bladder, from a woman aged 24, who suffered from an irreducible retroversion of the uterus in the fourth month of her first pregnancy. The uterus is large but empty; the left appendages and broad ligament are healthy. The right broad ligament is distended with pus and sloughing cellular tissue extending from the Fallopian tube above to the levator ani below, and from the side of the uterus to the side of the pelvis. The right ovary is adherent to the posterior surface of the broad ligament, it is suppurating, and communicates with the abscess in the broad ligament. The abscess opens into the peritoneal cavity by two large apertures situated on its posterior and upper surfaces. These openings did not exist during life, though the tissues which occupied their places were gangrenous. The right Fallopian tube passes round the upper margin of the upper opening, its fimbriated extremity being seen on the outer border. The bladder was black and gangrenous throughout its whole thickness, and the upper part of the urethra is greatly dilated.

From a woman aged 24, who was four months pregnant. A mass of adhesions, which was felt during life to the right of the uterus, prevented its replacement even after the induction of abortion, which was effected twelve days before the death of the patient. At the post-mortem examination these adhesions were found to be between the transverse colon, the great omentum, and some small intestines which were fixed to the bladder and to the upper and anterior surfaces of the right broad ligament.

See *Martha Ward Book* for 1887, and *Transactions of the Obstetrical Society* for 1888, vol. xxx. p. 5.

ADENOMA OF THE MUCOUS MEMBRANE OF THE BODY OF THE UTERUS.

2962a. A Uterus with its Appendages. The mucous membrane of the body is seen to be so greatly thickened as to form small masses which project into the uterine cavity. The cavity of the uterus is filled with thick tenacious mucus similar to that which is secreted by the cervical glands. The cervix is normal. Microscopically, the mucous membrane of the body of the uterus consists of a mass of dilated glands lined by a single layer of goblet cells. Many of the gland ducts are occluded to form small retention cysts.

The Fallopian tubes only present senile changes.

The ovaries are small, hard, and white; a pedunculated cyst, as large as a marble, is in connection with the left ovary.

From a woman aged 63, who for fifteen or twenty years before her death had suffered from myxœdema with atrophy of the thyroid gland. There was an effusion into the chief serous cavities of the body.

Presented by James Berry, Esq.

CHANNELLED POLYPUS.

2967a. A Channelled and Pedunculated Polypus removed from the uterus. The peduncle is solid, but the polypus itself is hollow, and is lined by a smooth membrane. The wall is deficient at one part, and presents a large oval aperture.

2976c. A Large and Irregularly Bilobed Mass, which hung by so long a pedicle from the cervix uteri as to protrude through the vulva of a nulliparous woman aged 17. Microscopically, the growth is a fibrosarcoma which is undergoing mucoid degeneration. There are numerous cysts lined with columnar epithelium, and in some parts there are islets of cartilage, which are not always well differentiated from the surrounding tissues.

See *Transactions of the Obstetrical Society* for 1886, vol. xxviii. p. 178.

Presented by Dr. Galabin.

SCIRRHUS OF THE CERVIX UTERI.

3007a. The Right Half of the Uterus Bladder and Vagina, from a case of scirrhus cancer, obliterating the cervical canal. The disease, which chiefly affects the cervix, has spread to the vesico-vaginal, and urethro-vaginal septa. There is no intravaginal outgrowth. The cavity of the body of the uterus is greatly dilated and contained pus. Its walls are thickened, partly by hypertrophy, and partly by the spread of the disease. In the other half of the preparation the disease extended as far as the ovarian ligament, where it formed a tumour. Microscopically, the growth consisted of spheroidal cells in dense connective tissue alveoli.

From a woman aged 51, who had suffered for eleven months from malignant disease of the uterus. In consequence of the growth pressing upon the rectum to such an extent as to cause obstruction to the passage of fæces, colotomy was performed. Ten days before the death of the patient a spontaneous fracture of the left femur occurred. At the autopsy secondary deposits of cancer were found in the liver and in the femur at the seat of fracture.

See *Female Surgical Register*, vol. iv. (1886), No. 2157.

3010a. A Sagittal Section of the Uterus, with parts of the Rectum and Vagina. The rectum is the seat of advanced cancer, which has spread to the posterior wall of the uterus, obliterating Douglas' pouch. The cavity of the body of the organ is dilated, its greatest depth being a quarter of an inch. The dilatation extends for about a quarter of an inch into the interstitial portion of the Fallopian tube, the rest of the tube being undilated. The body of the uterus is anteflexed.

SERIES XLV.

DISEASES OF THE OVUM AND ITS MEMBRANES.

HYPERPLASIA OF THE CHORION STEMS, WITH PARTIAL CYSTIC DEGENERATION (MYXOMA FIBROSUM OF VIRCHOW).

3043a. A Portion of a Kidney-shaped mass, which measured eight inches in length, and which had the appearance, when fresh, of a mixed fleshy and hydatid mole. It consists almost entirely of chorion. The amnion is collapsed and compressed, and measures four inches in length. No remains of a foetus or cord are visible. It is covered by a thin layer of decidua, and in parts by blood-clot, which has penetrated deeply between the bundles of chorion stems. The stems are branched, and appear as bundles of solid rods, which interlace. The rods vary in thickness from one-sixteenth to one-eighth, and in places even to three-sixteenths of an inch in thickness; they are not uniformly enlarged throughout their whole length, but vary in different parts. The thickening of the stems is due to an increase of the normal myxomatous core tissue. All the rods examined microscopically are devoid of blood-vessels, the exochorionic epithelium has in places disappeared, but in general appears to be normal. In some places cystic degeneration has occurred, but the cysts are not numerous.

From a woman aged 39, the mother of eight children, the last of whom was born in January 1886. The patient believed that she again conceived in March 1886, the abdomen increasing in size until the following October. In June and July there was an occasional slight discharge of blood-stained fluid. After October the abdomen decreased, and on January 25, 1887, the mass was expelled without hæmorrhage twenty-four hours after the commencement of pains.

See *Transactions of the Obstetrical Society*, vol. xxix. (1888), p. 82.

Presented by Dr. Griffith.

SERIES XLVI.

DISEASES AND INJURIES INCIDENTAL TO
GESTATION AND PARTURITION.

3066a. A Foetus about the third month of intra-uterine life, compressed and distorted, measuring $2\frac{1}{2}$ inches in length. The attitude appears to be the result of prolonged pressure from repeated uterine contractions occurring after its death. The amnion is enormously thickened by a substance resembling the gelatine of Wharton. The placental portion of the membranes is of a pale yellow colour.

Presented by Dr. Griffith.

3073a. A Secondary or Papyraceous Fœtus, of about eight weeks' development. It came with a mature living fœtus. The mother was aged 39 years, and it was her tenth pregnancy.

3077b. An Extra-Uterine Fœtus, removed through a vaginal incision by Dr. Godson ten days after its supposed death. The gestation cyst was situated behind the uterus. Craniotomy and perforation of the thorax had to be performed before delivery could be effected. No hæmorrhage followed. The placenta was found detached on the sixth day, and was removed. The patient recovered.

From a woman aged 37, married at 16. She had two children, and became a widow at 22; married again at 25; had one child at 30; no miscarriages. The pregnancy was supposed to have arrived at the twenty-fifth week.

See *Martha Ward Book* for 1884, No. 216, and *Obst. Trans.*, vol. xxix. p. 499.

SERIES XLVIII.

DISEASES OF THE MAMMARY GLAND.

3146c. A Portion of the Mammary Gland containing two large and well-defined unilocular cysts. The breast tissue also contains numerous smaller cysts. Microscopical examination shows that the cyst wall resembles granulation tissue, being chiefly composed of leucocytes lying in a loose fibrous stroma. A section of the breast around the cyst shows a fibrous stroma in which is embedded normal gland tissue and cysts formed by the dilatation of the acini. The epithelium of the lactiferous ducts is proliferating.

From a married woman aged 44, who had sero-cystic disease of both breasts.

See *Female Surgical Register*, vol. iv. (1886), No. 2459.

3161d. A Portion of a Mammary Gland, showing two large cysts filled with intracystic growth. The largest cyst is circular in outline and measures two inches in circumference; it has a well-defined outline, and its lower part is occupied by a firm white intracystic growth. Microscopically, this growth is a nearly pure fibroma, containing in some parts an excess of connective tissue and myxoma cells. The free surface of the tumour is covered by a layer of flattened epithelial cells. Both cysts contained blood, which has been coagulated into a dense clot by the action of the spirit in which the specimen is preserved.

From a married woman aged 48, with no children. She fell upon the right breast three months previously.

See *Female Surgical Register*, vol. iv. (1887), No. 2697*.

3163b. A Portion of a very large Sero-Cystic Tumour of the Breast. The growth is encapsuled by firm fibrous investment, which sends trabeculæ

inwards. The cysts are numerous but small, and the whole tumour has a somewhat fibrous appearance. Microscopically, it consists of numerous cysts enclosed in a framework of connective tissue.

- 3165a. Section through a Mammary Gland and the surrounding fat, in which a large mass of scirrhus cancer is embedded. The tissue presents a hard white basis, intersected by bands like fibres, which are best seen at the periphery of the growth. The nipple is much retracted.

From a woman aged 52, whose nipple became retracted about eight months before the breast was removed; shortly after the retraction of the nipple she noticed a lump in her breast.

See *Female Surgical Register*, vol. iii. (1888), No. 657.

- 3181g. Section of a Breast infiltrated with scirrhus cancer, to show the sloughing which occurs after the application of a caustic. The first application was made three weeks before the removal of the gland. Almost the whole of the cancer is separating as a slough.

- 3182a. A Section of the Left Mammary Gland, removed from a woman aged 64. The section shows a large number of cysts, which are for the most part filled with dark blood and broken-down intracystic growth. The cysts are enclosed in a dense fibrous stroma. Some of the ducts are dilated. In the fat surrounding the gland numerous smaller cysts are situated, and these peripheral cysts appear in some places to be continuous with the gland ducts. Microscopically, the growth is of a myxo-sarcomatous nature, into which considerable hæmorrhage has occurred.

A small hard lump was first noticed in the breast for eighteen months before the operation; it grew rapidly. The mother of the patient died of cancer. Immediately before removal of the breast, the upper and inner portion of the gland was occupied by a large irregularly oval swelling, which was hard and irregular. The skin was not adherent, the veins were enlarged, and the nipple was slightly retracted. There were no enlarged glands in the axilla or above the clavicle. The patient died of erysipelas. No secondary growths were found at the post-mortem examination.

See *Female Surgical Register*, vol. v. (1887), No. 1204.

SERIES XLIX.

ANATOMY OF STUMPS AFTER AMPUTATION OF LIMBS.

- 3189a. A Section through a portion of the Stump of the Right Thigh, to show the changes which have taken place as the result of an amputation through the lower third of the femur twenty days before death. The wound has completely healed, and the artery is occupied by a narrow

conical clot, whilst the end of the femur is covered by a layer of fibrous tissue which blocks the medullary canal.

From a man aged 43, whose leg was amputated on account of tubercular disease of the knee-joint.

See *Male Surgical Register*, vol. i. (1887), No. 1406.

3195a. The Head and Neck with the Upper Third of the Shaft of the Femur, from a patient aged 62, whose leg had been amputated forty years previously at the London Hospital. The shaft is atrophied, and is bent upwards upon itself; its lower extremity has numerous spiculæ of bone developed upon it. The medullary canal is completely closed.

See *Male Surgical Register*, vol. ii. (1887), No. 2620.

SERIES L.

GENERAL PATHOLOGY.

PLASTIC OPERATION.

3226c. The Third Finger of the Right Hand, upon which a plastic operation for the cure of contraction was successfully performed a year before the death of the patient. As a result of an accident, the top of the finger was tightly bound down to within a quarter of an inch of the palm of the hand by a dense and unyielding cicatrix. The cicatrix was dissected out, and a graft taken from the skin covering the second and third intercostal space was introduced in its place, the graft being left attached to the thorax by a thick pedicle. A week later the graft was separated from the trunk, and the wound was found to be healing satisfactorily.

From a country boy aged 14, who subsequently died of acute meningitis.

For details of the case, with illustrations, see the *Lancet*, vol. ii. (1881), p. 948.

Presented by Dr. James Adams.

3235e. A Foot with the Lower Third of the Leg, which has been affected with dry gangrene. The dead soft textures had separated from the living, and the foot was apparently removed by sawing through the bone.

From a lady aged 42, who had nursed her son through a mild attack of scarlet fever. During his convalescence, and when the desquamation was nearly completed, she was taken ill with sudden pyrexia and sore throat, but she had no rash. In a day or two she was attacked with pneumonia affecting both lungs. This was attended with great cardiac depression, and death appeared certain with all the symptoms of cardiac clot. She continued in this condition for a few days, and then symptoms of blocking of both popliteal arteries supervened, and both feet became gangrenous. She made a good recovery. There were no symptoms of ulcerative endocarditis.

The other leg is in the Museum of the Royal College of Surgeons, No. 223a

Presented by Thomas P. Greenwood, Esq.

3238a. The Phalanges of the Toes of the Right Foot, which mortified owing to an embolus lodging in the common femoral artery.

A woman aged 37 had a sudden onset of pain nine days after an abortion. The pain occurred whilst walking across the room. It was felt in the left groin, and was followed by a burning sensation and numbness in the foot.

See *Female Surgical Register*, vol. v. (1888), Nos. 254 and 1099.

3261a. A Cartilaginous Tumour removed from the neighbourhood of the knee-joint. The tumour is oval in shape, and has a rough, irregular contour. It is covered by a layer of dense connective tissue, and measures $1\frac{3}{4}$ inches in length by an inch in breadth at its widest part. The section shows that it consists of several masses of hyaline cartilage united together by connective tissue. The largest of these masses is the most central; it is completely calcified, except at its circumference, which still remains cartilaginous. A pad of fat is attached to the posterior surface of the tumour by the fibrous tissue coat which invests the entire mass.

From a blacksmith aged 53, who stated that he had noticed a small flat lump growing for two months immediately below the patella, and almost in the middle line. At the time of removal it appeared as if the mass sprang from the subsynovial membrane of the knee-joint.

A cast of the knee, made before the operation, is preserved in Series lvi. No. 71c.

See *Male Surgical Register*, vol. i. (1888), No. 1503.

3284b. A Section through a Fibrous Tumour growing from the abdominal wall. The tumour measures $1\frac{1}{2}$ inches in length by one inch in breadth. The section has the characteristic appearance of a fibroma. It grew from the fascia of the external oblique muscle.

From a married woman aged 35, who had noticed a swelling in the right anterior iliac region for eight months. The tumour was hard and tense, freely moveable, but not tender.

See *Female Surgical Register*, vol. i. (1888), No. 2789*.

3300a. A Rounded Tumour enclosed in a strong capsule, which was removed from the pectoral region of an old man. On section, the tumour is seen to be of a soft gelatinous consistency, which is in parts hæmorrhagic. In parts, too, there are large degenerative cysts, which in the fresh state were filled with a blood-stained fluid. Microscopically, the growth is a fibro-sarcoma. (Cf. 1174b.)

From a man aged 71. The tumour had only been noticed for three or four months before its removal. It formed a solid elastic swelling beneath the right pectoral muscle. The tumour was moveable on the ribs, and the skin was not adherent over it. There were no enlarged glands. When it was exposed, it was seen to grow from the deep fascia beneath the pectoralis major. It was surrounded by a strong capsule, and after removal the ribs were not found to be bare. The patient had no family history of tumour. There were no enlarged glands.

See *Transactions of the Pathological Society*, vol. xxxix. p. 305.

Presented by S. Paget, Esq.

SERIES LI.

VARIOUS INSTRUMENTS AND SUBSTANCES
PRODUCING INJURIES.

3384b. A Small Piece of Drainage Tube which was removed from a sinus in the neck, where it had remained for $3\frac{1}{4}$ years. The wound healed for eighteen months, but it then suppurated, and continued to discharge until the time of removal.

From a tailoress aged 28.

See *Female Surgical Register*, vol. iii. (1888), No. 555.

3391b. Portion of a Graving Tool removed from the knee-joint of a man aged 56.

A free incision was made after the part had been frozen with ether spray, and the instrument was withdrawn by a pair of forceps. The patient made a good recovery.

See *Male Surgical Register*, vol. iii. (1887), No. 3628.

3391c. A Portion of an Ivory Peg which remained for ten months in the knee of a girl aged 6 years. It has not undergone any appreciable amount of absorption.

From a case in which the knee was excised for long-standing disease of the joint, with rectangular ankylosis. The cut ends of the tibia and femur were pinned together by the peg.

See *Female Surgical Register*, vol. iii. (1887), Nos. 2151* and 840.

3391d. A Metallic Cap covering the end of a pencil, removed by tracheotomy from the left bronchus, which it had occluded.

From a child aged 9 years. Urgent choking and dyspnoea occurred immediately after the foreign body had been drawn into the throat; this was relieved by the passage of a probang down the œsophagus, and the foreign body was believed to have entered the stomach. There was great pain at the time and violent cough. Four days later dulness on percussion and imperfect entry of air were first noted on the left side of the chest. Eleven days after the accident there was marked dulness over the whole of the left side, absence of respiratory murmur, except over a limited portion of the upper part in front, displacement of the stomach upwards to the nipple line, and great retraction of that half of the thorax, indicating almost complete collapse of the left lung. The respirations were 30, the pulse 92. The temperature was subnormal— 97.8° . There was no dyspnoea, but occasional short cough, aggravated by exertion. The conclusion arrived at was that the pencil cap, which was about one inch long and a quarter of an inch in diameter, had lodged in the extreme end of the left bronchus. The child made a good recovery.

See *Transactions of the Royal Medico-Chirurgical Society*, vol. lxxi. p. 112.

Presented by Thomas Smith, Esq.

SERIES LII.

URINARY CALCULI.

135a. A Large Mulberry Calculus, weighing 1 oz. 2 drs. 50 grs., removed from a boy aged 10 years.

Presented by T. Odling, Esq.

165a. Section of a Large Circular Stone thickly and irregularly encrusted with phosphates intermixed with a little calcium oxalate. It weighed 4 oz. 6 drs., and was removed from a Mussulman aged 65 years. The nucleus consists of oxalate of lime surrounded by urate of ammonia, which is succeeded by another layer of oxalate of lime surrounded by urates, the whole being invested by a deposit of phosphates intermixed with a little oxalate of lime.

Presented by T. Odling, Esq.

CALCULI CONSISTING OF OXALATE OF LIME AND PHOSPHATE OF LIME.

172a. Portion of a Small Calculus, consisting of phosphate of lime with a small proportion of uric acid. The calculus is crystalline in structure, and is very brittle. The portion which is preserved weighs 6 grains.

From a boy aged 18, who had suffered with symptoms of renal calculus for about two years. The calculus was removed by the operation of nephro-lithotomy from the pelvis of the kidney, where it lay near a large and hard phosphatic stone.

See *Male Surgical Register*, vol. iii. (1888), No. 3643.

172b. A Small Crystalline Urinary Concretion, weighing 4 grains. It consists of crystals of oxalate of lime and calcium-phosphate.

From a gentleman aged 43, whose urine had often been loaded with lithates. The concretion gave no evidence of its presence until it became impacted in the urethra.

Presented by Dr. H. W. Gell.

209a. A Calculus removed from the Kidney by the operation of nephro-lithotomy. It measures $1\frac{1}{2}$ inches in length, and weighs 68 grains. Chemical examination shows that it consists of urate of ammonium. The calculus is faceted at one extremity, and has evidently been formed in one of the renal calyces.

228a. A Small Oval Uric Acid Calculus, which was removed by incision from the urethra of an adult. It was firmly impacted at the anterior attachment of the scrotum to the penis, and could not be extracted by forceps. The stone had caused retention of urine for three days, the bladder at the time of the operation being distended as high as the umbilicus.

Presented by T. Odling, Esq.

235a. An Oval Uric Acid Calculus, measuring $1\frac{1}{4}$ inches in its long diameter, and three-quarters of an inch across. It was removed by urethral dilatation from a girl aged 3 years. There was some bleeding from laceration.

Presented by T. Odling, Esq.

SERIES LV.

PATHOLOGICAL MICROSCOPIC SPECIMENS.

GOUT.

3f. Section of the Cartilage covering the superior articular surface of an astragalus from a case of gout. The cartilage does not appear to have undergone any material change, but there is a thick deposit of urate of soda immediately beneath its free surface. This deposit extends for some distance into the cartilage in the form of delicate spicules.

From Series ii. No. 709b.

3g. Section through the Articular Surface of a Bone in which there was a deposit of urate of soda. The most superficial layers of cartilage appear to be proliferating more rapidly than usual.

8c. Section of an Exostosis growing from the unguis phalanx of the great-toe.

14a. A Microscopical Section of a Mixed-Celled Sarcoma growing beneath the periosteum of the lower portion of the shaft of the humerus. A considerable quantity of blood has been extravasated into the substance of the tumour. Some of the cells have degenerated into semi-caseous masses.

The growth recurred in the scapula two years after amputation of the arm at the shoulder-joint.

From Series i. No. 446a.

14b. Section of a Sarcoma growing beneath the Periosteum of the Humerus. The tumour is a mixed-celled sarcoma, which is undergoing fatty degeneration.

The growth recurred in the scapula a few weeks after amputation of the arm.

From Series i. No. 446c.

53k. Section of a Loose Cartilage which was removed from the knee-joint. The cartilage closely resembles articular cartilage. In its deeper layer the cells lie with their long axis to the subjacent bone, while towards

the free surface they are small, flattened, and with their long axis parallel with the surface. The bone presents the characters of true osseous tissue.

From Series ii. No. 722.

53l. Section through the Cartilage covering a rheumatic joint. The matrix of the cartilage is fibrillated, and in some places has become almost entirely converted into fibrous tissue.

57f. Section of Synovial Membrane affected with Tubercle, from a case of tubercular ganglion of the wrist.

57g. Section of a Gumma of the Thigh. The growth consists of numerous ill-defined cells, which are in some parts forming new fibrous tissue and in others are caseating.

61a. A Section through the Muscular Fibre of the Heart, showing the changes which precede and accompany the fatty degeneration. In many of the fibres the striation has become indistinguishable, whilst in others there are numerous minute oil globules.

61b. Sections taken from the Heart of a patient who died from purpura.

61c. Section through the Heart from a girl who died of purpura. It is stained to show the micro-organisms described by Mr. Watson Cheyne as occurring in the tissues in cases of purpura hæmorrhagica.

See *Transactions of the Pathological Society*, vol. xxxv. p. 408, and Plate xxviii. fig. 1.

Presented by Dr. Vincent Harris.

64f. A Section of one of the Smaller Cerebral Arteries, whose walls are in a state of atheromatous degeneration.

Presented by Dr. Howard Tooth.

64g. A Section of the Middle Cerebral Artery showing a condition of extreme atheroma.

64h. A Section of the same Middle Cerebral Artery as is preserved in the preceding specimen, showing the position of an aneurysm, the rupture of which caused the death of the patient from whom it was taken.

64i. Longitudinal Section of an Artery showing atheromatous degeneration.

From a patient who died from pulmonary phthisis.

Presented by Dr. Howard Tooth.

68c. Section of a Lung in an advanced case of emphysema. The walls of the alveoli are extremely thin, and the epithelium has entirely disappeared.

Presented by Dr. Howard Tooth.

69e. Sections of a Lung affected with catarrhal or lobular pneumonia. Many of the vesicles contain collections of leucocytes, which are in some places adherent to their walls. The alveoli are nowhere tightly stretched, but in the majority of cases they are filled with large round cells, which are shed off from the epithelium lining the pulmonary alveoli. (Cf. sections of croupous pneumonia preserved in Section 69a, in which the vesicles are filled with leucocytes lying in a mesh-work of fibrin.)

From a child aged 2 years, who died of whooping-cough.
See *Medical Post-Mortem Register*, vol. xiv. p. 326.

Presented by Dr. Howard Tooth.

69f. A Section of a Lung showing chronic engorgement and catarrhal inflammation of the pulmonary tissue. It is to be distinguished from croupous pneumonia by the absence of any fibrinous exudation in the alveoli.

From a child who had obstructive disease of the heart.

Presented by Dr. Howard Tooth.

69g. A Section through a recent Infarct in the Lung, stained to show the presence of micrococci in the blood-vessels. The infarct was septicæmic in origin.

From a child aged 5 years, who had ulcerative endocarditis of the right side of his heart.

See *Medical Post-Mortem Register*, vol. xiv. p. 180.

69h. Section through a greatly thickened Pleura, from a case of long-standing pleurisy. The air vesicles in the immediate neighbourhood of the thickened pleura are filled with small round cells.

69i. Section through a Pleura greatly thickened by an old fibrinous exudation. The walls of the neighbouring air vesicles are in a condition of fibrous degeneration.

See *Medical Post-Mortem Register*, vol. xiv. p. 111.

Presented by Dr. Howard Tooth.

70h. Section of a Lung showing Caseous Degeneration of Miliary Tubercle. Numerous multi-nucleated cells are present, but in the majority of cases they have lost their nuclei, and their substance is converted into caseous matter.

From a man aged 53, who had a pleural effusion on the right side of his chest, with compression and intense engorgement of the right lung.

See *Medical Post-Mortem Register*, vol. xiv. p. 162.

Presented by Dr. Howard Tooth.

- 71h. A Section of the Lung from a case of pneumonia, prepared to show the division of the nuclei of the cells. (Cf. Nos. 73l, 156b, 168b, and 171f.)

Presented by W. G. Spencer, Esq.

- 71i. Section of a Lung from a case of pulmonary cirrhosis occurring in a middle-aged man. No bacilli were found during life in the sputum or after death in the lung tissue.

Presented by Dr. Vincent Harris.

- 71j. A Section made through an Infarct of the Lung showing fibrous change.

From a man aged 58, who had suffered from pleurisy many years previously.
See *Medical Post-Mortem Register*, vol. xiv. p. 101.

EPITHELIOMA.

- 72c. A Section of an Epithelioma of the Floor of the Mouth. There is a very extensive epithelial ingrowth with numerous cell-nests.

ADENOID VEGETATIONS.

- 72d. A Section through an Adenoid Vegetation removed from the Posterior Nares. The growth consists of lymphoid tissue, with denser masses forming Malpighian bodies such as are met with in the spleen and tonsil. The blood-vessels are large and very thin-walled.

- 73l. A Section of a Carcinomatous Tumour of the Upper Jaw, prepared to show the cell-division which takes place at the growing margin. (Cf. Nos. 71h, 156b, 168b, and 171f.)

Prepared and presented by W. G. Spencer, Esq.

- 83e. Section through a Portion of the Peritoneum, which is greatly thickened and is infiltrated with tubercle.

From a boy aged 3, who died with tubercular meningitis.
See *Medical Post-Mortem Register*, vol. xiv. p. 174.

- 86h. Section of a Sarcoma invading the Muscular Coat of the large Intestine.

- 87k. A Section through one of the Multiple Polypi of the Rectum. The polypus consists of simple glandular tissue, but its base is continuous with an adenoid cancer which has infiltrated the whole thickness of the wall of the rectum.

- 87l. Section of the Wall of the Rectum from the same case as the preceding. It will be seen that the carcinomatous growth invades the whole thickness of the intestinal wall.

The two preceding specimens were taken from Series xix. No. 2065a.

90l. A Section showing the Liver of a Child infiltrated with a lympho-sarcoma. It contains numerous small round cells resembling leucocytes. Near the surface of the organ there is still a considerable amount of the glandular liver structure left, but the lobules are separated from one another, and the gland cells themselves are in parts completely surrounded by this small-celled growth. There is comparatively little connective tissue among the small cells in this part. As the central part of the organ is reached, however, considerably more fibrous tissue makes its appearance, though even here the small cells are much more marked than the connective tissue. Here also there has been great destruction of true liver tissue, little islets of gland cells alone remaining.

From a girl aged 5 years, who had been ailing for six months with anæmia and some enlargement of the glands of the neck. She suffered at times from diarrhœa and some slight hæmorrhage from the bowels. When she was first seen, the liver was found to be enlarged to within an inch of the pubes. She died in a state of extreme emaciation.

See *Transactions of the Pathological Society*, vol. xxxvi. p. 236.

Presented by Dr. Howard Tooth.

90y. A Section of a Liver undergoing advanced cirrhotic and fatty degeneration.

90z. Sections of a Spleen which is undergoing amyloid degeneration.

90aa. A Section of a Liver which is infiltrated with encephaloid cancer.

The liver is preserved in Series xxi. No. 2216b.

90bb. A Section of a Liver which is infiltrated with encephaloid cancer.

In many parts of the section the new growth is seen to be undergoing colloid degeneration. There has been an extravasation of blood into the degenerated portions of the tissue.

The liver is preserved in Series xxi. No. 2217b.

90cc. Section of the Liver from a case of acute yellow atrophy. The liver cells are in various stages of disintegration.

From a girl aged 11 years.

See *Medical Post-Mortem Register*, vol. xiv. p. 368.

90dd. Section through a Liver containing an hydatid cyst. The wall of the cyst is formed of fibrous tissue.

See *Medical Post-Mortem Register*, vol. xiv. p. 111.

Presented by Dr. Howard Tooth.

90ee. A Spheroidal-Cell Carcinoma infiltrating the liver and blocking the common bile-duct.

A drawing of the growth in the bile-duct is preserved in Series lvii. No. 2Sob.

90ff. Section of a Large Spindle-Celled Sarcoma invading the liver.

CARCINOMA OF THE ADRENAL.

- 90gg. Section of a Suprarenal Capsule showing the medullary portion infiltrated with an encephaloid cancer.
- 93h. A Section through a Kidney in a state of suppuration. The entire renal substance, with the exception of the blood-vessels, which are engorged, has disappeared, its place being taken by newly-formed connective tissue with numerous leucocytes.
- 93i. A Section through a Kidney which was suppurating. The section shows a large number of minute abscesses scattered through the substance of the gland.
- 93j. Section of a Kidney from a case of leukhæmia.
- 93k. Sections through the Kidney of a man who died with gout. Uric deposits are seen in many of the tubules.
- 95pp. Sections of a Growth from the Bladder. It consists of a hyaline matrix covered with vesical epithelium, and containing mucoid tissue, with numerous round and oval cells (myxo-sarcoma).

The bladder is preserved in Series xxix., and a drawing in Series lvii. No. 331b.

- 95qq. A Section through the Wall of a Bladder infiltrated with a squamous-celled epithelioma. Numerous groups of epithelial cells are seen in the muscular coats.
- 95rr. Section through an Epithelioma infiltrating the bladder wall. The ingrowth of epithelium has extended into the muscular coat. There are no typical cell-nests, but there are many imperfectly formed.
- 96e. A Section through the Pia Mater and Cerebral Convolutions of a man who died with meningitis. The pia mater is greatly thickened and congested, and the brain substance has undergone much degeneration.

See *Medical Post-Mortem Register*, vol. xiv. p. 102.

Presented by Dr. Howard Tooth.

- 97a. Section of the Pia Mater from a case of tubercular meningitis.

From a boy aged 3 years, in whom abundant tubercle was found in the pia mater, on the sides of the cerebral hemispheres, at the base of the brain, and in the Sylvian fissures.

See *Medical Post-Mortem Register*, vol. xiv. p. 174.

SECTIONS OF THE SPINAL CORD FROM A CASE OF LOCALISED SUBACUTE OR ACUTE ANTERIOR POLIOMYELITIS.

- 107n. A Series of Microscopical Sections of the Spinal Cord, from a case of muscular atrophy and gangrene of the lung after typhoid fever. The section taken from the segment of the cord corresponding

to the exit of the third cervical nerve is normal. From the lower part of the segment corresponding to the fourth cervical nerve to the level of the origin of the eighth cervical, both anterior cornua are found to have undergone changes which are generally more marked on the right side, and are most conspicuous at the level of the origin of the sixth and seventh nerves. In the most affected portion, the neuroglia of the grey matter has a general granular appearance. There is an increase in the number of the nuclei of the neuroglia of the grey matter of the anterior cornua. Some of the large multipolar ganglion cells of the anterior cornua are atrophied, the nuclei of these atrophied cells being very indistinct, whilst their processes have disappeared. In some of the sections there are many dilated capillaries filled with blood corpuscles and there are small extravasations. In a few instances the collections of extravasated blood appear to have broken off the processes of the larger ganglion cells. In sections from the level of the origins of the fifth, sixth, and upper part of the seventh nerves there is evidence of destructive inflammatory changes in the substance of the anterior cornua and the adjoining parts of the posterior cornua.

From an unmarried woman aged 26, who had an attack of typhoid fever about three months before her death. Three weeks after her recovery she noticed a loss of power in the right hand, her grasp became feeble, and the wrist dropped. The same loss of power began in the left arm about a week or ten days after it had been observed on the right side. On admission to the Hospital, there was complete loss of faradaic and galvanic excitability in the extensors of the right forearm, whilst the electrical contractility was greatly diminished in the same muscles on the left side. Gangrene of the right lung subsequently set in, and the patient rapidly died.

See *St. Bartholomew's Hospital Reports*, vol. xxiii. pp. 109-117.

Presented by Dr. T. W. Shore.

107o. Sections of the Pons, Medulla, and Spinal Cord from a case of tumour in the right parietal region. There is a descending lesion, with degeneration of the direct and crossed pyramidal tracts.

Presented by Dr. Howard Tooth.

110c. A Section through a Tarsal Tumour, consisting of a large number of round cells enclosed in a capsule of loose fibrous tissue. The sebaceous glands in the neighbourhood are much enlarged.

111c. Section through the Sclerotic and Choroid Coats of an Eyeball. A small melanotic sarcoma is seen to spring from the choroid. The growth consists of a few spindle cells intermixed with a large number of pigmented cells.

A segment of the eye is preserved in Series xxxiii. No. 2637a.

111d. Section of a Melanotic Sarcoma of the Choroid.

The specimen is preserved in Series xxxiii.

Presented by C. L. O. Kanthack, Esq.

111e. A Section of a Round-Celled Sarcoma springing from the conjunctiva over the upper sclero-corneal margin.

From Series xxxiii. No. 2578a.

113h. Section of a Primary Carcinoma from the Scalp. The stroma is exceedingly scanty, the alveoli are large, and are packed with epithelial cells. The surface of the epithelium is not involved. The growth appears to have originated in some of the glandular structures of the skin.

113i. Section of a Recurrent Carcinoma, from the same case as the preceding. The section presents features identical with those just described.

The recurrent growth is preserved in Series xxxiv. No. 2717a.

117a. Hairs affected with the Trichophyton Tonsurans, or the parasite causing ringworm.

Presented by W. E. Green, Esq.

119d. Sections of a Tubercular Testis. The outlines of many of the tubules can be distinguished; there are many giant cells.

119e. Section of the Edge of a Gumma of the Testis. The gummatous tissue consists of a loose fibrous tissue enclosing numerous round cells in its meshes.

TUBERCLE OF THE VAS DEFERENS.

119f. Section through the Vas Deferens from a case of tubercular disease of the testis implicating the spermatic cord. The lumen of the vas is narrowed, and numerous giant cells are seen in its submucous tissue.

123c. A Section through the Penis at the junction of the prepuce with the mucous membrane covering the glans. The epithelium is growing downwards to form an epithelioma.

152a. A Section of an Encephaloid Carcinoma of the Breast.

156b. A Section through the Edge of a Healing Ulcer, prepared to show the division of the nuclei in the peripheral cells. (Cf. 71h, 73l, 168b, and 171f.)

Presented by W. G. Spencer, Esq.

163i. A Section of a Typical Atrophic Scirrhus Carcinoma of the Breast. The more central portion of the tumour consists almost entirely of fibrous tissue. The growth was primary; it recurred secondarily in the liver as a diffuse carcinoma.

A drawing of the liver is preserved in Series lvii. No. 279a.

168b. Section through the Edge of a Sarcomatous Tumour springing from the foot of a dog. It is prepared to show the division of cells which takes place along the growing margin. (Cf. Nos. 71h, 73l, 156b, and 171f.)

Prepared and presented by W. G. Spencer, Esq.

170b. A Section through a Papilloma of the Leg, resulting from the irritation of the skin in the neighbourhood of a callous ulcer.

171f. A Section through the Margin of a Rodent Ulcer, prepared to show the cell-division which takes place at the margin of the growth. (Cf. Nos. 71h, 73l, 156b, and 168b.)

Prepared and presented by W. G. Spencer, Esq.

ADENOID CARCINOMA.

176e. A Section of a Typical Adenoid Carcinoma or Cylindrical Epithelioma from the rectum.

177b. Sections of Nævi, in which, as a result of various curative measures, the cavernous structure is in process of transformation into fibrous connective tissue.

SERIES LVI.

CASTS AND MODELS OF DISEASED OR INJURED PARTS.

1a. Cast of the Right Leg of a Woman who had alcoholic neuritis. There is great muscular atrophy, especially of the flexors of the ankle-joint.

From a married woman aged 31, who had been a heavy drinker. Faradaic and galvanic irritability was impaired in both legs.

See *Mary Ward Book* for 1888, s.v. K. Tailor.

2f. Casts of the Legs and Feet of a Boy aged 11, who had congenital syphilis. The left leg is bowed and thickened as a result of periostitis. It is $1\frac{1}{8}$ inch longer than the right.

A drawing of the patient's teeth is preserved in Series lvii. No. 190c.

See *Male Surgical Register*, vol. iii. (1888), No. 1311.

5a. The Right Hand of a Patient aged 40, in which the thumb and index finger are enormously enlarged. The middle finger was removed during childhood. The fourth and fifth fingers are similarly affected, but to a smaller extent. There was reason to suppose that the deformity was due to the growth of cartilaginous tumours, which appeared to have ossified.

From an out-patient.

- 6b. Cast of the Right Arm and Hand from a Patient aged 18, who had multiple exostoses on his femora, ribs, and right ulna. The radius is greatly widened and bent to its ulnar side, whilst the ulna has a circumscribed exostosis about the centre of its shaft.

See *Darker Ward Book*, vol. iv. (1888), No. 332.

- 13e. Hand of a Child aged 5 years, modelled in wax to show the enlargement of the lower radial epiphysis characteristic of rickets.

Presented by H. Davidson, Esq., M.B.

- 20h. Casts of the Hands from a Woman who had chronic arthritis deformans. The casts show almost typically the various changes of position which occur in this affection. There is a considerable amount of ulnar deviation, with enlargement of the knuckles and hyper-extension of the two distal phalanges. In some of the fingers there is flexion of the same phalanges, due to muscular contraction. (Cf. 144g and 172d.)

From a female out-patient.

- 20i. Casts of the Two Hands of a Middle-aged Woman, showing the effect of a nerve lesion in modifying the deformity accompanying osteoarthritis. The right median nerve was divided at the wrist nine years previously; the joints were affected for five years.

From an out-patient.

- 20j. Casts of the Hands of a Patient showing rheumatic nodules. In the right hand the nodules are situated in the extensor tendons over the second, third, and fourth metacarpo-phalangeal articulations, whilst in the left hand they lie over the third, fourth, and fifth joints. They were neither red nor painful.

From a youth aged 18, who had rheumatic fever when he was seven years old. Similar nodules appeared during his stay in the Hospital over the right olecranon and patella, and on the anterior portion of the right temporal ridge.

See *Luke Ward Book* for 1888, s.v. Thomas Clarke.

- 23e. Cast of the External Genital Organs of a Man who was affected with gout. He had numerous tophi on his ears, eyelids, limbs, and penis.

From a patient aged 59, employed in the Inland Revenue Department, who had his first attack of gout in 1865. The disease affected his toe and the first metacarpo-phalangeal joint. There was no history of gout in his family.

A drawing of the parts as they appeared six months before the cast was made is preserved in Series lvii. No. 463b.

See *John Ward Book* for 1888, s.v. John Luck.

- 23f. Cast of the Middle Portion of the Calf of the Right Leg of a Patient who had gouty tophi along the crest of his tibia.

From the same case as the preceding.

- 27a. Cast of the Right Knee of a Man aged 28, whose patella was fractured transversely by a kick from a horse fifteen years previously. For

thirteen years he was able to work as an agricultural labourer, but after a fall upon his knee the joint became weak. There was fibrous union with $2\frac{1}{2}$ inches separation between the fragments.

See *Male Surgical Register*, vol. ii. (1888), No. 484.

28a. Cast of the Right Leg of a Man aged 59, who had suffered for two years from an ununited fracture of the tibia at its upper third.

See *Male Surgical Register*, vol. iii. (1888), No. 875.

33c. Cast of the Left Foot of a Man aged 48, who sustained a Pott's fracture fourteen months previously. The foot is extended and somewhat everted, as well as slightly displaced backwards.

See *Male Surgical Register*, vol. iii. (1888), No. 1246.

41a. Cast of the Right Arm of a Boy showing an unreduced dislocation forwards of the head of the radius. The accident occurred about three years before the cast was taken.

From a patient at the Foundling Hospital.

41b. Cast of the Left Elbow of a Boy showing a dislocation backwards of the radius and ulna.

From a boy aged 10 years, who fell on his elbow three months before the cast was taken, fracturing his coronoid process and dislocating his radius and ulna. The dislocation was reduced at once, but it subsequently recurred.

See *Male Surgical Register*, vol. i. (1887), No. 3257.

68d. Cast of the Right Foot of a Patient aged 17, who for days had noticed a lump on the outer side of his ankle. The tumour was fluctuating, and was situated in the course of the peronei tendons. It was painful. There was no history of a blow or other injury.

See *Male Surgical Register*, vol. i. (1887), No. 3547.

58a. Casts of the Feet of a Man who had dislocation of the first phalanx of each great-toe, with the development of a bursa over the head of the metatarsal bones.

From a butcher aged 24, who had suffered from bunions for several years.

See *Male Surgical Register*, vol. i. (1888), No. 1746.

58b. Casts of the Feet of the same Patient after excision of the heads of the metatarsal bones of the great-toe.

69c. Cast of the Right Hand of a Woman showing a large cystic tumour springing from the back of the carpus immediately below the annular ligament. It appeared to be in connection with the carpal articulation.

From a married woman aged 46. The swelling had been observed for twelve months. She had been the subject of hip-joint disease when a child.

See *Female Surgical Register*, vol. iii. (1887), No. 2002.

- 71b. A Cast of the Left Knee showing a bilobed enlargement of the bursa patellæ.

From a slater aged 42, who had observed the swelling on his knee for twelve months.

See *Male Surgical Register*, vol. iii. (1888), No. 1572.

- 71c. Cast of the Left Knee of a blacksmith aged 53, who had noticed a small flat lump growing for ten months immediately below the patella, and almost in the middle line. The mass after removal was found to contain calcified cartilage. It sprang from the subsynovial membrane.

The tumour is preserved in Series I. No. 3261a.

See *Male Surgical Register*, vol. i. (1888), No. 1503.

- 72d. Casts of the Hands of a Patient showing clubbing of the distal phalanges.

From a boy aged 12, who had chronic pleurisy with fibrosis of the right lung.

See *John Ward Book* for 1887, No. 40.

- 72e. Casts of the Hands of a Patient aged 39, showing marked clubbing of the fingers. There was no evidence of pulmonary or cardiac disease. The thumb and index finger of the right hand had been amputated sometime previously.

See *Male Surgical Register*, vol. i. (1888), No. 960.

- 90a. Casts of the Feet of a Patient who had double flat-foot (pes planus). The patient had hallux valgus of the toes of the left foot. The peronei tendons are much contracted. The outer side of the left os calcis is almost approximated to the outer malleolus. The movements of the left ankle-joint were good.

From a man aged 42 years, who was a goodsman on a railway. His left foot had been run over by a waggon some years before the cast was taken.

See *Orthopædic Out-Patient Register* for 1888, No. 158.

- 96a. Casts of the Feet of a Boy aged 18, a paper-stainer by occupation. There is a marked swelling of the metatarso-phalangeal joint of the hallux. The right hallux is in a condition of valgus, and the left is in a condition of varus. There is commencing flat-foot.

From an out-patient in the Orthopædic Department, No. 538 (1887).

- 96b. Casts of the Feet of a Patient showing a condition of flat-foot with hallux varus on the left side. In the left foot there is a slight amount of eversion.

HAMMER-TOES.

- 96c. Cast of the Left Foot showing a "Hammer-Toe." The second metatarso-phalangeal joint is in a position of extension, the extensor tendon being fully stretched. The first phalangeal joint is flexed to

its full extent, whilst the second is normal. Over the top of the first phalangeal joint is a small bursa. The great-toe is in a condition of hallux valgus.

From a boy aged 16 years. The hammer-toe was hereditary in the family of the patient. See *Male Surgical Register*, vol. iii. (1888), No. 882.

101a. Cast of the Abdomen of a Man aged 37, who had an obstructed vena cava. The enormous distension of the cutaneous veins is well shown.

See *Mr. Marsh's Out-Patient Letter* for 1888, No. 373.

102d. A Cast of a Face showing a lateral deviation of the septum nasi.

102e. Cast of the Face of a Woman, in whom, as a result of syphilitic necrosis, the whole of the nasal cartilages have disappeared. Cicatrization subsequently occurred, and the anterior nares have been totally obliterated, leaving a smooth scar. (Cf. Series lvii. No. 172h.)

See *Magdalen Ward Book* for 1888, No. 639.

DISEASES OF THE THYROID GLAND.

138a. Simple Parenchymatous Goitre in a Woman aged 39. It had existed at least three years, and often caused severe dyspnoea. The whole gland is uniformly enlarged.

From an out-patient.

138b. A Cysto-Parenchymatous Goitre involving the right lobe of the thyroid gland. The tumour is of the size and shape of a hen's egg. It had existed for at least five years, but had never caused any dyspnoea.

The patient was a married woman aged 36.

From an out-patient.

138c. Small Cysto-Adenoma of the Isthmus of the Thyroid Gland. It was successfully removed by operation.

See *Lucas Ward Book* for 1888, s.v. Caroline Cook.

The tumour is preserved in Series xxvi.

144g. Cast of the Left Hand of a Woman who had infantile paralysis of long standing. There is slight ulnar deflection, with some hyper-extension of the second phalanges, with slight flexion of the terminal phalanges. (Cf. 2oh.)

See *Elizabeth Ward Book* for 1887, s.v. Rebecca Gent.

144h. Cast of the Left Hand of a Patient who had gout, with chronic nephritis and lead-palsy.

From a man aged 35, a looking-glass silverer by occupation.

See *John Ward Book* for 1888, s.v. O. Bullock.

SERIES LVII.

DRAWINGS AND PHOTOGRAPHS OF DISEASED
OR INJURED PARTS.

70a. Photographs of a Man aged 33, who had double spasmodic wry-neck. The patient had suffered in this way for three months. His head was almost constantly drawn backwards and turned round towards the left shoulder. The attacks recurred at very close intervals.

See *Luke Ward Book* for 1888, s.v. H. Smith, and *St. Bartholomew's Hospital Reports* (1888), vol. xxiv. p. 249.

73b. Photographs of a Case of Pseudo-Hypertrophic Paralysis, occurring in a boy aged 10 years. The photographs show the wasting of the thighs and the enlargement of the calf; an attempt was made to show the characteristic attitude assumed by the patient in rising from the recumbent position.

See *Male Surgical Register*, vol. iii. (1887), No. 3093.

101b. Drawing of the Heart of a Girl aged 15, who died from purpura hæmorrhagica. There were small hæmorrhages beneath the visceral pericardium and under the endocardium of the left ventricle. There was neither valvular disease nor dilatation of the heart, but the organ was extremely pale. The pallor was most marked in the left ventricle. The internal part of the section as well as the columnæ carneæ were very white; streaks of white substance stretched into the outer part of the wall, but this was less affected than the inner part. Microscopical examination of the heart did not show any structural change in the tissue, so that the appearances were probably due to anæmia. (L. Mark.)

See *Medical Post-Mortem Register*, vol. xiv. p. 272.]

172h. Drawing of the Face of a Woman, in whom, as the result of the healing of syphilitic ulcers, there was complete destruction of the nose with occlusion of the nostrils. The soft palate was almost entirely ulcerated away, and there was extensive ulceration of the base of the skull and the back of the pharynx. (L. Mark.) (Cf. Series lvi. No. 102e.)

See *Magdalen Ward Book* for 1888, No. 1075.

172i. Drawing of the Face of a Girl who had a primary sore upon her lower lip, with a secondary syphilitic eruption upon her forehead. (L. Mark.)

From an unmarried girl aged 18 years.

See *Female Surgical Register*, vol. i. (1888), No. 1394.

191b. Drawing of the Mouth and Gums of a Woman who worked in a lead-mill. There is saturnine impregnation with a well-marked Burtonian line, and a blue stain on the buccal membrane opposite. (T. Godart.)

190b. Drawing of the Mouth of a Boy aged 12, showing the indented margin of the upper central incisors which occurs in congenital syphilis. (L. Mark.)

See *Male Surgical Register*, vol. ii. (1888), No. 478.

190c. Drawing of the Teeth of a Patient aged 11 years, who was the subject of inherited syphilis. The notching of the incisors is very characteristically shown. (L. Mark.)

A cast of the same patient's legs are preserved in Series lvi. No. 2f.
See *Male Surgical Register*, vol. iii. (1888), No. 1311.

260n. Drawing of a Case of Volvulus of the Ascending Colon, occurring in a man aged 35. The cæcum was enormously distended, and occupied the whole of the lower abdomen. The cæcum is twisted through one complete revolution, so as to lead to its complete occlusion. There was a long vermiform appendix and a rather voluminous meso-ileum. (L. Mark.)

See *Medical Post-Mortem Register*, vol. xiv. p. 181.

279a. Drawing of a Section of a Liver showing a diffuse carcinoma infiltrating the glandular substance. The liver was slightly enlarged and exceedingly hard. The cut surface was mottled and in parts deeply stained with bile pigment. Numerous white nodules of cancer are scattered through its substance. (L. Mark.)

From a woman aged 60, who had a scirrhus carcinoma of the breast.
A section of the primary growth is preserved in Series lv. No. 163i.
See *Surgical Post-Mortem Book* for 1888, p. 72.

280b. Drawing of the Under Surface of the Liver, showing a new growth springing from the mucous membrane of the common bile duct. The gall bladder was distended with thin puriform fluid. Immediately below the junction of the cystic with the hepatic ducts the common bile duct is blocked by an annular mass of soft whitish new growth. Microscopically, the growth was found to be an encephaloid carcinoma. The bile ducts were very greatly distended. Numerous calculi were found in the gall bladder. (L. Mark.)

The specimen is preserved in Series xxi. Sections of the growth are preserved in Series lvi. No. 90ee.
See *Medical Post-Mortem Register*, vol. xiv. No. 247.

298gi. A Painting in Oil Colour of the Head of a Man who had myxœdema. The various facial characteristics of the disease are well shown.

From a man aged 45, whose thyroid gland could not be felt. He had "scanning" speech and marked slowness of intellect. At the age of 16 the patient entered the

army, and was successively quartered in Malta, Nova Scotia, Ireland, and Chester. After 12 years' service he was discharged by purchase, having attained the rank of corporal with two good-conduct badges. He acted for two years as an omnibus conductor, and then became an assistant-warder at Portland convict prison, where for six years he led a hard and anxious life. During this period he was much exposed to cold for very long periods, and it was at this time that he first observed the symptoms which developed into myxœdema. He never had syphilis or gonorrhœa, and with the exception of an attack of measles when a child, he does not recollect ever having been laid up. He has one sister, who is alive and healthy. His mother died of cancer in the mouth." (Ci. 409c.)

Presented by J. A. Gray, Esq.

298gr. A Photograph of the preceding Patient, taken 23 years previously.

305g. Drawing of the Face of a Girl who had Addison's disease and exophthalmic goitre. (T. Godart.)

305h. Drawing of the Face of a Young Woman who had exophthalmic goitre. (L. Mark.)

307b. Drawing of a Large White Kidney, which, with its fellow, weighed 11 ounces. The capsule has been removed to show the smooth pale cortex, on which the stellate veins are excellently seen. (L. Mark.)

From a child aged 4, who had anasarca and ascites. On section, the cortex was very pale and almost structureless; the pyramids were rather deep coloured. The capsule separated easily. The kidneys were so much increased in size that they appeared to have belonged to an adult.

See *Medical Post-Mortem Register*, vol. xiv. p. 288.

315b. Drawing of a Right Kidney, which was small and surrounded by much fat. The substance was pale and almost structureless, showing streaks of uric acid deposit. The capsule was thickened and adherent. When stripped off, it left a granular surface with one or two cysts upon it. (L. Mark.)

See *Medical Post-Mortem Register*, vol. xiv. p. 324.

318a. Drawing of the Left Kidney showing a condition of acute pyelitis. The pelvis and calyces are full of blood, and the mucous membrane lining them is rough and inflamed. The cortex is very fatty. (L. Mark.)

See *Surgical Post-Mortem Book* for 1887, p. 167.

932c. Photograph of a Boy aged 8 years, who had a sarcoma of the eye.

The eye is preserved in Series xxxiii. No. 2570a.

Presented by H. C. Alderton, Esq.

395h. Drawing of the Face of a Girl aged 13, who had an inflamed sebaceous cyst situated in the position of the right lachrymal gland.

See *Alexandra Ward Book* for 1888, No. 86.

395i. Drawings of the Face of a Boy who had ectropion of the right eyelids, resulting from a burn. The sketches were made before and after the performance of a plastic operation to close the right palpebral fissure. (L. Mark.)

See *Albert Edward Ward Book* for 1888, No. 1197.

395j. Drawing of the Anterior Half of an Eye, showing the position of a piece of spectacle glass which had lodged between the lens and the margin of the ciliary processes. The piece of glass had been in the eye for seven years. (L. Mark.)

The eye is preserved in Series xxxiii. No. 2651b.

See also *St. Bartholomew's Hospital Reports* for 1888, vol. xxiv. p. 201.

409c. Photograph of a Patient who had Myxœdema. The face presents the stolid appearance which is characteristic of the disease. The hair of the head is thin and scanty, whilst the skin of the forehead is thickened and of a yellowish hue. The eyebrows are very arched. The eyelashes are thin, and the eyelids are puffy, transversely wrinkled, and pearly in aspect. The root of the nose is broad and thick. The alæ nasi are thick and fixed. The lips are thick and of a purplish hue. The tongue was broad and thick, the gums thickened and lobulated. The teeth were loose; the thyroid is not perceptible. (Cf. 291gi.)

From a man aged 38, who was born and bred in London. He was always temperate and loved to be very active. Five years ago he was told that his face was beginning to swell. The swelling appeared first in the eyelids, spreading along the sides of the nose and the cheeks. He noticed about the same time that his gait was unsteady, so that he was thought to be drunk, and he had a great tendency to fall towards the right side. He has always felt chilly. For the last four years his actions have been slower than they used to be, and for two years he has had difficulty in articulating his words, owing to his tongue being too large for his mouth. He says that his hair began to fall out and his teeth to get loose before any swelling of his face began. His hands are expressionless; the skin is dry. The pulse has an average beat of 72 in a minute. The voice is monotonous. The urea is 1.1 per cent. The temperature is subnormal, and the gait slow.

See *Clinical Society's Transactions*, vol. xx. (1887), p. 267.

The photograph and description were presented by Dr. Arthur Davies.

412a. Drawing of the Chest of a Girl showing well-marked erythema circinatum. The circinate patches first appeared on the abdomen, where they varied in size from a threepenny-piece to half-a-crown. Two days after the appearance of the isolated spots they coalesced to form a large patch, which extended like a great yellow stain over the abdomen and chest. (L. Mark.)

See *Elizabeth Ward Book* for 1888, No. 26.

423c. Drawing of the Face of a Girl who had herpes zoster frontalis. The eruption is limited to the left side of the face, and extends over the anterior third of the scalp. Both eyelids are swollen, the left more so than the right. There was some muco-purulent discharge from the left eye, with some photophobia and lacrymation. The frontal branch of the fifth nerve is alone affected. (L. Mark.)

See *Alexandra Ward Book* for 1887, No. 2095.

437a. Drawing of the Left Arm showing rupial ulceration. (J. C. Hoyle.)

From a boy aged 17, who had the eruption on his arm for three or four years. There was no other evidence of syphilis, but the patient received benefit from anti-syphilitic treatment.

438c. Drawing of the Face and Head of a Man who had tertiary syphilis. The skin over the nose and left side of the face presents extensive scars, produced by the healing of serpiginous ulcers. The forehead has numerous prominences of a gummatous nature. (L. Mark.)

From a man aged 60, who had syphilis fourteen years previously, and gonorrhœa at the age of 32.

See *Male Surgical Register*, vol. iii. (1888), No. 3243.

438d. Drawing of the Face of a Woman who had tuberculated ulcerations about the face, resulting from tertiary syphilis. (L. Mark.)

From a woman aged 28.

See *Magdalen Ward Book* for 1888, No. 1095.

451b. Drawing of the Forearm of a Man showing a rare eruption which resulted from infection derived from a horse. The eruption appears to be one of vaccinia, derived from the disease known as "grease" in the horse. (T. Godart.)

See *Transactions of the Clinical Society*, vol. x. p. 121.

477i. Photographs of the Microscopic Appearances of Hair—(a) in health, (b) when affected with trichophyton tonsurans.

Presented by W. E. Green, Esq.

505a. Drawing of a Cancerous Ulceration of the Portio Vaginalis Uteri, from a woman aged 37. (L. Mark.)

See *Martha Ward Book* for 1888, s.v. Anne Kemp.

516i. Drawing of the Posterior and Upper Surfaces of a Retroverted Uterus. The right broad ligament and the right ovary are suppurating, and communicate with each other. (L. Mark.)

529a. Drawing of the Thorax of a Man showing a malignant growth of the right breast. The tumour was situated immediately above the right nipple, and extended from the mid-sternal line as far as the

posterior fold of the axilla. It was deep purple in colour. The superficial veins were enlarged, and it had ulcerated in two places. (L. Mark.)

From a man aged 46, who had observed the tumour for three months. As no operation was performed, the exact nature of the growth could not be ascertained.

See *Male Surgical Register*, vol. iv. (1887), No. 3172.

531f. Drawing of a Recurrent Cancerous Ulcer invading the left breast of a woman aged 49. The recurrent growth was of four years' duration. It began to ulcerate two years before the drawing was made. (L. Mark.)

From an out-patient.

531g. Drawing of the Breast of a Single Woman aged 62, who had lupus. The lupus eruption was first noticed two years previously. (G. Hare.)

See *Female Surgical Register*, vol. v. (1888), No. 1662.

535g. A Drawing of a Child who died from phagedæna of the right pectoral region. The ulceration has laid bare the costo-sternal articulation as well as the second costal cartilage. (L. Mark.)

From a child aged 15 months, who was probably the subject of inherited syphilis. She had been ill for three weeks before her death.

See *Female Surgical Register*, vol. iii. (1888), s.v. Rosina Willett.

543h. Drawing of the Hands of a Girl aged 17, who had Raynaud's disease or symmetrical gangrene. The fingers are thin, and of a light pinkish colour, especially towards their tips. The epithelium is peeling off in patches. (G. Hare.)

See *Elizabeth Ward Book* for 1888, s.v. H. Spurgeon.

545h. Drawing of the Face of an Unmarried Girl aged 18, showing a primary syphilitic sore on the lower lip coexisting with a secondary rash. (L. Mark.)

See *Female Surgical Register*, vol. i. (1888), No. 1394.

556b. Drawing of a Boy aged 10, who had multiple chloromata of the orbit, internal ear, cerebral dura mater, kidneys, &c. (L. Mark.)

See *Medical Post-Mortem Register*, vol. xiv. No. 260.

569a. Drawing of the Neck and Thorax of a Patient who had a large fixed swelling under the right ear. The skin round the neck was very tense and furrowed. There were enlarged and hard glands in the right supra-clavicular space, axilla, and groin. The swelling was thought to be due to lympho-sarcoma. (L. Mark.)

See *Male Surgical Register*, vol. ii. (1888), No. 377.

- 576a. Two Photographs of a Patient who had a large epithelioma involving his mouth and cheek.

From a man aged 35, who enjoyed perfect health until seven months before the photograph was taken, when he noticed a small lump on the inner side of the right commissure of the lips. The lump rapidly increased in size, and the patient was admitted into St. Bartholomew's Hospital, Chatham, where the growth was removed. Three months after its first appearance the growth recommenced in the cicatrix, and progressed rapidly. The man was an inveterate smoker.

Presented by W. Eames, Esq., per A. Lyndon, Esq.

- 592a. Drawing of the Face of a Man aged 25, who had a large congenital nævus of the right side of the face. (L. Mark.)

See *Male Surgical Register*, vol. v. (1888), No. 3826*.

- 603a. Drawing of the Face of a Woman showing symmetrical patches of dilated venous radicles upon either cheek. It was thought that the patches might be due to capillary embola. They occurred in a married woman aged 21, who had ulcerative endocarditis. She had continuous pyrexia, and subsequently developed an enlarged spleen and hæmaturia. Four months after the drawing was made she developed another attack of the eruption upon her face, in the same position as the former one.

See *Elizabeth Ward Book* for 1888, s.v. E. E. Ims.

612. Drawing of the Lower Portion of the Abdomen of a Patient who first noticed a small pimple above her pubes five years previously. The growth gradually increased until it attained the condition seen in the drawing. (G. Hare.)

From a single woman aged 43.

See *Female Surgical Register*, vol. iii. (1888), No. 1696.

TERATOLOGICAL CATALOGUE.

SERIES I.

ABNORMAL CONDITIONS OF THE AXIS.

CLASS I.—VARIATION.

- 1118a. Skeleton of a young Cock Fowl, *var.* Plymouth Rock, which was hatched in an incubator, and was subsequently brought up in an artificial "foster-mother." The sacrum presents a well-marked lateral curvature to the left, but otherwise the bird appears to be well-formed. The brood to which it belonged first limped and then lost the power of walking. (In Case C.)

Presented by Dr. Godson, per Alfred Willett, Esq.

3400a. The Decidua Vera and Foetal Membranes enclosing an Embryo, in which, as a result of non-development of the placental stalk, the embryo remains attached by a broad base to the placenta. The condition illustrates the normal condition seen in the rabbit's embryo at the tenth day.

3445a. The Skeleton of a Siren Foetus. The lower extremities were contained in a single sheath of integument. The cartilages representing the tarsus are fused, but the bones of the legs and thighs are separate. The femora are in a condition of complete external rotation. The pubes are fused together at an acute angle. There is some lateral curvature in the lumbar region, and the lumbar and sacral vertebræ are deformed.

Presented by Florio St. Quintin Bond, Esq.

SERIES II.

ABNORMAL CONDITIONS OF THE LIMBS.

CLASS V.—ARREST OF DEVELOPMENT.

3512b. The Head and a Portion of the Neck of the Right Astragalus, removed for the relief of talipes equino-varus. The bone has the deformity which is usual in such cases.

From a girl aged 9, who had congenital talipes equino-varus. The bones were pegged together after the removal of the astragalus, and the patient made a good recovery.

See *Female Surgical Register*, vol. iii. (1888), No. 2440*.

3514a. The Right Foot and Leg affected with talipes equino-varus, cavus, and hammer-toes. The foot is drawn upwards, and is turned somewhat inwards, whilst the toes are bent in a characteristic manner. The extensor muscles appear to be well developed, and have not undergone any degenerative changes. The tendons of the extensor longus digitorum, of the extensor proprius hallucis, and of the tibialis anticus are however somewhat tightly stretched, as if these muscles had been shortened. The first phalanx of each toe is drawn towards the dorsum of the foot, whilst the distal phalanges are strongly flexed. In the hallux, as is usual in these cases, the unguis phalanx is alone bent. The tendo achillis is much shortened, and stands out sharply defined at a considerable distance from the back of the tibia. The heel is dragged upwards by the shortening of the tendo achillis, so as to draw the foot into a condition of talipes equinus. The plantar fascia was so thin as to be practically absent, but all the muscles, including the interossei, are well developed. The twist of the foot inwards has caused the abductor hallucis to assume a more lateral attachment, so that its main

origin is from the external annular ligament, a slip of muscle only passing backwards to the inner tuberosity of the os calcis. This alteration in the axis of the foot leaves a gap between the contiguous sides of the abductor pollicis and the flexor brevis digitorum, in which can be seen the flexor longus pollicis tendon as far back as the point where it is crossed by the flexor longus digitorum. Microscopical examination of the anterior and posterior tibial nerves failed to show that they had undergone any degenerative changes.

From a boy aged 14, who had old disease of the right knee, with double talipes equino-varus, cavus, and clawed toes. The trouble with his feet was said to have begun when he was six years old. He then went to Charing Cross Hospital, where the plantar fascia was divided, the feet being put up in splints. On admission to the Hospital, both feet were in a condition of talipes cavus, flexed slightly inwards, with some equinus. The flexion of both feet inwards at the mid-tarsal joint is accompanied by partial dislocation backwards of all the toes at the metatarso-phalangeal joints. This dislocation is especially marked in the great-toes. There was much wasting of the right leg.

See *Male Surgical Register*, vol. iii. (1887), No. 1538.

SERIES III.

ABNORMAL CONDITIONS OF THE OSSEOUS AND MUSCULAR SYSTEMS.

3524e. A Hand Dissected to show certain Abnormalities of the Muscles. The flexor sublimis digitorum divides as usual into four tendons; of these, the outermost again becomes muscular, and from the muscular portion a slip is given off to be inserted into the base of the first metacarpal bone upon its flexor aspect. The first lumbrical muscle is well developed, and has its usual attachments.

From the Dissecting-Rooms, presented by E. W. Gurney Masterman, Esq.

SERIES IV.

ABNORMAL CONDITIONS OF THE VASCULAR SYSTEM.

3525a. The Arch of the Aorta, giving off its branches in the following order—(1) The right common carotid, (2) the left common carotid, (3) the left subclavian, and (4) the right subclavian. The right common carotid passes obliquely across the trachea immediately above its bifurcation, whilst the right subclavian arises from the back part of the descending portion of the arch, and passes behind the two large bronchi just after the trachea has bifurcated.

3528b. The Arch of the Aorta, from which four main trunks are given off. The abnormal vessel is the left vertebral, which arises from the transverse part of the aorta between the left common carotid and the left subclavian arteries. It passed through the foramen in the sixth cervical vertebra, and pursued the usual course. The arch of the aorta is somewhat more abruptly curved than usual.

From the Dissecting-Rooms.

3537a. A Portion of the Abdominal Aorta with the Right Kidney. The vessel gives off two large arteries to the kidney, of which the lower divides into two before it enters the organ.

From a subject brought for dissection.

Presented by C. S. Woodd, Esq.

SERIES VI.

ABNORMAL CONDITIONS OF THE DIGESTIVE ORGANS.

CLASS V.—ARREST OF DEVELOPMENT.

3648a. The Dried Rectum and Sigmoid Flexure from a Girl aged 10 years, who had an imperforate anus. Colotomy had been performed on the left side immediately after birth. The whole intestine is greatly dilated, but below the colotomy wound it is distended into an enormous *cul de sac*, which, in the fresh condition, held a quart of fluid. At the end of the *cul de sac* is a small shrivelled portion which represents the connective tissue which intervened between the termination of the intestine and the anus. (In the wall case in the north side of the top gallery.)

Presented by W. Marrant Baker, Esq.

SERIES VII.

ABNORMAL CONDITIONS OF THE URINARY ORGANS.

CLASS I.—VARIATION.

3660c. A Congenitally Misplaced Kidney. It was situated in front of the promontory of the sacrum, where it lay embedded in cellular tissue. The intervertebral cartilage which separated the sacrum from the last

lumbar vertebra was laid bare when the organ was removed after death. The kidney is shorter and thicker than natural, and is curved to adapt itself to its position. The hilum is situated on its abdominal surface.

From a medical man aged 25, who had long noticed a mass in the lower part of his abdomen, which caused pain, and gave rise, as he thought, to severe constipation. The mass was supposed to be a collection of tubercular mesenteric glands. The presence of the tumour so preyed upon the patient's mind that he committed suicide. At the post-mortem examination the left kidney occupied the normal position. It was decidedly larger than usual, but had every appearance of being perfectly healthy.

Presented by T. S. Ellis, Esq.

3661a. A Bladder with the Ureters and Kidney. The right kidney has two complete ureters, which open into the bladder by separate orifices. The left kidney and ureter were normal. A longitudinal section of the right kidney shows that the upper ureter is connected with a portion of the renal substance, which is separated by a thin layer of fibrous tissue from the inferior part of the gland. It therefore appears probable that the apparently single kidney is composed of two separate parts which have not completely fused.

SERIES VIII.

ABNORMAL CONDITIONS OF THE GENERATIVE ORGANS.

CLASS V.—ARREST OF DEVELOPMENT.

3670c. An Undescended Testicle from a Youth aged 18 years. The processus vaginalis had advanced $3\frac{1}{2}$ inches beyond the testicle, which lay on the iliacus, and an inch beyond the external ring. The vas deferens has been dragged down to within an inch of the lower end of the processus vaginalis and loops back again to the epididymis. A strong band of muscular fibres, under which a brown rod has been passed, is attached to the extremity of the loop, and can be traced upwards beyond the epididymis to the peritoneum lining the iliac fossa. Other striped muscular fibres, which represent the ascending cremaster, pass upwards from the abdominal wall along the processus vaginalis to the epididymis. A thin blue rod is placed under these fibres.

Presented by C. B. Lockwood, Esq.

ANATOMICAL AND PHYSIOLOGICAL CATALOGUE.

SERIES VIII.

THE VERTEBRATA.

(A.) HUMAN OSTEOLOGY.

197a. A Skull from the Sumali Country, Central Africa. It was picked up on a battlefield.

Presented by Archdeacon Fowler per Dr. Norman Moore.

SUB-KINGDOM VII.—THE VERTEBRATA.

BRANCH A.—UROCHORDA.—TUNICATA.

CLASS II.—SACCATA. ORDER I.—ASCIDIÆ.

625a. A Simple Ascidian, whose external tunic or test has been laid open to show the body lying in its interior. (Cf. Nos. 1565-1568a.)

BRANCH B.—CEPHALOCHORDA.

CLASS LEPTOCARDIA.

625b. *Amphioxus lanceolatus*, obtained from Naples. (Cf. No. 1388.)

625c. Transverse Sections through a Lancelet—*Amphioxus lanceolatus*. (In the Histological Cabinet.)

The three preceding specimens were presented by Dr. T. W. Shore.

SERIES XXIII.

THE BRAIN AND SPINAL CORD.

922a. A Horizontal Section through the whole of the Right Cerebral Hemisphere of an adult. The section was taken from a point above the level of the corpus callosum.

922b. A Horizontal Section through the Cerebellum.

The two preceding specimens were prepared and presented by Dr. Vincent Harris.

SERIES XXVIII.

THE SKIN.

1100a. A Microscopical Section through the Hoof of a Foetal Calf, six weeks after impregnation of the cow.

Presented by H. E. Whitehead, Esq.

SERIES XXIX.

THE ORGANS OF GENERATION IN THE MALE.

1121a. Transverse Sections of Portions of the Left Spermatic Cord, to show the extent of the pampiniform plexus of veins. The sections were made through the spermatic cord of a seven months' foetus.

No. 1 was cut through the cord just above the testis.

No. 2 was cut on a level with the upper part of the epididymis.

No. 3 was taken through the middle of the spermatic cord.

1121b. A Transverse Section through the Veins of the Left Spermatic Cord, to show the extent of the pampiniform plexus. From a male aged 35 years, who had no varicocele during life.

The two preceding specimens are in the Microscopical Cabinet.

Presented by W. G. Spencer, Esq.

SERIES XXXI.

ORGANS OF GENERATION IN THE FEMALE IN
AN UNIMPREGNATED CONDITION.

1177a. A Vertical Section through the Generative Organs, Bladder, and Rectum of a young female porpoise.

SERIES XXXII.

ORGANS OF GENERATION IN THE FEMALE DURING
PREGNANCY, WITH SPECIMENS ILLUSTRATING THE
DEVELOPMENT OF THE OVUM.

1299a. A Portion of the Placenta and Membranes, showing a velamentous insertion of the cord. About five inches of the cord traverses the mem-

branes before it reaches the edge of the placenta. The vessels of the cord have the usual twisted arrangement in this portion as well as in the free part. The membranes have ruptured by the side of the cord.

Presented by Dr. W. S. A. Griffith.

SERIES XXXV.

MISCELLANEA.

- 1428d. A Letter written to Robert Still, Esq., by Mr. Abernethy, detailing some of the symptoms of his dyspeptic attacks. It was found amongst the papers of Dr. Anderson, who died at Hampton in 1859, æt. 97.

Presented by Alfred Willett, Esq.

SERIES XXXVI.

CATALOGUE OF INVERTEBRATA.

SUB-KINGDOM II.—CŒLEENTERATA.

CLASS III.—LUCERNARIDA.

- 1448a. A Specimen of *Lucernaria*, showing the cup-shaped body which is attached proximally at its smaller extremity by a hydrorhiza resembling a sucker. The animal is not permanently fixed. Around the margin of the umbrella are tufts of short tentacular processes, and in its centre is a polypite with a quadrangular four-lobed mouth.

Presented by Dr. T. W. Shore.

SUB-KINGDOM III.—ANNULOIDA. CLASS I.—ECHINODERMATA.

GROUP C.—ASTERIDEA.

- 1457a. A Specimen of a *Solaster*. The disc is large and well marked, and the rays are twelve in number. They are narrow and short, as they are not more than half the diameter of the body in length.

Presented by Dr. T. W. Shore.

CLASS II.—SCOLECIDA.

- 1474a. *Tænia Solium* (the common tape-worm). The head is supported by pins. By the aid of a simple magnifying-glass two of the suckers can be distinctly seen. The entire scolex measures 19 feet. It was expelled after a single dose of filix mas.

- 1476b. Two Proglottides of the *Tænia Mediocanellata* in the unimpregnated condition, prepared for microscopic examination.

Presented by Dr. T. W. Shore.

- 1490b. *Ascaris Megalocephala* from the intestines of a horse.

Presented by Dr. T. W. Shore.

- 1491a. A Microscopical Preparation of the *Anchylostoma Duodenale*.

A portion of the intestine containing the parasites is preserved in Series xviii. No. 1956a.

- 1492a. *Filaria Medinensis* (Guinea-worm). The mematoid was extracted entire from the calf of the leg.

Presented by T. Odling, Esq.

SUB-KINGDOM IV.—ANNULOSA.

CLASS I.—GEPHYREA.

- 1495a. A Small Specimen of *Sipunculus*. The worm-like body is seen to be unsegmented, and it has no locomotor appendages. The proboscis is papillated and retractile. The anus is situated quite anteriorly, and on the lateral aspect.

CLASS II.—CHÆTOGNATHA.

- 1495b. A Microscopic Preparation of *Sagitta Tricuspidata*, measuring a little more than a quarter of an inch in length.
- 1497a. Transverse Sections of *Hirudo Medicinalis*, prepared for examination by the microscope.
- 1500a. Transverse Sections of *Lumbricus Terrestris*, prepared for microscopic examination by staining in cochineal.
- 1507a. A Parapodium of *Nereis*, showing the tufts of setæ. It is prepared for microscopic examination.

The five preceding specimens were presented by Dr. T. W. Shore.

SUB-KINGDOM IV.—ANNULOSA. (B.) ARTHROPODA.

CLASS IV.—INSECTA.

- 1540b. *Locusta Migratorius* in the act of shedding its skin.

Presented by S. C. K. Moberly.

- 1546e. Specimens of the Common Head Louse (*Pediculus capitis*). [In the Microscopical Cabinet.]

SUB-KINGDOM V.—(B.) MOLLUSCA ACEPHALA.

CLASS I.—LAMELLIBRANCHIATA.

1581a. Sections through (*a*) the widest part of the body, (*b*) the middle of the ventricle, and (*c*) the posterior adductor of a large specimen of the fresh-water mussel (*Anodonta cygnea*).

In the uppermost section, which passes through the renal and reproductive apertures, the mantle folds are seen to arise close to the dorsal surface. The visceral mass is large and laterally compressed; it lies between the two mantle lobes, and its ventral edge is produced into the wedge-shaped muscular foot. The coils of the intestine are seen in the visceral mass embedded in the generative gland, and cut across about half a dozen times. In the pericardial cavity, which is situated in the median line immediately beneath the dorsal surface, is seen the rectum. Inside the rectum is the typhlosole or fold of its ventral surface. The gills lie in the dorsal half of the mantle-cavity between the visceral mass and the mantle. Along the base of each gill is the supra-branchial canal, along which the respiratory stream of water flows backwards to the cloacal cavity. The excretory organs are paired, and lie between the pericardium and the visceral mass. The reproductive apertures are immediately ventral to the excretory apertures.

In the middle section, which passes through the ventricle, the mantle lobes are the same as in the preceding specimen. The visceral mass is cut across close to its posterior end. The inner lamella of the gill ends in a free extremity above. The pericardial cavity is triangular in section, and has very thin walls. The ventricle surrounds the rectum. The vena cava is a thin membranous tube lying in the floor of the pericardium. The kidneys lie on either side of and above the visceral mass.

In the lowest section the posterior adductor muscle is seen as a large mass of transverse muscular fibres running across the dorsum. The gills are cut across close to their dorsal ends, and are small. The rectum lies dorsal to the adductor muscle, the typhlosole still being present.

CLASS II.—MOLLUSCA CEPHALOPHORA.

CLASS I.—GASTEROPODA.

1601b. The Radula of *Buccinum Undatum* (the common whelk), prepared as a microscopical object.

1616a. The Radula of *Patella Vulgata* (the common limpet), prepared as a microscopical object.

1622a. A Specimen of the *Aplysia* or Sea-Hare. The body is elongated and slug-like in shape, and bordered by a broad velum, which is reflected over the back. Two contractile tentacles are situated at the upper part of the head, whilst two prolongations of the velum surround the mouth, and form, as it were, a second pair of inferior tentacles. The eyes are sessile, and are placed in front of the base of the superior tentacles. The branchiæ are dorsal, and are covered by a thin prolongation of the mantle, with an operculum, including a flat calcareous shell, which in this specimen is broken.

1623a. A Microscopic Preparation of the Eggs of *Doris*.

1627a. A Microscopical Preparation of the Radula of *Helix Pomatia*.

The five preceding specimens were presented by Dr. T. W. Shore.

SERIES XXXVII.

CASTS AND MODELS OF MALFORMATIONS.

93a. Cast of the Pelvis of a Girl aged 5 years, who had extroversion of the urinary bladder. There was no umbilicus, and the pubes were separated by a distance of about $1\frac{1}{4}$ inch. The pelvis measures 18 inches round the crests.

A drawing is preserved in Series xxxviii. No. 15a.

See *Female Surgical Register*, vol. iii. (1888), No. 1306.

106. Casts of the Hands of a Boy aged 16, who had congenital shortening of the distal phalanges of both little fingers. The second interphalangeal joint of the little finger of the right hand was enlarged, and the finger itself was slightly bent.

Seven years ago the patient had rheumatic fever followed by chorea. He had a double musical apex murmur.

See *Matthew Ward Book* for 1888, No. 22.

SERIES XXXVIII.

DRAWINGS AND PHOTOGRAPHS OF CONGENITAL MALFORMATIONS AND NORMAL STRUCTURES.

15a. Drawing of the Abdomen of a Girl aged 5 years, who had ectopion vesicæ. There is no umbilicus. The pubes are separated at the symphysis by a distance of about $1\frac{1}{4}$ inches. The pelvis measures 18

inches round the crests. The labia majora are present; two small nodules above them represent the labia minora. The bladder projects above the labia minora.

A cast is preserved in Series xxxvii. No. 93a.

See *Female Surgical Register*, vol. iii. (1888), No. 1306.

- 32a. Drawing of the Body of a Man who had a supernumerary nipple situated above the crest of his right ilium. In addition to the nipple, a slight thickening of the tissues could be felt, as if a rudimentary mammary gland were present. (Cf. No. 18.)

See *Matthew Ward Book* for 1888, s.v. Albert Adams.

37. Sketches of the Pinnæ of the Ears of a Young Lady aged 18 years. Each pinna is provided with an accessory aperture to the external auditory meatus, situated at the junction of the antitragus with the lobule.

Presented by J. Langton, Esq.

38. Photographs of the Hands and Feet of a Girl affected with congenital deformity of the nails (Onychogryphosis). The hands are of normal size and shape, but the nails project forwards and upwards from their matrices to the distance of one-half to three-quarters of an inch, so as to present the appearance of claws. The feet were well formed, but the nails of the toes presented features similar to those of the fingers, excepting that they were shorter, being about a quarter of an inch in length.

From a girl aged 11. The mother stated that the nails grew rapidly, and that when they were cut a quantity of clear fluid exuded, and they became very sore. The family history was good, and none of her relatives had any similar malformation. The knee-jerk was slightly exaggerated on the left side; there was no ankle-clonus or supinator reflex.

See the *Lancet*, vol. i. (1888), p. 722.

Presented by Thomas Sympton, Esq.

39. Drawing of the Lower Portion of a Boy aged 9, showing an epispadias which had been treated by operation.

See *Male Surgical Register*, vol. iii. (1887), No. 2770, and vol. iii. (1888), No. 3763*.

40. Drawing of the Head of a Boy aged 14, who had hypertrophy of the left ear with a congenital fibroma on the left side of the neck.

See *Male Surgical Register*, vol. iii. (1887) No. 3264.

41. Drawing of a Child aged 2 months, to show a large coccygeal cyst.

42. Drawing of the Face of a Woman who had an unusually blue coloration of the conjunctiva. She was admitted to the Hospital on account of lacrymal fistula. The blue colour of the conjunctiva appears to have been due to the choroid shining through an extremely thin sclerotic coat.

See *Alexandra Ward Book* for 1888, No. 643.

SERIES XXXIXA.

10. A Pair of Old-fashioned Spectacles, with circular convex glasses in steel frames.
11. A Pair of Old-fashioned Spectacles, with circular concave glasses in steel frames. By an ingenious contrivance the strength of the glasses can be varied at will.

The two preceding specimens were presented by Henry Willett, Esq.

12. An Automatic Gum Lancet.

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VOLUME XXIV.

INDEX.

- ABERNETHIAN Society's Proceedings, 313.
Acid, amount of, in the urine of gout, 218, 220, 222.
,, uric, its excretion in gout, 217.
,, ,, the action of some drugs on, 217.
Aconite in rheumatism, 23.
Amputation of shoulder-joint, cases of, 205, 207.
Amyl-nitrite in morbus Addisoni, 254, 258.
Anæsthetics, discussion on, 316.
Andrewes, Dr., and Herringham, Dr., two cases of cerebellar disease in cats with staggering, 241.
Animals and plants, their relationship, 65.
Ankle, tuberculous disease of, 276.
Antrum, tumour of, with rodent ulcer, 284.
Apex, phthisical disease of left, with vomiting, 131.
Arthritis, absence of, in rheumatic fever, 21.
Auricle, supernumerary, 284.

BACTERIA, their relationship to disease, 79.
Baker, Mr., cases from his wards, 205.
,, ,, on perforating wounds of the orbit, 179.
Biology in relation to medicine, 65.
Bladder, epithelioma of, 211.
,, tumour of, 292.
,, with fistulous opening into intestine, 258.
Blood, on its specific gravity in health and disease, 313.
Bowlby, Mr., cases illustrating the clinical course and structure of duct-cancer or villous carcinomas of the breast, 263.
,, ,, on hip-disease, 323.
Bougies, metallic, for dilating the os uteri, 170.
Breast, duct-cancers or villous carcinoma of, 263.

- Breast, swelling beneath, 277.
 „ tumours of, 286, 293, 296, 298, 304, 308.
 Browne, Dr., on Peter Mere Latham as a clinical teacher, 321.
 Bursa under annular ligament, 286.
 Butlin, Mr., on the treatment by removal of some chronic ulcers of the tongue, 83.
- CANCER-DUCT of the breast, 263.
 Carcinoma, recurrent, in breast, 286, 309.
 „ villous, of the breast, 263.
 Carcinomatous ulcer of right breast, 301.
 Cases from Mr. Baker's wards, 205.
 „ of duct-cancer or villous carcinoma of the breast, 263.
 „ of sinus over sacrum and coccyx, 229.
 Cats, cerebellar disease in, 241.
 Cellulose, its nature and occurrence in animals, 73.
 Cerebellar disease in a child, 247.
 „ „ in cats, 241.
 „ „ staggering in, 241.
 Cerebellum, description of abnormal, in a cat, 245.
 Cervical rib, 290.
 Chest, recession of, in croup, 145.
 Chlorophyll, its activity dependent on potassium, 74.
 „ its parallelism with hæmoglobin, 73.
 Chorea a cause of endocarditis, 55.
 „ artificial production of, 62.
 „ due to embolism, 61.
 „ post-mortem notes of, 56, 57, 59.
 Chronic disease of the knee, 307.
 „ ulcers of the tongue, treatment by removal, 83.
 Coccyx, injury to, 285.
 „ and sacrum, sinuses over, 229.
 Cœliac affection, on the, 17.
 „ „ age of occurrence of, 18.
 „ „ symptoms of, 18.
 „ „ treatment of, 18.
 Coma, its varieties, 318.
 Conception, occurrence of, in regard to menstruation, 172.
 Constipation, its effects in gout, 227.
 Consultations, cases shown at, 273.
 Corpus spongiosum, indurated nodule in, 284.
 Croup, its definition, 141.
 „ in its relation to tracheotomy, 141.
 „ recession of chest in, 145.
 Cyst between the eyes, 306.
 „ in axilla, 304.
- DAVENPORT, Mr., resorption-diabetes of lactation, 175.

- Diabetes of lactation, 175.
 Diarrhœa alba, 17.
 „ chylosa, 17.
 Digestion in invertebrata, 67.
 Dislocation of shoulder without rupture of the capsule, 163.
 Drugs, failure of their action in gout, 226.
 „ action of certain, in gout, 217.
 Duct-cancers of the breast, 263.
 Duncan, Dr., a case of progressive suppurative parametritis, 39.
 Dysmenorrhœa cured by dilatation of the os uteri, 170.
 „ spasmodic, with sterility, 170.
- ELBOW, injury to, 308.
 Electricity, nature of, used for fibro-myomata of uterus, 129.
 „ treatment of fibro-myomata of uterus by, 89.
 „ results of, in fibro-myomata of uterus, 129.
 Elephantiasis, 305.
 Embolism, capillary, a cause of chorea, 61.
 Endocarditis, a result of chorea, 55.
 Epithelioma of bladder, cure of, 211.
 „ cheek, 283.
 „ penis, 302.
 „ tongue, 288.
 „ upper jaw, 311.
 „ recurrent beneath jaw, 287.
 Epitheliomatous ulcer of leg, 285.
 Equilibrium maintained by lumbar muscles, 242.
 Erysipelas, its varieties, 321.
 Erythema multiforme, bibliography of, 53.
 „ „ cases of, 46, 48, 49, 50.
 „ „ its relation to rheumatism, 43.
 „ nodosum, bibliography of, 53.
 „ „ cases of, 50, 51, 52.
 „ „ its relation to rheumatism, 43.
 Erythemata connected with rheumatism, 53.
 Evill, Mr., on a case of dislocation of the shoulder without rupture of the capsule, 163.
 „ on the man of the future, 338.
 Evolution of predispositions or tendencies, 76, 78.
 Excision of chronic ulcers of the tongue, 83.
 „ of scapula, a case of, 205, 207.
 Excretion of uric acid, influenced by some drugs, 217.
 „ „ in gout, 217.
 Eyeball, glass in, 201.
- FÆCAL fistula, 281.
 Fæces, incontinence of, 260.
 „ present in the urine, 258.

- Fæces, their colour and consistency in the cœliac affection, 17.
 Farrar, Mr., on general paralysis of the insane, 317.
 Features, expression of, in the insane, 11.
 Femur, fracture of, 288.
 „ osteitis of lower end, 306.
 „ sarcoma of, 305.
 Fever, rheumatic, without arthritis, 21.
 Fever, typhoid, leading to the formation of an adhesion, 152, 154.
 „ „ death from strangulation of intestine in, 153.
 Fevers, their etiology, 76.
 Fibro-myomata of the uterus treated by electricity, 89.
 Fistula, entero-vesical, 307.
 Fistulous opening into intestine, 258.
 „ tracks over sacrum and coccyx, 229.
 Fracture of epiphysis of the femur with bare bone protruding, 288.
 „ old standing, Pott's, 295.
 „ ununited, of tibia, 288.
- GANGRENE of toes, 280.
 Gardiner, Mr., on treatment of heart disease, 337.
 Garrod, Dr., on the relationship of erythema multiforme and nodosum to rheumatism, 43.
 Gee, Dr., on the cœliac affection, 17.
 „ rheumatic fever without arthritis, 21.
 Giant cells, their formation, 69.
 Glass in eyeball, 201.
 Godson, Dr., on the difficulty in determining by means of menstruation the duration of pregnancy, and its medico-legal importance, with notes of a case of spasmodic dysmenorrhœa, 167.
 Goodsall, Mr., six cases of sinus over the sacrum and coccyx, 229.
 Gout, effect of constipation on, 227.
 „ on the excretion of uric acid in, 217.
 „ production of, by drugs, 225.
 „ the action of some drugs in, 217.
 Gow, Dr., on cirrhosis, 315.
 Growth in gums and palate, 293.
- HABERSON, Dr., vomiting in phthisis, with special reference to the association of this symptom with left apex-disease, 131.
 Hæmatemesis, 315.
 Hæmoglobin, its parallelism with chlorophyll, 73.
 „ its presence dependent on iron, 74.
 Haig, Dr., excretion of uric acid in a case of gout, with notes of the action of some drugs, 217.
 Hallux valgus, 303.
 „ „ with flat-foot and hammer-toe, 303.
 Hamer, Dr., on croup in its relation to tracheotomy, 41.
 Head, protrusion of, from spasm of the muscle of the neck, 249.

- Heart, treatment of disease of, 337.
 Hernia, inguinal irreducible, 291.
 „ testis, 291.
 Herringham, Dr., chorea as a cause rather than a result of endocarditis, 55.
 „ „ and Andrewes, Dr., two cases of cerebellar disease in cats with staggering, 241.
 Hip, amputation of, when needed, 336.
 „ excision of, statistics of, 335, 336.
 Hospitals, isolation, the provision of, 25.
 Humerus, swelling of, 290.
 Hygroma, congenital cystic of neck, 277.
- ILIAC region, swelling in the left, 297.
 Insane, effects of previous training on. 7.
 „ general paralysis of, 317.
 „ women, difficulty of amusing, 3.
 „ „ foulness of their language, 4.
 „ „ impulsiveness of, 6.
 „ „ occupation for, 2.
 „ „ tendency to cover the head, 13.
 Insanity, bad effects of non-restraint in certain cases, 14.
 „ expression of the features in, 11.
 „ the sexual element in women in, 10.
 Intestinal obstruction, treatment of, 320.
 Intestine, fistulous, opening into bladder, 258.
 „ strangulation of, 152.
 Invertebrata, digestion in, 67.
 Isolation, diseases calling for, 25.
 „ hospitals, air-space per patient needed, 35.
 „ „ character of accommodation required, 33.
 „ „ extent of, required, 32.
 „ „ number of beds in a ward in, 36.
 „ „ sites for, 33, 34.
- JAW, upper, sarcoma of, 310.
 „ swelling of, 279.
- Jones, Mr. Lloyd, on the specific gravity of the blood in health and disease, 314.
- KNEE, disease of, and tubercle in other parts of the body, 308.
 „ old disease of, with outward displacement, 283.
 „ excision of, with sinus, 304.
 „ swelling of left, 286.
 „ tuberculous disease of, 277.
- Knee-joint, disease of, 302.
 „ „ with flexion of the leg, 282.
- LACTATION-DIABETES, 174.
 Language, foulness of, in insane women, 4.

- Patellar ligament, swelling over its outer side, 298.
 Perforating wounds of orbit, 179.
 Peritoneum, acute effusion into, cured by tapping, 151.
 „ opening of, for relief of pain, 149.
 Phthisis, statistics of vomiting in, 138, 139.
 „ vomiting in left apex disease, 131.
 Plants and animals, their relationship, 65.
 Polypus, naso-pharyngeal, 309.
 Potassium, its possible use in the animal economy, 74.
 „ „ in plants, 74.
 Pott's fracture, old-standing, 295.
 Predispositions or tendencies, evolution of, 78.
 Pregnancy, duration of, difficulty of determining, 167, 169
 „ menstruation occurring during, 172, 173.
 Proceedings of the Abernethian Society, 313.
 Purkinje's cells in cerebellar disease, 246.
- RADIUS, swelling in or about head of, 310.
 Rectum, dilatation of, 260.
 Recurrent carcinoma in breast, 286.
 „ epithelioma beneath jaw, 287.
 „ sarcoma of humerus, 205.
 „ „ scapula, 302.
 „ scirrhus of breast, 309.
 Reece, Mr., a case of a piece of glass in the eyeball for seven years
 and ninety-four days, 201.
 „ on the medical organisation of the Volunteer force, 319.
 Rheumatic fever without arthritis, 21.
 Rheumatism, aconite in, 23.
 „ and the erythemata, 53.
 „ discussion on, 322.
 „ occurrence of erythema multiforme and nodosum, 43.
 Rivers, Dr., a case of spasm of the muscles of the neck causing pro-
 trusion of the head, 249.
 Rodent ulcer of face, 301.
 Rodent ulcer of the face and tumour of the antrum, 284.
 Rolleston, Dr., the causation of mitral diastolic murmurs, 197.
- SACRUM and coccyx, sinuses over, 229.
 Santi, Mr., on malignant disease of the rectum, 338.
 Sarcoma between bladder and rectum, a case of, 213.
 „ of femur, 305.
 „ of humerus, 205, 207.
 „ of scapula, recurrent, 302.
 Sclerosis, disseminated, a case of, 155.
 „ „ microscopic appearance of, 158.

- Sclerosis, disseminated, post-mortem appearance of cord in, 157.
 Sexes, the difference in mind in lunacy, 1.
 Shaw, Dr. T. Claye, the sexes in lunacy, 1.
 Shore, Dr., on the study of biology in relation to medicine, 65.
 Shoulder, dislocation of, without rupture of the capsule, 163.
 ,, swelling of the left, 297.
 Sidebotham, Dr., on the treatment of intestinal obstruction, 320.
 Sinuses over the sacrum and coccyx, 229.
 Smallpox hospitals, sites for, 27.
 Soda phosphate, its action in gout, 221.
 ,, ,, its impurity, 223.
 ,, salicylate, its action in gout, 221, 224.
 Spasm of the muscles of the neck, 249.
 Spastic condition of muscles after amputation of the finger, 294.
 ,, rigidity of left arm after wound of finger, 302.
 Staggering in cats, 241.
 ,, in cerebellar disease, 241.
 Starch, how formed, 71.
 Steavenson, Dr., thirty cases of fibro-myomata of the uterus treated by
 electricity, 89.
 Sterility cured by dilatation with metallic bougies, 170.
 Sterno-mastoid, division of, in wryneck, 251.
 Sugar, its mode of production, 72.
 Supernumerary auricle, 284.
 Surgical consultations, 273.
 Sympson, Mr., on hæmatemesis, 315.
- TALIPES, severe, 279.
 Taylor, Dr., on jottings from general practice, 319.
 Temperature in a case of morbus Addisoni, 256.
 Testis, tumour of, 295, 308.
 ,, undescended, 290.
 Thigh, swelling, deep-seated on upper third, 278.
 Thorne, Dr., on cleanliness in its relation to health, 313.
 ,, on some medical points relating to the provision of isola-
 tion hospitals, 25.
 Tibia, swelling of lower end of, 281.
 ,, ,, upper third of right, 283.
 ,, ,, over right, 278.
 ,, ununited fracture of, 288.
 Toes, gangrene of, 279.
 Tongue, dryness of, 289.
 ,, ulcers on, 287.
 ,, ,, treatment of, by excision, 83.
 Tonsillitis in rheumatism, 46.
 Tracheotomy in croup, 141.
 Tracheotomy, percentages of recovery from, 147.

- Tracheotomy, when to be done, 145, 146.
 Training, effect of, on the urine, 6.
 Treatment of chronic ulcers of the tongue by excision, 83.
 „ „ fistulous opening into bladder, 259.
 Tuberculous disease of knee and ankle, 276.
 Tumour in left loin, 282.
 „ of antrum, 284.
 „ „ bladder, 292.
 „ „ breast, 293, 298, 299, 308.
 „ „ left breast, the other having been previously removed, 286,
 304.
 „ „ left epigastric region, 289.
 „ „ left hypochondrium, 298.
 „ „ neck, 299.
 „ „ scalp, 292, 299.
 „ „ superior maxilla, 291.
 „ „ testis, 295, 308.
 „ „ congenital in an infant, 276.
 Tylden, Dr., on coma, 318.
- ULCER on the tongue, 287.
 „ „ treated by excision, 83.
 „ „ rodent, of face and tumour of antrum, 284.
 Ulnar nerve, division of, 281.
 Undescended testis, 290.
 Urea, amount of, in gout, 218, 220, 222.
 „ and uric acid, 74.
 Uric acid, amount of, in gout, 218, 220, 222.
 Urine in a case of fistulous opening between bladder and intestine,
 259.
 Uterus, fibro-myomata of, treated by electricity, 89.
- VENTRICLE, left, mode of expansion of, 200.
 „ „ suction-pump, action of, 199.
 Villous carcinoma of the breast, 263.
 Vocal cords, observations on, 261.
 „ „ position of, in speaking, 261.
 Vomiting caused by compression of the pneumogastric, 132.
 „ from irritation of the pneumogastric, 135.
 „ how caused, 131.
 „ in phthisis of left apex, 131.
 „ „ reflex, 137.
 „ „ statistics of, 138, 139.
- WALLACE, Dr., clinical notes and observations from the Essex and
 Colchester Hospital, 253.

- Walsham, Mr., our surgical consultations, 273.
Watts, Mr., cases from Mr. Baker's wards, 205.
Wounds, perforating, of orbit, 179.
Wrist-drop, 300.
Wrist-joint, disease of, 285, 309.
Wryneck, 249.



STATISTICAL TABLES

OF THE

Patients under Treatment

IN THE WARDS OF

ST. BARTHOLOMEW'S HOSPITAL

DURING 1887.

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.

~~~~~  
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1888.





## P R E F A C E.

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The Classification of Diseases in the Medical Tables is that adopted by the College of Physicians in their Nomenclature of Diseases.



# CONTENTS.

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|                                                                             | PAGE |
|-----------------------------------------------------------------------------|------|
| PREFACE . . . . .                                                           | iii  |
| Number of Beds . . . . .                                                    | vii  |
| General Statement of the Patients under Treatment during the Year . . . . . | vii  |
| Patients brought in Dead . . . . .                                          | vii  |
| Occupations of the Male Patients . . . . .                                  | viii |
| Occupations of the Female Patients . . . . .                                | x    |

## MEDICAL REPORT—

|                                                                                                                             |    |
|-----------------------------------------------------------------------------------------------------------------------------|----|
| TABLE I.—Showing the Total Number of Cases of each Disease under Treatment during the Year 1887, with the Results . . . . . | 12 |
| Abstract of Table I. . . . .                                                                                                | 28 |
| Appendix to Table I. . . . .                                                                                                | 29 |

## SURGICAL REPORT—

|                                                                                                                                                                           | PAGE |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| TABLE I.—Showing the Total Number of Cases under Treatment during the Year 1887, with the comparative frequency and mortality of each Disease at different ages . . . . . | 38   |
| Abstract of Table I. . . . .                                                                                                                                              | 74   |
| Appendix to Table I. . . . .                                                                                                                                              | 75   |
| Table showing the Surgical Operations performed . . . . .                                                                                                                 | 79   |
| Statistics of Anæsthetics. . . . .                                                                                                                                        | 96   |
| Appendix to Table of Surgical Operations performed . . . . .                                                                                                              | 97   |
| Sub-Table, showing the Number of Cases of Erysipelas, Pyæmia, &c. . . . .                                                                                                 | 101  |
| Appendix to the Sub-Table of Erysipelas, Pyæmia, &c.. . . .                                                                                                               | 102  |
| Table of Amputations, with the Percentage of Deaths during the Ten Years from 1878 to 1887 inclusive . . . . .                                                            | 103  |

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## OCCUPATIONS OF MALE PATIENTS.

|                                    |                           |                              |
|------------------------------------|---------------------------|------------------------------|
| Agents ... .. 4                    | Coachmen ... .. 17        | Gilders... .. 2              |
| Asbestos worker ... 1              | Coach maker ... .. 1      | Glass painter ... .. 1       |
| Artificial flower makers 2         | Coach painters ... .. 3   | Glass workers ... .. 6       |
| Assistants ... .. 21               | Collar cutter ... .. 1    | Grainer... .. 1              |
| Attendant in Turkish bath ... .. 1 | Colliers... .. 6          | Greengrocers ... .. 3        |
|                                    | Compositors ... .. 25     | Grocers... .. 5              |
|                                    | Confectioners ... .. 6    | Grooms... .. 4               |
|                                    | Cooks ... .. 7            |                              |
|                                    | Coopers ... .. 3          |                              |
|                                    | Corn chandler... .. 1     |                              |
| Bakers ... .. 29                   | Cork cutter ... .. 1      | Hairdressers ... .. 6        |
| Barmen ... .. 21                   | Costermongers ... .. 16   | Hammermen ... .. 2           |
| Basket makers ... .. 5             | Courier... .. 1           | Hatters... .. 5              |
| Billiard marker ... .. 1           | Currier... .. 1           | Hawkers ... .. 20            |
| Bill posters ... .. 4              |                           | Horsekeepers ... .. 5        |
| Blacksmiths ... .. 14              |                           | Horse-hair dressers ... .. 4 |
| Boiler maker ... .. 1              |                           | Housebreaker ... .. 1        |
| Bonnet maker... .. 1               |                           | House surgeon ... .. 1       |
| Bonnet-shape maker... 1            | Dairyman ... .. 1         |                              |
| Bookbinders ... .. 17              | Dealers... .. 17          |                              |
| Bookkeeper ... .. 1                | Decorator ... .. 1        |                              |
| Bookseller ... .. 1                | Distiller ... .. 1        |                              |
| Boot makers ... .. 27              | Dog trainer ... .. 1      | Ice cream vendors ... 3      |
| Bottle washer... .. 1              | Drain layer ... .. 1      | Indiarubber workers ... 2    |
| Bottlers ... .. 2                  | Drapers ... .. 4          | Index maker ... .. 1         |
| Box makers ... .. 2                | Drovers ... .. 3          | Inspector of telephones 1    |
| Bricklayers ... .. 22              | Dustmen ... .. 6          |                              |
| Brush makers ... .. 3              |                           |                              |
| Builders ... .. 3                  |                           |                              |
| Butchers ... .. 44                 |                           |                              |
| Butler .. .. 1                     |                           |                              |
|                                    | Editor ... .. 1           | Jam maker ... .. 1           |
|                                    | Egg merchant... .. 1      | Japanners ... .. 8           |
|                                    | Engineers ... .. 4        | Jewel-case maker ... .. 1    |
|                                    | Errand boys ... .. 24     | Joiners... .. 12             |
|                                    |                           | Journalist ... .. 1          |
| Camera maker ... .. 1              |                           |                              |
| Cabinet makers ... .. 18           |                           |                              |
| Card maker ... .. 1                |                           |                              |
| Cabdrivers ... .. 20               |                           |                              |
| Caretakers ... .. 4                | Farriers... .. 2          | Knife-machine maker .. 1     |
| Carmen ... .. 59                   | Fireman ... .. 1          |                              |
| Carpenters ... .. 25               | Fitter ... .. 1           |                              |
| Cartridge examiner ... 1           | Fisherman ... .. 1        |                              |
| Carver in eating house. 1          | Fishmongers ... .. 3      | Labourers ... .. 383         |
| Case makers ... .. 2               | French polishers ... .. 4 | Leather-case maker ... 1     |
| Cats' meat man ... .. 1            | Fruiterers ... .. 4       | Lift driver ... .. 1         |
| Cellarmen ... .. 2                 | Furriers ... .. 7         | Lithograph printer ... 1     |
| Chaff cutter ... .. 1              |                           | Loaders ... .. 3             |
| Chair makers ... .. 6              |                           | Locksmith ... .. 1           |
| Cheesemongers ... .. 3             |                           | Looking-glass maker ... 1    |
| Chemist ... .. 1                   |                           |                              |
| Cigarette maker ... .. 1           | Gardeners ... .. 8        |                              |
| Clerks ... .. 52                   | Gasfitters ... .. 8       |                              |
| Clickers ... .. 2                  | Gas workers ... .. 6      | Manager ... .. 1             |

OCCUPATIONS OF MALE PATIENTS (*continued*).

|                                            |                            |                           |
|--------------------------------------------|----------------------------|---------------------------|
| Mathematical instru-<br>ment maker... .. 1 | Post-office employés ... 6 | Stokers... .. 9           |
| Mattress maker ... 1                       | Potmen ... .. 20           | Stonemasons ... .. 12     |
| Medical students ... 10                    | Potter ... .. 1            | Stone sawyer ... .. 1     |
| Metal workers... .. 15                     | Poulticer ... .. 1         | Storekeepers ... .. 2     |
| Messengers ... .. 7                        | Press reader ... .. 1      | Sugar factor ... .. 1     |
| Miller ... .. 1                            | Printers ... .. 47         | Surgeons ... .. 2         |
| Milkmen ... .. 4                           | Publicans ... .. 4         |                           |
| Musical instrument<br>maker ... .. 1       |                            |                           |
|                                            | Railway servants ... 16    | Tailors ... .. 19         |
|                                            | Rivetters ... .. 2         | Tie makers ... .. 4       |
| Newspaper vendors ... 7                    | Rug maker ... .. 1         | Timekeepers ... .. 2      |
| Newspaper correspon-<br>dent ... .. 1      | Rule maker ... .. 1        | Tobacconists ... .. 2     |
| Nurse ... .. 1                             | Ruler ... .. 1             | Tobacco-pipe makers .. 2  |
|                                            |                            | Toy makers ... .. 4       |
|                                            |                            | Travellers ... .. 15      |
|                                            |                            | Turners ... .. 5          |
|                                            |                            | Typefounders ... .. 14    |
|                                            | Sailors ... .. 4           |                           |
| Oil and colour worker.. 1                  | Salesmen ... .. 3          | Upholsterers ... .. 3     |
| Office boys ... .. 12                      | Sawyers ... .. 4           | Umbrella maker ... .. 1   |
| Officer in army ... 1                      | Scavengers ... .. 9        |                           |
| Omnibus drivers ... 8                      | Scene shifter ... .. 1     |                           |
| Organ builder ... .. 1                     | Schoolboys ... .. 405      |                           |
| Ostlers ... .. 12                          | Servants ... .. 32         |                           |
|                                            | Sewerman ... .. 1          |                           |
|                                            | Sheriff's officer ... 1    |                           |
|                                            | Shoeblocks ... .. 6        |                           |
|                                            | Shopmen ... .. 16          | Van guards ... .. 17      |
|                                            | Showman ... .. 1           | Veneer cutter ... .. 1    |
| Packers ... .. 23                          | Silk spinner ... .. 1      | Ventilator maker ... .. 1 |
| Painters ... .. 41                         | Silk winder ... .. 1       |                           |
| Paperers ... .. 3                          | Skin dressers ... .. 2     |                           |
| Pensioners ... .. 4                        | Slaughtermen ... .. 4      |                           |
| Pewterer ... .. 1                          | Slipper maker... .. 1      |                           |
| Pianoforte makers ... 4                    | Soap worker ... .. 1       | Waiters ... .. 19         |
| Pianoforte tuner ... 1                     | Soldiers ... .. 8          | Warehousemen ... .. 24    |
| Picture-frame maker... 1                   | Stablemen ... .. 5         | Watchmen ... .. 5         |
| Plasterers ... .. 5                        | Stamper ... .. 1           | Watch makers... .. 12     |
| Plumbers ... .. 13                         | Stationer ... .. 1         | Waterproofer ... .. 1     |
| Pointer ... .. 1                           | Steam crane driver ... 1   | Weavers ... .. 2          |
| Policemen ... .. 21                        | Stereotyper ... .. 1       | Wheelwright ... .. 1      |
| Pork butcher ... .. 1                      | Stevedores ... .. 6        | Wood carvers ... .. 12    |
| Porters ... .. 64                          | Stick makers ... .. 3      | Wood cutters ... .. 3     |





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**MEDICAL REPORT.**

---

TABLE I.

| DISEASE.                 | Total. |    | 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.  |             |
|                          |        |    |          |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |          |     | Discharged. |
| <b>GENERAL DISEASES,</b> |        |    |          |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |          |     |             |
| <b>A.</b>                |        |    |          |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |          |     |             |
| Febricula ...            | 17     | 11 | 6        | ... | 1     | ... | 1     | 1   | 3     | 1   | 5     | 1   | 1     | 1   | 1     | 1   | 1     | 1   | 1        | 1   | 1           |
| Varicella ...            | 1      | 1  | ...      | ... | 1     | ... | 1     | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...      | ... | ...         |
| Measles ...              | 32     | 14 | 15       | 6   | 9     | 1   | 3     | 4   | 1     | 1   | ...   | 2   | 1     | ... | ...   | ... | ...   | ... | ...      | ... | ...         |
| Scarlet Fever ...        | 8      | 1  | 6        | ... | 1     | ... | 1     | ... | 1     | 1   | ...   | 3   | ...   | ... | ...   | ... | ...   | ... | ...      | ... | ...         |
| Typhus ...               | 1      | 1  | ...      | ... | ...   | ... | ...   | ... | ...   | ... | ...   | 1   | ...   | ... | ...   | ... | ...   | ... | ...      | ... | ...         |
| Typhoid Fever ...        | 96     | 46 | 36       | 8   | 1     | 6   | 2     | ... | 4     | 9   | 14    | 7   | 16    | 13  | 6     | 2   | 5     | 2   | 1        | 2   | 1           |
| *Diphtheria ...          | 63     | 11 | 14       | 19  | 7     | 3   | 14    | 11  | 4     | 4   | 6     | 1   | 5     | 2   | 1     | 1   | 1     | 1   | 1        | 1   | 1           |
| Mumps ...                | 5      | 3  | 2        | ... | 1     | ... | 1     | ... | 2     | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...      | ... | ...         |
| Whooping Cough ...       | 14     | 5  | 5        | 2   | 3     | 2   | 2     | 2   | 3     | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...      | ... | ...         |
| Ague... ..               | 5      | 5  | ...      | ... | ...   | ... | ...   | ... | ...   | ... | ...   | 4   | ...   | ... | ...   | ... | ...   | ... | ...      | ... | ...         |
| Pyæmia ...               | 5      | 1  | 2        | 1   | 1     | 1   | 1     | 1   | 1     | 1   | 1     | 2   | 1     | 1   | 1     | 1   | 1     | 1   | 1        | 1   | 1           |
|                          | 247    | 99 | 86       | 32  | 30    | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...      | ... | ...         |

\* For Tracheotomy cases refer to Surgical Tables (Operations).









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.  | M.  | F.  |
| DISEASES OF THE<br>NERVOUS SYSTEM<br>(continued). |             |     |          |     |             |     |       |     |             |     |       |     |             |     |       |     |             |     |          |     |     |     |
| Paralysis Agitans ...                             | 2           | ... | ...      | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...      | ... | ... | ... |
| Vertigo ...                                       | 1           | ... | ...      | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...      | ... | ... | ... |
| Nervous Vomiting ...                              | 1           | ... | ...      | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...      | ... | ... | ... |
| Aphasia ...                                       | 4           | 1   | 3        | ... | 1           | 1   | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...      | ... | ... | ... |
| Cephalalgia ...                                   | 9           | 8   | 1        | ... | 1           | 3   | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...      | ... | ... | ... |
| Neuralgia ...                                     | 4           | ... | 4        | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...      | ... | ... | ... |
| Nervous Exhaustion ...                            | 2           | 1   | 1        | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...      | ... | ... | ... |
| Hysteria ...                                      | 18          | 1   | 17       | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...      | ... | ... | ... |
| Hypochondriasis ...                               | 1           | 1   | 2        | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...      | ... | ... | ... |
| Melancholia ...                                   | 3           | 1   | 2        | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...      | ... | ... | ... |
| Dementia ...                                      | 4           | 3   | 1        | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...      | ... | ... | ... |
| General Paralysis ...                             | 5           | 5   | ...      | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...      | ... | ... | ... |
| Insanity ...                                      | 2           | 1   | 1        | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...      | ... | ... | ... |
|                                                   | 283         | 131 | 104      | 31  | 17          |     |       |     |             |     |       |     |             |     |       |     |             |     |          |     |     |     |





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. |
| <b>DISEASES OF THE RESPIRATORY SYSTEM.</b> |             |     |          |     |             |    |       |    |             |    |       |    |             |    |       |    |             |    |          |    |
| Laryngitis ...                             | 10          | 5   | 4        | 2   | 4           | 4  | 1     | 1  |             |    |       | 2  | 1           |    |       |    |             |    |          |    |
| Epithelioma of Larynx                      | ...         | ... | 1        | 1   |             |    |       |    |             |    |       |    |             |    |       |    |             |    |          |    |
| Croup ...                                  | 5           | ... | ...      | 2   | 1           |    |       |    |             |    |       |    |             |    |       |    |             |    |          |    |
| Pulmonary Catarrh                          | 5           | 3   | ...      | 1   | 1           |    |       |    |             |    |       |    |             |    |       |    |             |    |          |    |
| Asthma ...                                 | 2           | 1   | ...      | ... | ...         |    |       |    |             |    |       |    |             |    |       |    |             |    |          |    |
| Bronchitis ...                             | 23          | 23  | 5        | 3   | 5           | 5  | 1     | 1  |             |    |       | 1  | 1           |    |       |    |             |    |          |    |
| Bronchitis with Emphysema                  | 29          | 5   | 1        | 3   | 1           | 3  | 5     | 1  |             |    |       | 6  | 3           | 1  | 4     | 2  | 5           | 3  | 4        | 2  |
| Emphysema...                               | 6           | 4   | ...      | 2   | ...         |    |       |    |             |    |       |    |             |    |       |    |             |    |          |    |
| Collapse of Lung                           | 3           | ... | 1        | 2   | ...         |    |       |    |             |    |       |    |             |    |       |    |             |    |          |    |
| Congestion of Lung                         | 4           | 3   | ...      | 1   | ...         |    |       |    |             |    |       |    |             |    |       |    |             |    |          |    |
| Pneumonia ...                              | 74          | 40  | 28       | 6   | 14          | 11 | 11    | 2  | 18          | 7  | 10    | 4  | 1           | 9  | 3     | 4  | 2           | 4  | 2        | 1  |
| Catarrhal Pneumonia                        | 15          | 8   | 2        | 3   | 2           | 2  | 1     | 1  |             |    |       |    |             |    |       |    |             |    |          |    |
| Phthisis ...                               | 79          | 25  | 33       | 13  | 1           | 1  | 1     | 1  | 1           | 1  | 3     | 8  | 7           | 5  | 4     | 5  | 7           | 2  | 3        | 2  |
| Consolidation(nature uncertain)            | 5           | 4   | ...      | 1   | ...         |    |       |    |             |    |       |    |             |    |       |    |             |    |          |    |
| Hydatid of Lung                            | 1           | 1   | ...      | ... | ...         |    |       |    |             |    |       |    |             |    |       |    |             |    |          |    |
| Abscess of Lung                            | 2           | ... | 2        | ... | ...         |    |       |    |             |    |       |    |             |    |       |    |             |    |          |    |
| Malignant Disease of Lung.                 | ...         | ... | ...      | ... | ...         |    |       |    |             |    |       |    |             |    |       |    |             |    |          |    |
| Mediastinal Tumour                         | 1           | 1   | ...      | ... | ...         |    |       |    |             |    |       |    |             |    |       |    |             |    |          |    |
| Pleurisy ...                               | 24          | 16  | 6        | 2   | ...         |    |       |    |             |    |       |    |             |    |       |    |             |    |          |    |
| Pleural Effusion                           | 34          | 24  | 8        | 2   | ...         |    |       |    |             |    |       |    |             |    |       |    |             |    |          |    |
| Empyema ...                                | 15          | 7   | 4        | 2   | 1           | 1  | 1     | 1  | 2           | 1  | 1     | 1  | 1           | 1  | 1     | 1  | 1           | 1  | 1        | 1  |
| Pneumothorax                               | 5           | 5   | ...      | ... | ...         |    |       |    |             |    |       |    |             |    |       |    |             |    |          |    |
| Hemoptysis...                              | 8           | 7   | 1        | 3   | ...         |    |       |    |             |    |       |    |             |    |       |    |             |    |          |    |
| Dyspnoea ...                               | 1           | 1   | ...      | ... | ...         |    |       |    |             |    |       |    |             |    |       |    |             |    |          |    |
| Pleurodynia ...                            | 1           | 1   | ...      | ... | ...         |    |       |    |             |    |       |    |             |    |       |    |             |    |          |    |
|                                            | 181         | 237 | 120      | 78  | 46          |    |       |    |             |    |       |    |             |    |       |    |             |    |          |    |



















# ABSTRACT OF TABLE I.

| DISEASES.                                                               | Total<br>Number of Cases<br>completed<br>during the Year<br>1887. | Number of Cases<br>discharged. |     | Deaths. |     | Remaining<br>in the Hospital<br>at the end of the<br>year 1887. |
|-------------------------------------------------------------------------|-------------------------------------------------------------------|--------------------------------|-----|---------|-----|-----------------------------------------------------------------|
|                                                                         |                                                                   | M.                             | F.  | M.      | F.  |                                                                 |
| GENERAL DISEASES, A                                                     | 247                                                               | 99                             | 86  | 32      | 30  |                                                                 |
| Do. B                                                                   | 361                                                               | 160                            | 185 | 9       | 7   |                                                                 |
| LOCAL DISEASES—                                                         |                                                                   |                                |     |         |     |                                                                 |
| Diseases of the Nervous System                                          | 283                                                               | 131                            | 104 | 31      | 17  |                                                                 |
| "  Circulatory System                                                   | 242                                                               | 99                             | 69  | 48      | 26  |                                                                 |
| "  Respiratory System                                                   | 481                                                               | 237                            | 120 | 78      | 46  |                                                                 |
| "  Digestive System                                                     | 328                                                               | 130                            | 130 | 46      | 32  |                                                                 |
| "  Urinary System                                                       | 149                                                               | 79                             | 37  | 23      | 10  |                                                                 |
| "  Female Generative System                                             | 147                                                               | ...                            | 140 | ...     | 7   |                                                                 |
| Diseases connected with Pregnancy...                                    | 36                                                                | ...                            | 32  | ...     | 4   |                                                                 |
| Diseases of the Cutaneous System                                        | 17                                                                | 9                              | 8   | ...     | ... |                                                                 |
| CONDITIONS NOT NECESSARILY ASSOCIATED WITH<br>GENERAL OR LOCAL DISEASE— |                                                                   |                                |     |         |     |                                                                 |
| POISONS—                                                                | 54                                                                | 39                             | 9   | 5       | 1   |                                                                 |
|                                                                         | 2,345                                                             | 983                            | 920 | 272     | 170 | 198                                                             |
|                                                                         |                                                                   | 1,903                          |     | 442     |     |                                                                 |
|                                                                         |                                                                   | 2,345                          |     |         |     |                                                                 |

## APPENDIX TO TABLE I.

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*Measles.*—F 2½ : Died of double catarrhal pneumonia ; M 18 months : Developed diphtheria, and died.

*Typhoid Fever.*—F 3 : Died of bronchitis and catarrhal pneumonia ; F 12 : Had a relapse, lasting 30 days, recovered. Two cases had severe cerebro-spinal symptoms, viz. : F 20, rigidity of back, neck, and limbs ; and F 28, delirium, insomnia, tremors, rigidity, persistent high temperature ; both recovered. M 21 : Had bleeding from ears ; died. M 20 : Died of pneumothorax and (?) gangrene of lung.

Of cases investigated post-mortem, M 25 had hæmorrhage two days before death, but the ulcers were found nearly healed ; M 24 had perforation and general peritonitis ; M 24 had local peritonitis, and the ulcers had almost perforated.

*Diphtheria.*—Three cases died with “malignant diphtheria” : two are reported by Sir Dyce Duckworth (Hospital Reports, vol. xxiii., p. 13) ; the third (M 6) had epistaxis, and hæmorrhages in both lungs. A brother of Sir Dyce’s second case was admitted to Hope Ward with obscure symptoms, viz., diarrhœa, drowsiness, and redness of fauces, but recovered.

In F 6, the disease began in the external ear ; subsequently she developed scarlet fever, and died. Another case (F 6) was found post-mortem to have hydatids of the liver.

*Whooping Cough.*—Of the fatal cases, one had pneumonia ; another, aged 6 weeks only, had phthisis ; another had measles and croup, for which tracheotomy was done.

*Pyæmia.*—F 22 : Puerperal ; admitted 22 days after delivery ; died in 3 days with marked anæmia, thrombosis of veins, abscesses in lungs.

| 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.  |
| 1st Attack ...      | 28          | 34 | ...      | ... | 1           | ... | 5     | 1   | 5           | 13 | 17    | 11 | 1           | 7  | 1     | ... | ...         | ... | ...      | ... |
| 2nd Attack ...      | 33          | 15 | 1        | 1   | ...         | ... | 1     | 1   | 5           | 5  | 6     | 1  | 4           | 2  | ...   | 1   | ...         | ... | ...      | ... |
| 3rd Attack ...      | 28          | 17 | ...      | ... | ...         | ... | 4     | ... | 2           | 2  | 9     | 5  | 3           | 2  | 1     | 1   | 1           | ... | ...      | ... |
| 4th Attack and more | 17          | 10 | ...      | ... | ...         | ... | ...   | ... | 2           | 2  | 2     | 2  | 5           | 3  | 1     | ... | ...         | ... | ...      | ... |
| Unspecified ...     | 14          | 5  | ...      | ... | 1           | ... | 3     | ... | 1           | 1  | 2     | 2  | 1           | 1  | 1     | 1   | 1           | ... | ...      | ... |
|                     | 76          | 76 | 1        | 1   | 2           | ... | 10    | 5   | 13          | 23 | 36    | 26 | 14          | 15 | 2     | 2   | 1           | 3   | ...      | ... |

| DISEASE.                                                                                                                                            | TOTAL. | Permanent Heart Disease. |    |       |     |              |       |              |       |                    |       |               |       | Total of Cases with Permanent Heart Mischief. |                                    |       |     |     |     |                |     |     |                |     |    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------------------------|----|-------|-----|--------------|-------|--------------|-------|--------------------|-------|---------------|-------|-----------------------------------------------|------------------------------------|-------|-----|-----|-----|----------------|-----|-----|----------------|-----|----|
|                                                                                                                                                     |        | No Heart Disease.        |    |       |     | Mitral.      |       | Aortic.      |       | Aortic and Mitral. |       | Pericarditis. |       |                                               | Pericarditis and Valvular Disease. |       |     |     |     |                |     |     |                |     |    |
|                                                                                                                                                     |        | Dis-charged.             |    | Died. |     | Dis-charged. | Died. | Dis-charged. | Died. | Dis-charged.       | Died. | Dis-charged.  | Died. |                                               | Dis-charged.                       | Died. |     |     |     |                |     |     |                |     |    |
|                                                                                                                                                     |        | M.                       | F. | M.    | F.  | M.           | F.    | M.           | F.    | M.                 | F.    | M.            | F.    |                                               | M.                                 | F.    | M.  | F.  |     |                |     |     |                |     |    |
| 1st Attack ... ..                                                                                                                                   | 62     | 28                       | 34 | ...   | ... | 16           | 17    | ...          | ...   | 7 <sup>1</sup>     | 13    | ...           | ...   | 2                                             | 1                                  | ...   | ... | 1   | 2   | ...            | ... | 29  |                |     |    |
| 1. The mitral disease developed while in hospital in two of these cases.                                                                            |        |                          |    |       |     |              |       |              |       |                    |       |               |       |                                               |                                    |       |     |     |     |                |     |     |                |     |    |
| 2nd Attack ... ..                                                                                                                                   | 34     | 16                       | 16 | 1     | 1   | 6            | 9     | ...          | ...   | 9                  | 7     | ...           | ...   | ...                                           | ...                                | ...   | ... | 1   | ... | 1 <sup>2</sup> | ... | ... | 1 <sup>3</sup> | 19  |    |
| 2. M 20: Heart normal on admission; pericardial friction 8 days after admission; in 11 more days serous effusion left pleura; died. No post-mortem. |        |                          |    |       |     |              |       |              |       |                    |       |               |       |                                               |                                    |       |     |     |     |                |     |     |                |     |    |
| 3. F 19: Mitral regurgitation and pericarditis. Admitted in the third week of the attack. Died a month after a lmission.                            |        |                          |    |       |     |              |       |              |       |                    |       |               |       |                                               |                                    |       |     |     |     |                |     |     |                |     |    |
| 3rd Attack ... ..                                                                                                                                   | 28     | 17                       | 11 | ...   | ... | 4            | 3     | ...          | ...   | 7                  | 4     | ...           | ...   | 1                                             | 2                                  | ...   | ... | 2   | 14  | ...            | ... | 3   | 1              | ... | 21 |
| 4. Had pneumonia also, F 20.                                                                                                                        |        |                          |    |       |     |              |       |              |       |                    |       |               |       |                                               |                                    |       |     |     |     |                |     |     |                |     |    |
| 4th Attack and more ...                                                                                                                             | 17     | 10                       | 7  | ...   | ... | 2            | 1     | ...          | ...   | 5 <sup>5</sup>     | 5     | ...           | ...   | 1                                             | ...                                | ...   | ... | ... | ... | ...            | ... | 2   | 1              | ... | 14 |
| 5. M 16: Pneumonia also.                                                                                                                            |        |                          |    |       |     |              |       |              |       |                    |       |               |       |                                               |                                    |       |     |     |     |                |     |     |                |     |    |
| Unspecified ... ..                                                                                                                                  | 14     | 5                        | 9  | ...   | ... | 3            | 1     | ...          | ...   | 1                  | 4     | ...           | ...   | 1 <sup>6</sup>                                | ...                                | ...   | ... | ... | ... | 27             | ... | ... | 2              | ... | 10 |
| 6. Aortic regurgitation; pneumonia left base; some slight effusion right base; recovered.                                                           |        |                          |    |       |     |              |       |              |       |                    |       |               |       |                                               |                                    |       |     |     |     |                |     |     |                |     |    |
| 7. F 9: Had also left pleural effusion and consolidation.                                                                                           |        |                          |    |       |     |              |       |              |       |                    |       |               |       |                                               |                                    |       |     |     |     |                |     |     |                |     |    |

*Rheumatism*.—M 23: With chronic arthritis; had pain and œdema of legs, tenderness, and muscular wasting.

*Gout*.—M 29: Fatal, with chronic interstitial nephritis, dilated heart, and dropsy.

*Syphilis*.—M 36: Fatal; had stricture, cystitis, and renal disease, and fibroid lungs with bronchiectasis. M 35: With syphilitic cachexia; had feebleness of legs and double optic neuritis, probably gummatous meningitis.

*Rickets*.—Out of the four fatal cases, one had bronchitis, another tubercle of the lungs, a third had coryza and fever a few days before death (there being measles in the ward), but no rash appeared.

*Anæmia*.—F 65: Fatal; had arterial degeneration and pleural effusion. Two cases (females) had phlegmasia alba dolens a third optic neuritis, a fourth retinal hæmorrhage. M 22: Had hæmaturia.

*Amyloid Disease*.—M 38: Associated with pulmonary phthisis.

*Cachexia*.—M 44: Nature quite doubtful.

*Anasarca*.—M 35: Cause undiscoverable during life; post-mortem refused.

*Prematurity*.—Born in hospital, and died 9 days afterwards.

*Hemiplegia*.—Two cases had athetosis; one, symptoms of bulbar paralysis; one, bilateral convulsions. M 49: Right hemiplegia; had also ophthalmoplegia of left eye, with left facial anæsthesia and double optic neuritis. M 65: Had left hemiplegia and aphasia; he was left-handed. M 76: Was the subject of paralysis agitans, right-sided; he was admitted for left hemiplegia of sudden onset, and apparently due to hæmorrhage, of which he died; post-mortem; no naked eye lesion could be found.

*Cerebral Hæmorrhage*.—M 60: Hæmorrhage into left side of pons; had well-marked cross paralysis. Two cases were in young subjects (M 20 and M 9), *vide* Hospital Reports, vol. xxiii., pp. 178—184, for full accounts. In F 44 there was *right* hemiplegia, and the principal hæmorrhage was on the *right* side of the brain; there was a small additional one in the pons. M 32: Had a history of rheumatism and signs of valvular disease; was attacked in hospital with fatal hemiplegia. Post-mortem: Extensive mitral disease and a cerebral hæmorrhage.

*Cerebral Tumour*.—M 30: Was in hospital over a year with general symptoms of cerebral tumour, and was comatose most of that time; the tumour finally perforated the skull over the right eye, and was partially removed. Post-mortem: Numerous out-growths from the brain were found excavating the skull in nearly 30 places.

*Cerebral Abscess*.—F 20: In left ascending frontal convolution, *vide* Hospital Reports, xxiii., 188.

*Congestion of Brain*.—M 20: Admitted for violent paroxysmal pain in head, about 6 days' duration. Died soon after admission. Post-mortem: No naked eye lesion could be found.

*Laceration of Brain*.—F: Died soon after admission; the cause could not be determined.

*Meningitis*.—M 13: Traumatic. In three other cases connected with ear disease. F 1 year: Purulent meningitis of the whole convexity; cause undetermined. M 49: Had phthisis and meningitis of the base, but the latter was not tubercular.

*Basal Meningitis*.—Verified post-mortem in two cases.

*Hydrocephalus*.—F 51: Headache, vomiting, optic neuritis, paralysis right external rectus and right facial. Post-mortem: Thickening of meninges at base; great distention of ventricles, with clear fluid; no tumour.

*Locomotor Ataxy*.—M 40: With morphia habit; had arthritis of several joints. M 38: Had (partial) double ophthalmoplegia. M 38: Had convulsions and mental failure. M 41: Had reflex iridoplegia on one side only. M 46: Complicated with phthisis of lungs. M 48: Disease ascribed to injury. M 6: A doubtful case of Friedreich's ataxia.

*Paraplegia.*—M 25 : Accompanied with syphilitic rash. M 38 : Had had the sciatic nerve stretched 3 years ago.

*Acute Anterior Poliomyelitis.*—F 21 : Admitted about 5th day ; restless, drowsy, with petechial rash ; temperature  $103.5^{\circ}$  ; in 6 more days diminution (quantitative) of electro-contractility of muscles ; after 7 weeks reaction of degeneration noted ; remained in hospital over a year, and improved very greatly.

*Myelitis.*—F 22 : Paraplegia, bedsores ; also coma, ptosis, and contraction of right arm. Post-mortem : Softening of the lumbar enlargement, and an old cyst in the left lenticular nucleus.

*Spinal Meningitis.*—M 41 : Died ; chronic thickening of arachnoid, and softening of the cord in the lumbar region ; small gummata on two of the nerve roots ; syphilis 13 years ago ; right facial palsy  $3\frac{1}{2}$  years ago ; 2 years ago pains in legs, followed by unsteady gait ; spastic condition of legs when admitted.

*Paralysis of Nerve Trunks.*—F 38 : Double facial palsy of peripheral type : left side attacked 10 days before right ; alleged cause, "a cold" ; tympanic membranes thickened, but not perforated. M 36 : Right facial palsy, with conjugate palsy of eyeballs, nystagmus and perosseous deafness (right), possibly nuclear (?). Amongst the other cases were : two with paralysis of the third, one of the sixth nerve ; one with ulnar neuritis ; one with pressure paralysis of the brachial plexus.

*Peripheral Neuritis.*—Alcoholic in most instances. F 27 (an exception in this respect) : Had been always temperate ; alleged cause a "chill" 3 weeks after a confinement ; she had numbness and weakness of legs (and to a certain degree of hands), double ankle-drop, absent tendon-reflexes, diminished electro-contractility, but no pains.

No less than six cases (alcoholic) had pulmonary complications : F 35, hæmoptysis ; F 34, hæmoptysis and râles in lung ; F 38, pleural effusion ; M 27 (fatal), dulness over left lung and (?) paralysis of diaphragm ; F 32 (fatal), phthisis ; F 20 (the last case recorded by Sir Dyce Duckworth in Hospital Reports, xxii., 257), cavity in right lung ; F 49, had cirrhosis of liver.

*Chorea.*—F 18 : First attack ; maniacal ; no history of rheumatism, scarlet fever, nor fright.

*Tetanus.*—Alleged cause, exposure to cold ; duration on admission 13 days ; died in 2 days more, the temperature rising to  $104^{\circ}$  at death.

#### *Morbus Cordis—*

*Mitral Disease.*—Tricuspid stenosis was found post-mortem in two cases of mitral stenosis ; in one of these the murmurs had pointed to disease of all four valves. Two cases of mitral disease had phthisis also. One case (M 34) of mitral stenosis, had cirrhosis of the liver. In another case of mitral disease death was caused by a tumour at the root of the left lung, which set up gangrene of the left lung, and pyo-pneumothorax of that side (M 45).

*Aortic Disease.*—M 54 : Had been under Mr. Holden 13 years ago for popliteal aneurysm.

*Both Valves.*—F 24 (rheumatic) : Mitral tricuspid and aortic disease were found post-mortem.

*Dilatation.*—M 51 : Acute dilatation of heart from over-exertion. M 38 : Hypertrophy and dilatation ; an aneurysm of the descending aorta was suspected. F 70 : Dilatation of heart, and commencing interstitial nephritis found post-mortem.

*Ulcerative Endocarditis.*—F 16 : Had mitral valvulitis and embolisms. M 19 : Was brought in unconscious, and died very soon. Post-mortem : Ulcerative endocarditis and cerebral embolism. M 50 : Had extensive valvular disease and cerebral hæmorrhage. In M 5 the right side of the heart was affected with ulcerative endocarditis.

*Pericarditis*—Distinctly rheumatic in four cases; associated with endocarditis and probably rheumatic in two more. M 49: Had albuminuria, but no rheumatic history. Post-mortem: Pericardial effusion and dilatation of right heart.

*Aneurysm*.—Five abdominal, out of which three died. M 46: Of sudden collapse. In M 30 a clean-cut hole was found in the aorta posteriorly, from which blood had passed into the retro-peritoneal tissue, and into the sheaths of the abdominal muscles.

Of the aortic aneurysms, three are specified as belonging to the ascending aorta; one as an aneurysm of the first and second part; two others pointed on the left side of the chest.

*Thrombosis of Pulmonary Artery*.—Was pregnant; died suddenly in the ward in what was thought to be a "fit."

*Thrombosis of Veins*.—F 29: Thrombosis of superior cava and right subclavian, gangrene of right lung and right pneumothorax. F 23: Thrombosis of superficial veins of leg. M 25: Of lower limbs after typhoid. M 33: Of arm after injury. F 38: Phlegmasia alba dolens.

*Epithelioma of Larynx*.—Complicated with abscess, *vide* Hospital Reports, xxiii., 153.

*Asthma*.—M 36: Had also albuminuria.

*Bronchitis*.—M 26: Post-mortem were found pyæmic abscess of the lung and granular kidneys.

*Emphysema*.—Dilatation of heart in both the fatal cases; one was an alcoholic subject.

*Pneumonia*.—Central pneumonia in five cases, viz., symptoms of the disease without physical signs, mostly in children, viz., M 6½, M 8, F 8, F 13, and (a doubtful case) M 30. Empyæma in four cases, one fatal. Delirium tremens in three fatal cases:—F 17: Admitted for acute pneumonia May, 1886; died of phthisis February, 1887. M 40: Developed gangrene of the lung, pyæmia, and meningitis. M 36: Had tremors and other nervous symptoms during an attack of acute rheumatism, and died. Post-mortem, hepatisation of lung and adherent pericardium were found.

*Catarrhal Pneumonia*.—M 2 years and 2 months: Had recently had measles; had right-sided convulsions and partial right hemiplegia, finally retraction of head, opisthotonus, and death. No post-mortem.

*Phthisis*.—F 25: Acute miliary tuberculosis (principally of lungs) found post-mortem. Sent in 8 days before death for obscure symptoms, supposed to indicate acute rheumatism with pericarditis. F 16: Was 14 months in hospital; admitted for a pleurisy suspected to be tubercular; post-mortem, left lung tightly adherent and shrunken, fibroid and tubercular; necrosis of ribs, psoas abscess, and amyloid disease. M 30: Tuberculosis of lungs and larynx. M 36: Phthisis of lungs, tubercular peritonitis, and epilepsy.

*Hydatid of Lung*.—Signs of pleural effusion, left side; on paracentesis hydatid fluid was drawn off.

*Abscess of Lung*.—M 41: The abscess small, probably old; recent pneumonia. M 59: Hæmoptysis, and signs of disease in right lower lobe after fall from ladder; post-mortem, fracture of ribs, excavation of lung; no signs of tubercle.

*Malignant Disease of Lung*.—M 46: Right hæmothorax found during life, and post-mortem, a soft red new growth springing either from the pleura or periphery of the lung, and filling the pleura and lung substance with hæmorrhage. M 45: Short breath for 6 weeks; left pleural effusion, requiring paracentesis several times, and dependent on a new growth at root of left lung.

*Empyæma*.—F 26: At left base, relieved by expectoration of foul nummular sputum. M 2½: Died of peritonitis; the empyæma was found to be drained and dry; it had not perforated the diaphragm. M 48: Pulsating empyæma.



*Pneumo-thorax*.—A child of 6 months was admitted for marasmus, diarrhoea, and petechiæ on skin; collapse occurred 5 days later. Post-mortem, a phthisical cavity was found opening into the pleura.

*Stomatitis*.—M 44: Fatal; acute stomatitis, probably mercurial, with syphilis and albuminaria.

*Hæmatemesis*.—In two fatal cases, both cirrhosis of liver and a gastric ulcer were found post-mortem.

*Cancer of Stomach*.—M 62: Of the œsophagus and cardia; had also pneumonia and granular kidneys.

*Diarrhœa*.—F 47: Fatal; had also left pneumonia.

*Intestinal Obstruction*.—Of the three fatal cases, one was due to chronic peritonitis, and two to kinks of the intestine.

*Ulceration of Intestine*.—M 33: Duodenal ulcer, perforation, and fatal peritonitis.

*Cancer of Intestine*.—F 52: Cancerous stricture of transverse colon. M 40: Cancer of ascending colon, perforation, peritonitis.

*Cancer of Omentum and Mesentery*.—F 43: Secondary to cancer of ovaries.

*Typhlitis*.—F 74: Appendix cæci found to be sloughing post-mortem. F 8: Died of subsequent peritonitis. F 18: Typhlitis and psoas abscess found post-mortem.

*Peritonitis*.—The four fatal cases were examined post-mortem. M 14: Local peritonitis beginning in left side, cause undetermined. M 15: Probably typhlitic in origin. F 40: Chronic peritonitis, secondary to malignant disease; new growths also in pleuræ and lungs. F 36: After removal of cervix uteri.

*Jaundice*.—M 66: Catarrhal jaundice complicated with erysipelas, which proved fatal. M 84: Obstruction of common duct; nature uncertain; fatal; no post-mortem. F 30: Icterus gravis, which recovered (*see* Hospital Reports, xxiii., 184—186).

*Gall Stones*.—M 33: Fatal, by rupture of gall-bladder.

*Abscess of Liver*.—M 28: Tropical abscess; operation; recovery. M 43: No history obtainable; admitted very ill, with symptoms pointing to right pneumonia or pleurisy; dark red fluid drawn off by aspiration, which came (as was found post-mortem) from a large hepatic abscess.

*Hydatids*.—In two cases hydatid of the liver—one of these was suppurating; was incised; recovery. The other was complicated with epilepsy. The third (M 17) was admitted for obscure abdominal symptoms of some standing, and died the same day. Post-mortem, the abdomen was found crammed with cysts of all sizes; there was a cyst also in the left pleura; none in the liver substance.

*Hæmaturia*.—F 5: Intermittent hæmatinuria.

*Albuminuria*.—F 31: Had pericarditis; recovered. Uræmia in three cases, two of which died.

*Acute Nephritis*.—The fatal case (M 35) had uræmia and hemiplegia.

*Chronic Nephritis*.—Of the fatal cases, M 29 had glycosuria also; M 24 had albuminuric retinitis and uræmic convulsions.

Two non-fatal cases had uræmia. One of these was twice in hospital, viz., in February with uræmia and dyspnœa; in July with dropsy and retinitis, with hæmorrhages and optic neuritis.

*Granular Kidney*.—Two fatal cases had pericarditis. One of these (F 47) had also purpura and a cerebellar hæmorrhage.

*Tuberculosis of Urinary Tract.*—F 8: Tubercular pyelitis; also phthisis of lungs and intestines, and amyloid disease of several organs. M 36: Tuberculosis of bladder, right ureter, and right kidney. M 23: The tubercular nature of the disease had been discovered at a surgical operation undertaken for its relief at another hospital. All these three died in the hospital.

*Renal Tumour.*—In a child of 2½; probably sarcoma.

*Glycosuria.*—Two cases in quite young subjects, 7 and 10 years old respectively. F 21: A stout and healthy-looking girl; had been in the hospital twice before for diabetes, in 1884 and 1885. Three cases died comatose. Phthisis pulmonum in one case.

*Abscess of Fallopian Tube.*—F 50: Death from peritonitis.

*Retroversion of Gravid Uterus.*—F 23: Bladder sloughed from retention of urine; death in consequence.

*Post-partum Vomiting.*—F 32: An intemperate subject; died with vomiting and delirium two days after delivery. Post-mortem: Placenta adherent, kidneys fatty and granular, cerebral convolutions shrunken.

*Puerperal Fever.*—F 35: Died with pneumonia 8 days after delivery. F 25: Confined September 19th; first symptoms of illness October 1st; died October 7th. Post-mortem: Peritonitis, large white kidneys.

*Lead Poisoning.*—F 34: From 5 years' use of cosmetic containing lead.

*Alcoholism.*—The fatal case (M 36) had fits, coma, and slight albuminuria. Post-mortem: A shrunken brain.

*Delirium Tremens.*—Out of the four fatal cases, one had pneumothorax, another pneumonia, a third chronic thickening of the arachnoid.

*Turpentine Poisoning.*—M 24: Took an ounce of turpentine as a remedy for gleet. F 17: A fatal case; took by mistake an ounce of "house oil"; the course of the complaint suggested phosphorus poisoning. She was admitted with vomiting and some albuminuria, and improved; 8 days after taking the poison she brought up coffee-ground vomit, became jaundiced, and died. Post-mortem: Many extravasations of blood into peritoneum; liver extremely fatty.

*Belladonna Poisoning.*—M 47: ¼-pint of liniment; had coma, dilated pupils, pain in belly, pneumonia.

*Phosphorus Poisoning.*—F 21: Took "the heads of 12 matches"; vomiting, headache, abdominal tenderness, collapse; in 6 days more jaundice and menorrhagia, but she recovered.

*Mercury.*—M 30: Ptyalism from medicinal administration of mercury. M 27: Labourer for Electric Light Company; mercurial tremor.

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**SURGICAL REPORT.**

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| 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. |
| <i>TUMOURS (continued).</i> |             |    |          |    |             |    |       |    |             |    |       |    |             |    |       |    |             |    |          |    |
| Abdominal Tumour            | 1           | .. | ..       | .. | 1           | .. | ..    | .. | ..          | .. | ..    | .. | ..          | .. | ..    | .. | ..          | .. | ..       | .. |
| Adeno-Fibroma               | 12          | .. | ..       | .. | ..          | .. | ..    | .. | ..          | .. | 6     | .. | ..          | 4  | ..    | .. | ..          | .. | ..       | .. |
| Enchondroma—                |             |    |          |    |             |    |       |    |             |    |       |    |             |    |       |    |             |    |          |    |
| <i>Parotid</i>              | ..          | 1  | ..       | .. | ..          | .. | ..    | .. | ..          | .. | 1     | .. | ..          | .. | ..    | .. | ..          | .. | ..       | .. |
| <i>Exostosis</i>            | ..          | .. | ..       | .. | ..          | .. | ..    | .. | ..          | .. | ..    | .. | ..          | .. | ..    | .. | ..          | .. | ..       | .. |
| <i>Cervical Vertebra</i>    | 3           | .. | ..       | .. | ..          | .. | ..    | .. | ..          | .. | 3     | .. | ..          | .. | ..    | .. | ..          | .. | ..       | .. |
| <i>Multiple</i>             | ..          | 3  | ..       | .. | ..          | .. | ..    | .. | 3           | .. | ..    | .. | ..          | .. | ..    | .. | ..          | .. | ..       | .. |
| <i>Scapula</i>              | ..          | 1  | ..       | .. | 1           | .. | ..    | .. | ..          | .. | ..    | .. | ..          | .. | ..    | .. | ..          | .. | ..       | .. |
| <i>Toe</i>                  | ..          | 1  | ..       | .. | ..          | .. | ..    | .. | 1           | .. | ..    | .. | ..          | .. | ..    | .. | ..          | .. | ..       | .. |
| <i>Fibroma</i>              | ..          | .. | ..       | .. | ..          | .. | ..    | .. | ..          | .. | ..    | .. | ..          | .. | ..    | .. | ..          | .. | ..       | .. |
| <i>Abdominal Wall</i>       | 2           | .. | ..       | .. | ..          | 2  | ..    | .. | ..          | .. | 1     | .. | ..          | 1  | ..    | .. | ..          | .. | ..       | .. |
| <i>Arm</i>                  | ..          | 1  | ..       | .. | ..          | 1  | ..    | .. | ..          | .. | 1     | .. | ..          | .. | ..    | .. | ..          | .. | ..       | 1  |
| <i>Back</i>                 | ..          | 1  | ..       | .. | ..          | 1  | ..    | .. | ..          | .. | ..    | .. | ..          | .. | ..    | .. | ..          | .. | ..       | .. |
| <i>Buttock</i>              | ..          | 1  | ..       | .. | ..          | 1  | ..    | .. | ..          | .. | ..    | .. | ..          | 1  | ..    | .. | ..          | .. | ..       | .. |
| <i>Finger</i>               | ..          | 2  | ..       | .. | ..          | 1  | ..    | .. | ..          | .. | ..    | .. | ..          | .. | ..    | .. | ..          | .. | ..       | .. |
| <i>Jaws (Epulis)</i>        | 7           | .. | ..       | .. | ..          | .. | ..    | .. | ..          | .. | 2     | .. | ..          | 3  | ..    | .. | ..          | .. | ..       | .. |
| <i>Larynx</i>               | 1           | 1  | ..       | .. | ..          | .. | ..    | .. | ..          | .. | ..    | .. | ..          | .. | ..    | .. | ..          | .. | ..       | 1  |
| <i>Leg</i>                  | ..          | 1  | ..       | .. | ..          | 1  | ..    | .. | ..          | .. | ..    | .. | ..          | .. | ..    | .. | ..          | .. | ..       | .. |
| <i>Neck</i>                 | ..          | 1  | ..       | .. | ..          | 1  | ..    | .. | ..          | .. | ..    | .. | ..          | .. | ..    | .. | ..          | .. | ..       | .. |
| <i>Radial Nerve</i>         | ..          | 1  | ..       | .. | ..          | .. | ..    | .. | ..          | .. | ..    | .. | ..          | .. | ..    | .. | ..          | .. | ..       | .. |
| <i>Thigh</i>                | 3           | .. | ..       | .. | ..          | .. | ..    | .. | ..          | .. | 1     | .. | ..          | .. | ..    | .. | ..          | .. | ..       | .. |
| <i>Tongue</i>               | ..          | 1  | ..       | .. | ..          | .. | ..    | .. | ..          | .. | ..    | .. | ..          | 1  | ..    | .. | ..          | .. | ..       | .. |
| <i>Vulva</i>                | ..          | 1  | ..       | .. | ..          | .. | ..    | .. | ..          | .. | ..    | .. | ..          | 1  | ..    | .. | ..          | .. | ..       | .. |
| <i>Fibro-Myoma</i>          | ..          | .. | ..       | .. | ..          | .. | ..    | .. | ..          | .. | ..    | .. | ..          | .. | ..    | .. | ..          | .. | ..       | .. |
| <i>Uterus</i>               | 3           | .. | ..       | .. | ..          | .. | ..    | .. | ..          | .. | ..    | .. | ..          | 1  | ..    | .. | ..          | .. | ..       | 2  |











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.  |
| DISEASES OF THE EYE<br>(continued).     |             |     |          |     |             |     |       |     |             |     |       |     |             |     |       |     |             |     |          |     |
| Errors of Refraction—                   |             |     |          |     |             |     |       |     |             |     |       |     |             |     |       |     |             |     |          |     |
| <i>Asigmatism</i> .....                 | 6           | ... | ...      | ... | ...         | ... | 2     | ... | ...         | ... | 3     | ... | ...         | 1   | ...   | ... | ...         | ... | ...      | ... |
| <i>Hypermetropia</i> .....              | 5           | 3   | ...      | ... | ...         | ... | 2     | 1   | ...         | ... | 1     | ... | ...         | 1   | ...   | ... | ...         | ... | ...      | ... |
| <i>Myopia</i> .....                     | 2           | 1   | ...      | ... | 1           | ... | 1     | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...      | ... |
| Diseases of the Lachrymal<br>Apparatus— |             |     |          |     |             |     |       |     |             |     |       |     |             |     |       |     |             |     |          |     |
| <i>Dacryo-Cystitis</i> .....            | 8           | ... | ...      | ... | ...         | ... | 1     | ... | 1           | ... | 1     | ... | 1           | ... | 2     | ... | ...         | ... | ...      | ... |
| <i>Lachrymal Abscess</i> .....          | 7           | 1   | 6        | ... | 2           | ... | 2     | ... | ...         | ... | 1     | ... | 1           | ... | 1     | ... | ...         | ... | ...      | ... |
| <i>Lachrymal Fistula</i> .....          | 2           | ... | 2        | ... | ...         | ... | 1     | ... | 1           | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...      | ... |
| Diseases of the Eyelids—                |             |     |          |     |             |     |       |     |             |     |       |     |             |     |       |     |             |     |          |     |
| <i>Abscess</i> .....                    | 5           | 3   | 2        | ... | 1           | ... | 1     | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...      | 1   |
| <i>Ectropion</i> .....                  | 3           | ... | 3        | ... | 1           | ... | ...   | ... | ...         | ... | 2     | ... | ...         | ... | ...   | ... | ...         | ... | ...      | ... |
| <i>Entropion</i> .....                  | 3           | ... | 3        | ... | ...         | ... | ...   | ... | ...         | ... | 1     | ... | 1           | ... | ...   | ... | ...         | ... | ...      | 1   |
| <i>Epicanthus</i> .....                 | 1           | ... | 1        | ... | ...         | ... | ...   | ... | ...         | ... | 1     | ... | ...         | ... | ...   | ... | ...         | ... | ...      | ... |
| <i>Herpes Frontalis</i> .....           | 1           | ... | 1        | ... | 1           | ... | ...   | ... | ...         | ... | 1     | ... | ...         | ... | ...   | ... | ...         | ... | ...      | ... |
| <i>Trichiasis</i> .....                 | 1           | ... | 1        | ... | ...         | ... | ...   | ... | ...         | ... | 1     | ... | ...         | ... | ...   | ... | ...         | ... | ...      | ... |
| <i>Distichiasis</i> .....               | 1           | ... | 1        | ... | ...         | ... | ...   | ... | ...         | ... | 1     | ... | ...         | ... | ...   | ... | ...         | ... | ...      | ... |
| <i>Cysts</i> .....                      | 11          | 7   | 4        | ... | 1           | ... | 1     | ... | 1           | ... | 1     | 2   | ...         | 1   | ...   | 1   | ...         | ... | ...      | 1   |
| <i>Epithelioma</i> .....                | 1           | ... | 1        | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...      | ... |
| <i>Papilloma</i> .....                  | 1           | ... | 1        | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...      | 1   |
| <i>Rodent Ulcer</i> .....               | 1           | ... | 1        | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...      | 1   |
| <i>Sarcoma</i> .....                    | 2           | ... | 2        | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...      | 1   |
| DISEASES OF THE EAR.                    |             |     |          |     |             |     |       |     |             |     |       |     |             |     |       |     |             |     |          |     |
| Suppurative Otitis .....                | 11          | 4   | 5        | 1   | 1           | 2   | 1     | 1   | 1           | 1   | 2     | ... | ...         | ... | 1     | ... | ...         | ... | ...      | ... |





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.  | Discharged. |     |     |     |  |
| DISEASES OF THE VASCULAR SYSTEM (continued). |        |     |             |     |       |             |       |     |             |     |       |             |       |     |             |     |       |             |          |     |             |     |     |     |  |
| Arteries (continued)—                        |        |     |             |     |       |             |       |     |             |     |       |             |       |     |             |     |       |             |          |     |             |     |     |     |  |
| Traumatic Aneurysm—                          |        |     |             |     |       |             |       |     |             |     |       |             |       |     |             |     |       |             |          |     |             |     |     |     |  |
| Radial ...                                   | 1      | ... | 1           | ... | ...   | ...         | 1     | ... | ...         | ... | ...   | ...         | ...   | ... | ...         | ... | ...   | ...         | ...      | ... | ...         | ... |     |     |  |
| Plantar ...                                  | 1      | ... | 1           | ... | 1     | ...         | ...   | ... | ...         | ... | ...   | ...         | ...   | ... | ...         | ... | ...   | ...         | ...      | ... | ...         | ... |     |     |  |
| Arterio-Venous Aneurysm                      | 1      | ... | 1           | ... | ...   | ...         | 1     | ... | ...         | ... | ...   | ...         | ...   | ... | ...         | ... | ...   | ...         | ...      | ... | ...         | ... |     |     |  |
| Veins—                                       |        |     |             |     |       |             |       |     |             |     |       |             |       |     |             |     |       |             |          |     |             |     |     |     |  |
| Phlegmasia Alba ...                          | 2      | ... | 2           | ... | ...   | ...         | ...   | ... | ...         | ... | ...   | ...         | ...   | ... | ...         | ... | ...   | ...         | ...      | ... | ...         | ... | ... |     |  |
| Phlebitis and Thrombosis ...                 | 15     | 3   | 12          | ... | ...   | ...         | 1     | 1   | ...         | ... | ...   | 6           | ...   | ... | ...         | ... | ...   | ...         | ...      | ... | ...         | ... | ... |     |  |
| Varicose Veins ...                           | 18     | 11  | 7           | ... | ...   | ...         | 1     | ... | ...         | ... | ...   | 7           | 4     | ... | ...         | ... | ...   | ...         | ...      | ... | ...         | ... | ... |     |  |
| DISEASES OF THE LYMPHATIC SYSTEM.            |        |     |             |     |       |             |       |     |             |     |       |             |       |     |             |     |       |             |          |     |             |     |     |     |  |
| Glands—                                      |        |     |             |     |       |             |       |     |             |     |       |             |       |     |             |     |       |             |          |     |             |     |     |     |  |
| Inflamed and Suppurating                     | 10     | 7   | 3           | ... | ...   | ...         | ...   | ... | ...         | ... | ...   | ...         | ...   | ... | ...         | ... | ...   | ...         | ...      | ... | ...         | ... | ... | ... |  |
| Lymphoma (Axilla) ...                        | 1      | ... | 1           | ... | ...   | ...         | ...   | ... | ...         | ... | ...   | ...         | ...   | ... | ...         | ... | ...   | ...         | ...      | ... | ...         | ... | ... | ... |  |
| Scrophulous or Tubercular ...                | 10     | 4   | 6           | ... | ...   | ...         | 1     | ... | ...         | ... | ...   | ...         | ...   | ... | ...         | ... | ...   | ...         | ...      | ... | ...         | ... | ... | ... |  |
| Epithelioma (Recurrent).                     | 3      | 3   | ...         | ... | ...   | ...         | ...   | ... | ...         | ... | ...   | ...         | ...   | ... | ...         | ... | ...   | ...         | ...      | ... | ...         | ... | ... | ... |  |
| Lymphatics—                                  |        |     |             |     |       |             |       |     |             |     |       |             |       |     |             |     |       |             |          |     |             |     |     |     |  |
| Lymphangitis ...                             | 15     | 11  | 4           | ... | ...   | ...         | ...   | ... | ...         | ... | ...   | ...         | ...   | ... | ...         | ... | ...   | ...         | ...      | ... | ...         | ... | ... | ... |  |
| Elephantiasis—                               |        |     |             |     |       |             |       |     |             |     |       |             |       |     |             |     |       |             |          |     |             |     |     |     |  |
| Leg ...                                      | 4      | 1   | 3           | ... | ...   | ...         | ...   | ... | ...         | ... | ...   | ...         | ...   | ... | ...         | ... | ...   | ...         | ...      | ... | ...         | ... | ... | ... |  |
| Lymphoma and Lympho-                         |        |     |             |     |       |             |       |     |             |     |       |             |       |     |             |     |       |             |          |     |             |     |     |     |  |
| Sarcoma ...                                  | 4      | ... | 3           | ... | ...   | ...         | ...   | ... | ...         | ... | ...   | ...         | ...   | ... | ...         | ... | ...   | ...         | ...      | ... | ...         | ... | ... | ... |  |





























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. |
| DISEASES OF THE CUTA-<br>NEOUS SYSTEM (cont.) |        |             |    |       |    |             |    |       |    |             |    |       |    |             |    |       |    |             |    |       |    |
| Psoriasis ...                                 | 1      |             | 1  |       |    |             |    |       |    |             |    |       |    |             |    |       |    |             |    |       |    |
| Purpura ...                                   | 1      |             | 1  |       |    |             |    |       |    |             |    |       | 1  |             |    |       |    |             |    |       |    |
| Scabies ...                                   | 1      |             | 1  |       |    |             |    |       |    |             |    |       |    | 1           |    |       |    |             |    |       |    |
| Sclerema Neonatorum ...                       | 1      |             | 1  |       |    |             |    |       |    |             |    |       |    | 1           |    |       |    |             |    |       |    |
| Scrofuloderma ...                             | 1      |             | 1  |       |    |             |    |       |    |             |    |       |    | 1           |    |       |    |             |    |       |    |
| Xeroderma ...                                 | 1      |             | 1  |       |    |             |    |       |    |             |    |       |    | 1           |    |       |    |             |    |       |    |
| Nails—                                        |        |             |    |       |    |             |    |       |    |             |    |       |    |             |    |       |    |             |    |       |    |
| Ingrowing Toe-Nail ...                        | 30     | 19          | 11 |       |    | 1           | 1  |       | 6  | 3           |    | 9     | 5  |             | 2  | 2     |    |             |    |       |    |
| Lupus—                                        |        |             |    |       |    |             |    |       |    |             |    |       |    |             |    |       |    |             |    |       |    |
| Breast ...                                    | 1      |             | 1  |       |    |             |    |       |    |             |    |       |    |             |    |       |    |             |    |       |    |
| Arm ...                                       | 3      |             | 3  |       |    |             |    |       |    |             |    |       |    |             |    |       |    |             |    |       |    |
| Face and Neck ...                             | 29     | 11          | 18 |       |    | 5           | 3  |       | 2  | 5           |    | 2     | 6  |             | 1  | 2     |    |             |    |       | 1  |
| Foot ...                                      | 1      |             | 1  |       |    |             |    |       |    |             |    |       |    |             |    |       |    |             |    |       |    |
| Sinuses ...                                   | 17     | 11          | 6  |       |    | 1           |    |       | 4  |             |    | 3     | 3  |             | 2  |       |    |             |    |       | 1  |
| Ulcers ...                                    | 23     | 13          | 10 |       |    | 1           |    |       | 1  |             |    | 1     | 4  |             | 5  | 1     |    |             |    |       | 2  |
| From Electrolitics ...                        | 1      |             | 1  |       |    |             |    |       |    |             |    |       |    |             |    |       |    |             |    |       |    |
| Gouty ...                                     | 1      |             | 1  |       |    |             |    |       |    |             |    |       |    |             |    |       |    |             |    |       |    |
| Inflamed ...                                  | 1      |             | 1  |       |    |             |    |       |    |             |    |       |    |             |    |       |    |             |    |       |    |
| Perforating ...                               | 3      | 2           | 1  |       |    |             |    |       |    |             |    |       |    |             |    |       |    |             |    |       | 1  |
| Phagadanic ...                                | 1      |             | 1  |       |    |             |    |       |    |             |    |       |    |             |    |       |    |             |    |       |    |
| Simple ...                                    | 12     | 8           | 4  |       |    | 1           | 1  |       | 2  |             |    | 1     | 1  |             | 2  |       |    |             |    |       | 1  |
| Sloughing ...                                 | 4      | 1           | 2  |       |    | 1           |    |       | 1  |             |    |       |    |             | 1  |       |    |             |    |       | 1  |
| Scurvous ...                                  | 1      |             | 1  |       |    |             |    |       |    |             |    |       |    |             |    |       |    |             |    |       |    |
| Varicose ...                                  | 5      | 2           | 3  |       |    |             |    |       |    |             |    |       |    |             |    |       |    |             |    |       | 2  |
| Scar Contracted—<br>(Head and Face)           | 2      |             | 2  |       |    |             |    |       | 1  |             |    |       |    |             |    |       |    |             |    |       |    |





TABLE I. (continued).

| INJURY.                                              | 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.  |     |
| <b>INJURIES OF THE HEAD AND FACE (continued).</b>    |             |     |          |     |             |     |       |     |             |     |       |     |             |     |       |     |             |     |          |     |     |
| Fractures (continued)—                               |             |     |          |     |             |     |       |     |             |     |       |     |             |     |       |     |             |     |          |     |     |
| (Compound) (cont.)—                                  |             |     |          |     |             |     |       |     |             |     |       |     |             |     |       |     |             |     |          |     |     |
| Skull (Bullet Wound).                                | 1           | 1   | ...      | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...      | ... | ... |
| Lower Jaw ...                                        | 1           | 1   | ...      | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...      | ... | ... |
| Jaw ...                                              | 1           | 1   | ...      | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...      | ... | ... |
| Nasal Bones ...                                      | 3           | 3   | ...      | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...      | ... | ... |
| <b>INJURIES OF ABDOMEN.</b>                          |             |     |          |     |             |     |       |     |             |     |       |     |             |     |       |     |             |     |          |     |     |
| Contusions ...                                       | 26          | 22  | 4        | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...      | ... | ... |
| Wounds (Non-penetrating).                            | 2           | 2   | ...      | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...      | ... | ... |
| Liver (Ruptured) ...                                 | 3           | 1   | ...      | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...      | ... | ... |
| Spleen (Ruptured) ...                                | 1           | ... | ...      | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...      | ... | ... |
| Rupture of Rectus Muscle...                          | 1           | 1   | ...      | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...      | ... | ... |
| Contusion of Intestine fol-<br>lowed by Gangrene ... | 1           | ... | ...      | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...      | ... | ... |
| <b>INJURIES OF THORAX.</b>                           |             |     |          |     |             |     |       |     |             |     |       |     |             |     |       |     |             |     |          |     |     |
| Contusions ...                                       | 8           | 7   | 1        | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...      | ... | ... |
| Wounds (with Injury to Lung)                         | 2           | 2   | ...      | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...      | ... | ... |
| Fracture—                                            |             |     |          |     |             |     |       |     |             |     |       |     |             |     |       |     |             |     |          |     |     |
| Ribs—                                                |             |     |          |     |             |     |       |     |             |     |       |     |             |     |       |     |             |     |          |     |     |
| (With Injury to Lungs<br>and Pleura) ...             | 7           | 3   | 3        | 1   | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...      | ... | ... |
| (Without Injury to Vis-<br>cera) ...                 | 25          | 24  | ...      | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...      | ... | ... |
| Sternum—                                             |             |     |          |     |             |     |       |     |             |     |       |     |             |     |       |     |             |     |          |     |     |
| (Fracture-Dislocation)                               | 1           | 1   | ...      | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...   | ... | ...         | ... | ...      | ... | ... |

















## APPENDIX TO TABLE I.

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### GENERAL DISEASES.

#### *Tetanus.*

In one case of apparently idiopathic origin, the patient died the day after admission. In the second case the tongue had been wounded and the tetanus was of the sub-acute type. The patient was chiefly treated with bromide of potassium and chloral, and made a good recovery.

#### *Varicella Gangrenos.*

A child, aged  $4\frac{1}{2}$  years, died the day of admission.

#### *Gangrene.*

One patient, aged 37, was twice admitted with idiopathic gangrene of the toes. The other patient was a lad, aged 4, in whom the thumbs were symmetrically affected.

Of the four patients with senile gangrene who died, two had glycosuria. In two cases amputation was performed through the leg, and in one case through the thigh.

One patient died the day after his admission for spreading gangrene originating in an ulcer of the leg.

### TUMOURS.

The cases of multiple polypi in the bladder and rectum are described in full in the recently published volume of the Hospital Reports.

**MALFORMATIONS AND DEFORMITIES.***Hare Lip.*

A child, aged 5 months, died of pneumonia a few days after its admission. No plastic operation had been performed, but the displaced intermaxillary bone had been replaced.

*Spina Bifida.*

A child of 12 hours old died the day after its admission from a spina bifida, which was in a sloughing condition.

**DISEASES OF THE VASCULAR SYSTEM.**

A case of circumscribed traumatic aneurysm was treated and cured by pressure. The aneurysm had resulted from an operation for division of the plantar fascia.

**DISEASES OF THE LYMPHATIC SYSTEM.**

A girl, aged 23, died from the extension of a lympho-sarcomatous growth in the mediastinum to the root of the right lung.

**DISEASES OF THE DIGESTIVE SYSTEM.**

The case of ulceration of the colon is described in detail in the last volume of the Reports of St. Bartholomew's Hospital. The ulceration was similar to that described in the Appendix to Table I. in the Statistical Tables for last year.

The case of volvulus of the cæcum has been recently described at a meeting of the Clinical Society.

**DISEASES OF THE GENITO-URINARY ORGANS.**

The patient with an encysted calculus in his bladder died without any operation having been performed.

A man, aged 27, was twice in the hospital on account of calculi which formed on pieces of bone which had made their way into the bladder from a diseased hip-joint.

In a man, aged 36, the whole of the mucous membrane of the bladder sloughed from acute cystitis. The case is recorded in the Transactions of the Pathological Society.

The man whose case is mentioned in the Appendix to Table II. of last year (page 100), from whom a stone weighing  $24\frac{1}{2}$  ozs. was removed by suprapubic lithotomy, returned fifteen months after the operation on account of the wound having given way. His urine was foul and ammoniacal, but after some weeks the fistula nearly closed. On November 5th, however, the patient was suddenly seized with an attack of renal colic, followed by vomiting and

complete suppression of urine, and death ensued on November 9th. A post-mortem examination showed that the right kidney had long ago been rendered useless by calculous disease, and that the sudden attack of suppression depended upon the complete occlusion of the left ureter by another calculus.

A woman, aged 50, died after much suppuration in connection with the left kidney and pyonephrosis. A post-mortem examination showed that the left ureter had been occluded by the pressure of old scar tissue around it, but no calculus or other cause of inflammation existed.

## ABSCESS.

Five infants died—one with a pectoral abscess, the other four with abscesses of the neck. A man of 54 died of a psoas abscess; one of 38 from an iliac abscess; and a man of 39 of a deltoid abscess complicated by dementia. A child of 4½ died of bronchitis complicating an abscess of the thigh; and a child of 6 died of exhaustion following an iliac abscess. A woman, aged 41, died of broncho-pneumonia complicating a mammary abscess; and in another similar case the patient died of erysipelas.

## DISEASES OF THE CUTANEOUS SYSTEM.

A man, aged 19, died in six days of malignant facial carbuncle. No post-mortem examination was allowed, but before death there was diffuse cellulitis of the whole face and neck, extending to the orbits.

A child of 4 weeks admitted with scleroderma, affecting the nates, thighs, and anus, died of broncho-pneumonia.

A woman of 40, admitted for a sloughing ulcer of the leg, died from heart disease four days after admission.

## INJURIES OF THE HEAD.

A man, aged 60, died three weeks after admission for a lacerated wound the scalp, which was followed by erysipelas and pyæmia.

A boy, aged 9, was admitted with a compound, comminuted, depressed fracture of the skull. The fragments were elevated, and some were removed. Hernia cerebri ensued, but the patient made a complete recovery.

A lad of 13 sustained a bullet-wound in the temporal region. The bone was depressed and was elevated. The bullet had apparently passed into the skull, but was not discovered. The patient made a good recovery.

## INJURIES OF THE ABDOMEN.

A man of 58 was admitted for a contusion of the abdomen, caused by a fall. For two days no serious symptoms were noticed, but then peritonitis set in, and the patient died on the fourth day. A post-mortem examination showed that a coil of small intestine had been contused, and had become gangrenous. There was no complete tear, nor any faecal extravasation.

**INJURIES OF THE PELVIS.**

A man of 22 was admitted ten hours after a rupture of the bladder. The abdomen was opened, and the rent, which was in the front wall of the organ, was sutured. The patient made a good recovery. (See Transactions of Royal Medical and Chirurgical Society.)

**INJURIES OF THE LOWER EXTREMITY.**

A woman of 42 died of traumatic delirium seventy-eight days after admission for a fracture of the femur, having been delirious almost the whole time. A post-mortem examination showed that the spleen also had been ruptured, and that much hæmorrhage had occurred behind the peritoneum. The rent in the spleen was closed by fibrous tissue.

The three men who died after compound fractures of the thighs were all hurt by railway trains, and had sustained other severe injuries.

A man of 40 died from acute spreading gangrene five days after a compound fracture of the leg.

TABLE II.  
SURGICAL OPERATIONS PERFORMED.

| 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.  |     |
| OPERATIONS ON THE EYE.                        |              |     |             |     |       |     |                |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |          |     |     |
| Tenotomy for Squint...                        | 12           | 19  | 12          | 19  | ...   | ... | 4              | ... | 4     | 7   | 8     | 8   | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...      | ... | ... |
| Internal Rectus Advanced ...                  | 3            | 1   | 3           | 1   | ...   | ... | ...            | ... | 3     | 3   | 2     | 2   | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...      | ... | ... |
| Iridectomy ...                                | 16           | 14  | 16          | 14  | ...   | ... | ...            | ... | 4     | 3   | 4     | 2   | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...      | ... | ... |
| Peritomy ...                                  | ...          | 1   | ...         | 1   | ...   | ... | ...            | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...      | ... | ... |
| Sclerotomy ...                                | 1            | 1   | ...         | 1   | ...   | ... | ...            | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...      | ... | ... |
| Transplantation of Rabbit's<br>Conjunctiva... | ...          | 2   | ...         | 2   | ...   | ... | ...            | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...      | ... | ... |
| Cataract—<br><i>Extraction</i> ...            | 22           | 19  | 22          | 19  | ...   | ... | ...            | ... | ...   | ... | 3     | ... | 2     | 1   | 1     | ... | 2     | 4   | 6     | 6   | 5     | 5   | 3        | 3   | 3   |
| Needle Operation ...                          | 5            | ... | 5           | ... | ...   | ... | ...            | ... | 2     | ... | 1     | ... | 2     | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...      | ... | ... |
| Needle Operation on Opaque<br>Capsule ...     | 10           | 6   | 10          | 6   | ...   | ... | ...            | ... | ...   | 1   | ...   | 1   | 1     | 3   | 1     | ... | ...   | ... | 2     | 2   | 3     | 1   | 3        | ... | ... |
| Abscission ...                                | 1            | ... | 1           | ... | ...   | ... | ...            | ... | 1     | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...      | ... | ... |
| Extirpation of Globe...                       | 16           | 5   | 16          | 5   | ...   | ... | ...            | ... | 2     | ... | 3     | ... | ...   | ... | 2     | 3   | 2     | 1   | 1     | 1   | ...   | ... | ...      | ... | ... |
| Evisceration ...                              | 1            | 1   | 1           | 1   | ...   | ... | ...            | ... | ...   | ... | ...   | ... | 1     | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...      | ... | ... |
| Slitting the Canaliculus                      | ...          | 6   | ...         | 6   | ...   | ... | ...            | ... | ...   | ... | ...   | 2   | ...   | 3   | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...      | ... | ... |
| Tarsal Tumours Removed                        | 9            | 4   | 9           | 4   | ...   | ... | ...            | ... | 2     | ... | 1     | ... | 1     | ... | ...   | 2   | ...   | ... | ...   | ... | ...   | ... | ...      | ... | ... |
| PLASTIC OPERATIONS.<br>For Cleft Palate ...   | 18           | 8   | 18          | 8   | ...   | ... | 4              | 2   | 5     | 2   | 4     | 2   | 4     | 2   | 1     | ... | ...   | ... | ...   | ... | ...   | ... | ...      | ... | ... |



AGE AND SEX.

OPERATIONS.

| 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. |

|                                  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|----------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| OPERATIONS ON BONES.             |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Osteotomy—                       |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Femur—                           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| (M. Everts) —                    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 12                               | 3   | 12  | 3   | ... | ... | 4   | 1   | 7   | 2   | 1   | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| For Genu Valgum                  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| For Bent Knee after Ligation ... |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| ...                              | 1   | ... | 1   | ... | ... | ... | ... | ... | ... | 1   | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| (Neck) —                         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| For Anchylosis of Hip ...        |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| (Below Trochanters) —            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| For Anchylosis of Hip ...        |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Tibiae—                          |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 2                                | 4   | 2   | 4   | ... | ... | ... | 1   | ... | 2   | 2   | ... | ... | ... | ... | 1   | ... | ... | ... | ... | ... | ... | ... | ... |
| For Curvature ...                |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Carious Bone Gouged—             |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 2                                | 1   | 2   | 1   | ... | ... | 1   | ... | ... | ... | 1   | ... | ... | 1   | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 3                                | 1   | 3   | 1   | ... | ... | ... | ... | 1   | ... | 1   | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Tibia ...                        |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 1                                | ... | 1   | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Sequestromy—                     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Cuboid                           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| ...                              | 1   | ... | 1   | ... | ... | ... | ... | ... | 1   | ... | ... | ... | ... | ... | ... | ... | 1   | ... | ... | ... | ... | ... | ... |
| 3                                | 2   | 3   | 2   | ... | ... | ... | ... | ... | 1   | 3   | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Femur                            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 3                                | 4   | 3   | 4   | ... | ... | ... | ... | ... | 2   | ... | ... | ... | 2   | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Jaw Bones                        |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 1                                | ... | 1   | ... | ... | ... | ... | ... | ... | ... | ... | ... | 1   | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Metacarpus ...                   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| ...                              | 1   | ... | 1   | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Nose ...                         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Phalanx                          |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 1                                | 1   | 1   | 1   | ... | ... | ... | ... | ... | ... | ... | ... | ... | 1   | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Os Calcis                        |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 1                                | 1   | 1   | 1   | ... | ... | ... | ... | ... | ... | ... | ... | 1   | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Irib ...                         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| ...                              | 1   | ... | 1   | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Sacrum                           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 1                                | ... | 1   | ... | ... | ... | ... | ... | ... | ... | 1   | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Scapula                          |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |





| 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.  |  |
| AMPUTATIONS (continued).                |              |     |             |     |       |     |                |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |          |     |  |
| Primary (continued)—                    |              |     |             |     |       |     |                |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |          |     |  |
| Forearm—                                |              |     |             |     |       |     |                |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |          |     |  |
| (Lower Third)—                          |              |     |             |     |       |     |                |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |          |     |  |
| For Compound Fracture                   | 1            | ... | 1           | ... | ...   | ... | ...            | ... | ...   | 1   | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...      | ... |  |
| (Middle Third)—                         |              |     |             |     |       |     |                |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |          |     |  |
| For Compound Fracture                   | 1            | ... | 1           | ... | ...   | ... | ...            | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...      | ... |  |
| Leg—                                    |              |     |             |     |       |     |                |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |          |     |  |
| (Middle Third)—                         |              |     |             |     |       |     |                |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |          |     |  |
| For Compound Fracture                   | 2            | ... | ...         | ... | ...   | 2   | ...            | ... | 1     | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...      | ... |  |
| (Upper Third)—                          |              |     |             |     |       |     |                |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |          |     |  |
| For Compound Fracture                   | ...          | 1   | ...         | ... | ...   | ... | 1              | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...      | ... |  |
| Thigh—                                  |              |     |             |     |       |     |                |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |          |     |  |
| (Lower Third)—                          |              |     |             |     |       |     |                |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |          |     |  |
| For Compound Fracture                   | 1            | ... | 1           | ... | ...   | ... | ...            | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...      | ... |  |
| For Femur and Torn Popliteal Artery ... | 1            | ... | 1           | ... | ...   | ... | ...            | ... | ...   | ... | ...   | ... | ...   | ... | ...   | 1   | ...   | ... | ...   | ... | ...   | ... | ...      | ... |  |
| For Compound Fracture                   | 1            | ... | ...         | ... | ...   | 1   | ...            | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...      | ... |  |
| of Leg ...                              | 3            | ... | 3           | ... | ...   | ... | ...            | ... | ...   | 1   | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...      | ... |  |
| Toe ...                                 | 3            | ... | ...         | ... | ...   | ... | ...            | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...      | ... |  |
| Secondary—                              |              |     |             |     |       |     |                |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |          |     |  |
| Arm—                                    |              |     |             |     |       |     |                |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |          |     |  |
| (Upper Third)—                          |              |     |             |     |       |     |                |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |          |     |  |
| For Fracture of Ili-                    | 1            | ... | 1           | ... | ...   | ... | ...            | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...      | ... |  |
| mus and Ruptured                        |              |     |             |     |       |     |                |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |          |     |  |
| Brachial Artery ...                     | 1            | ... | 1           | ... | ...   | ... | ...            | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...   | ... | ...      | ... |  |

























| 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. |    |    |
| ABDOMINAL SECTION (cont.)         |              |    |             |    |       |    |                |    |       |    |       |    |       |    |       |    |       |    |       |    |       |    |          |    |    |    |
| For Hydatid of Liver              | 1            | .. | 1           | .. | ..    | .. | ..             | .. | ..    | .. | ..    | .. | ..    | .. | ..    | .. | ..    | .. | ..    | .. | ..    | .. | ..       | .. | .. | .. |
| For Carcinoma of Cæcum            | 1            | .. | 1           | .. | ..    | .. | ..             | .. | ..    | .. | ..    | .. | ..    | .. | ..    | .. | ..    | .. | ..    | .. | ..    | .. | ..       | .. | .. | .. |
| For Tubercular Kidney             | ..           | 1  | ..          | .. | ..    | 1  | ..             | .. | ..    | .. | ..    | 1  | ..    | .. | ..    | .. | ..    | .. | ..    | .. | ..    | .. | ..       | .. | .. | .. |
| For Uterine Fibroid (Exploratory) | ..           | 1  | ..          | 1  | ..    | .. | ..             | .. | ..    | .. | ..    | .. | ..    | .. | ..    | .. | ..    | 1  | ..    | .. | ..    | .. | ..       | .. | .. | .. |
| HEPATIC ABSCESS OPENED...         | 4            | .. | 4           | .. | ..    | .. | ..             | .. | ..    | .. | ..    | .. | 1     | .. | 2     | .. | 1     | .. | ..    | .. | ..    | .. | ..       | .. | .. | .. |
| TRACHEOTOMY.                      |              |    |             |    |       |    |                |    |       |    |       |    |       |    |       |    |       |    |       |    |       |    |          |    |    |    |
| For Diphtheria and Croup          | 20           | 13 | 5           | 1  | 15    | 12 | 15             | 7  | 2     | 2  | 6     | 1  | ..    | .. | ..    | .. | ..    | .. | ..    | .. | ..    | .. | ..       | .. | .. | .. |
| For Tubercular Laryngitis         | ..           | 1  | ..          | .. | ..    | 1  | ..             | 1  | ..    | .. | ..    | .. | ..    | .. | ..    | .. | ..    | .. | ..    | .. | ..    | .. | ..       | .. | .. | .. |
| For Oedematous Laryngitis         | ..           | 1  | ..          | 1  | ..    | .. | ..             | .. | ..    | .. | ..    | .. | ..    | .. | ..    | .. | ..    | .. | ..    | .. | ..    | .. | ..       | .. | .. | .. |
| For Carcinoma of Larynx           | ..           | 1  | ..          | .. | ..    | 1  | ..             | .. | ..    | .. | ..    | .. | ..    | .. | ..    | .. | ..    | 1  | ..    | .. | ..    | .. | ..       | .. | .. | .. |
| LARYNGOTOMY.                      |              |    |             |    |       |    |                |    |       |    |       |    |       |    |       |    |       |    |       |    |       |    |          |    |    |    |
| For Epithelioma of Larynx...      | 1            | .. | ..          | .. | 1     | .. | ..             | .. | ..    | .. | ..    | .. | ..    | .. | ..    | .. | 1     | .. | ..    | .. | ..    | .. | ..       | .. | .. | .. |
| OVARIOTOMY.                       |              |    |             |    |       |    |                |    |       |    |       |    |       |    |       |    |       |    |       |    |       |    |          |    |    |    |
| For Ovarian Cyst                  | ..           | 10 | ..          | 7  | ..    | 3  | ..             | .. | ..    | .. | ..    | .. | 5     | .. | 2     | .. | ..    | 2  | ..    | .. | ..    | .. | ..       | .. | .. | 1  |
| For Carcinoma of Ovary            | ..           | 1  | ..          | .. | ..    | 1  | ..             | .. | ..    | .. | ..    | .. | 1     | .. | ..    | .. | ..    | .. | ..    | .. | ..    | .. | ..       | .. | .. | .. |
| OOPHORECTOMY.                     |              |    |             |    |       |    |                |    |       |    |       |    |       |    |       |    |       |    |       |    |       |    |          |    |    |    |
| For Fibroid                       | ..           | 1  | ..          | .. | ..    | 1  | ..             | .. | ..    | .. | ..    | .. | ..    | .. | ..    | 1  | ..    | .. | ..    | .. | ..    | .. | ..       | .. | .. | .. |

## STATISTICS OF ANÆSTHETICS.

During the year 1887 Anæsthetics were administered 3,976 times.

|               |     |     |     |     |     |     |     |              |        |
|---------------|-----|-----|-----|-----|-----|-----|-----|--------------|--------|
| Chloroform    | ... | ... | ... | ... | ... | ... | ... | 1,702        | times. |
| Gas           | ... | ... | ... | ... | ... | ... | ... | 415          | „      |
| Ether         | ... | ... | ... | ... | ... | ... | ... | 1,197        | „      |
| Gas and Ether | ... | ... | ... | ... | ... | ... | ... | 662          | „      |
|               |     |     |     |     |     |     |     | <u>3,976</u> |        |

One man, aged 52, died during the administration of chloroform. He was suffering from cellulitis of the leg, and the anæsthetic was given to allow incisions to be made. Death ensued from syncope just as the operation was concluded. A post-mortem examination showed advanced fatty degeneration of the heart.

## APPENDIX TO TABLE II.

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### PLASTIC OPERATIONS.

A boy of 9 was admitted with complete epispadias and partial deficiency of the anterior wall of the bladder. After a plastic operation he was enabled to hold his water well, and to retain it for five or six hours.

### EXCISIONS.

A lad of 22 was admitted into the hospital with bony ankylosis of the hip, knees, and ankles, which was said to have followed an attack of rheumatic fever. The right knee was excised, and healed well; the right ankle was treated by osteotomy, and the femur was divided by a similar operation below the trochanters. The last operation was followed by some suppuration, and the patient died of amyloid disease of the viscera.

A child, aged 14, died of acute septicæmia after excision of the knee.

A man of 51 died of broncho-pneumonia after excision of the lower jaw and part of the cheek for epithelioma.

A child of 8 died of general tuberculosis after an excision of the hip; and a girl, aged 20, died, after a similar operation, from peritonitis caused by perforation of the intestine by a tubercular ulcer.

Of the four cases in which the superior maxilla was excised, one man, aged 48, died with cellulitis of the orbit and empyæma.

The five cases of excision of the tarsus were examples of talipes equinovarus.

### OPERATIONS ON BONES.

#### *Osteotomy.*

In one case of McEwen's operation on the femur there was very profuse suppuration, and the patient only recovered after treatment by the continuous bath. (*See* the last volume of St. Bartholomew's Hospital Reports.)

In one patient, a boy, aged 8, the osteotomy was done for recurrence of genu-valgum, after a similar operation performed three years previously.

In thirteen cases of genu-valgum both femora were divided; in two, only one bone was subjected to operation.

#### *Wiring Ununited Fracture.*

This operation was performed for an ununited fracture in a woman, aged 33. She suffered from severe shock, and died two days later.

### OPERATIONS ON JOINTS.

The table does not include cases in which suppurating joints were incised.

**AMPUTATIONS FOR INJURY.***Primary.*

Two patients, on whom primary amputation of the leg was performed for compound fracture, died. One, a man of 35, succumbed to prolonged traumatic delirium twenty-seven days after the accident: the other, a lad of 6 years, died in a few hours from shock, the fracture being apparently complicated by visceral injury, but no post-mortem examination was permitted.

A woman, aged 60, died eight days after amputation in the upper third of the leg for compound fracture. She suffered from diabetes, and died from gangrene of the flaps spreading to the thigh.

A man, aged 57, died a few hours after amputation of the thigh for compound fracture of the leg, death apparently resulting from the fracture of several ribs and laceration of the lung.

*Secondary.*

A woman, aged 32, died of tetanus seventy days after a compound fracture of the leg, and nineteen days after amputation through the upper third of the leg. The symptoms of tetanus first appeared nine days after the amputation.

**AMPUTATIONS FOR DISEASE.**

*Ankle.*—A man of 34 died of phthisis two months after Syme's amputation for disease of the ankle, the stump being healed.

*Finger.*—A woman, aged 52, was admitted with cellulitis of the forearm and hand, which had extended from the finger. The finger was amputated, but the cellulitis extended, and the patient died.

*Forearm.*—A feeble old man of 70 died three weeks after amputation in the forearm, performed for strumous disease and complete disorganisation of the wrist. The wound was almost healed, and the patient doing well, when a sudden attack of syncope proved fatal. No post-mortem examination was permitted.

*Thigh.*—Of twenty-six amputations of the thigh for various diseases, twenty-three patients made good recoveries. Of three who died, in one patient, a man of 43, tubercle of the lungs, intestine, kidney, and bladder proved fatal, the original operation having been performed for strumous disease of the knee two months previously. Another man, aged 28, was suffering from pyæmia, complicating strumous disease of the knee and suppuration, when admitted to the hospital. He died seven weeks after admission. The third patient, a man of 46, died of septicaemia on the ninth day after amputation of the thigh for epithelioma of the leg.

**OPERATIONS ON THE BREAST.**

Of eleven amputations of the breast for carcinoma, one patient died of pyæmia three weeks after operation; and of twenty cases in which the glands also were removed from the axilla, one patient, aged 57, died of erysipelas. One patient, aged 65, died after removal of the breast for duct cancer.

**REMOVAL OF TUMOURS.**

A man, aged 45, died of erysipelas after removal of a large cyst of the neck; and a woman of 60 died of the same complication after removal of a fatty tumour. All the other patients who were operated upon for innocent tumours made good recoveries.

A man, aged 60, died of erysipelas after removal of cancerous glands from the neck. A man, aged 21, died after removal of a sarcomatous growth from the nostril, and a post-mortem examination showed extension of growth to the brain. A woman, aged 48, died of peritonitis after the attempted removal of a sarcomatous growth from the pelvis.



## OPERATIONS ON THE TONGUE.

Of twenty-one patients subjected to operations on the tongue two died: one, a man of 37, died from septic pneumonia, after excision of the whole tongue with scissors; and the other, a man of 53, in whom the jaw-bone had been divided, died of pyæmia caused by the extension of suppuration round a cancerous gland to the internal jugular vein.

## LIGATURE OF ARTERIES IN CONTINUITY.

A child, aged 7, was admitted with an aneurysm the size of a hazel nut, just above the bend of the elbow; there was no history of injury, and no evidence of heart disease or embolism; the aneurysm was cured by the ligature of the brachial artery.

A woman, aged 49, was operated upon for an axillary aneurysm of three or four months' duration. Pressure failed to promote a cure, so the subclavian artery was ligatured with ox aorta in the third part of its course; the wound healed throughout by first intention, and the sac quickly consolidated.

A man, aged 31, was stabbed behind the angle of the jaw, and bled profusely. When placed under an anæsthetic it was found that the hæmorrhage apparently came from a wound of a deep branch of the internal maxillary, which could not be reached and ligatured. The wound was therefore plugged, but secondary hæmorrhage occurred on five occasions; the common carotid was tied on the thirteenth day after the injury; four days after this there was another attack of bleeding from the original wound, but after this healing was uninterrupted.

## OPERATIONS ON THE GENITO-URINARY ORGANS.

### *Lithotrixy.*

One patient, aged 47, died after this operation from peritonitis caused by the giving way of a sacculus.

### *Lateral Lithotomy.*

A man, aged 27, died from suppurative nephritis. In this case the stone was formed around a piece of bone which had ulcerated into the bladder from a diseased hip; the right kidney had been partially destroyed by suppuration before operation.

### *Suprapubic Lithotomy.*

In patients, aged 55 and 41 respectively, for stones weighing one ounce, and three ounces and three-quarters.

### *Median Cystotomy.*

In one case of tubercular disease, and in one of cystitis complicated by sloughing of the whole mucous membrane.

### *Suprapubic Cystotomy for Tumour.*

This operation was performed on a man, aged 46, who had suffered from hæmaturia for four or five years. The patient, who was much worn out by the loss of blood, died from exhaustion caused by the operation and by some secondary hæmorrhage. The tumour was a papilloma.

## OPERATIONS ON THE RECTUM.

### *Excision of the Rectum.*

The two patients who died after this operation were women of 51 and 59 respectively. The first died of shock, the second of peritonitis secondary to erysipelas commencing in the wound.

**OPERATIONS ON HERNIÆ.**

Two men died after operations on strangulated femoral herniæ: one from peritonitis caused by perforation of the bowel at the seat of stricture; the other from suppression of urine caused by chronic nephritis.

Seven women died after similar operations: one after sloughing of the bowel and fæcal fistula; a woman, aged 60, died of exhaustion four hours after admission, for a hernia which had been strangulated for a week; a woman, aged 38, died the day after admission for a hernia which had been strangulated six days; a feeble woman of 63 died from bronchitis two days after admission; in another case strangulation had existed for eight days, and death ensued three hours after herniotomy; a woman of 77 died of collapse, and one of 64 of peritonitis.

Of three men who died after herniotomy for the relief of strangulated femoral herniæ, in one the gut was gangrenous on admission, and the two others were aged men, who were much collapsed by continuous vomiting and pain.

A man, aged 28, died from secondary hæmorrhage from a tear in the omentum the day after an operation for the radical cure of an irreducible inguinal hernia.

**COLOTOMY.**

A man, aged 54, died from the rupture of an over-distended cæcum two days after the operation of lumbar colotomy for a cancerous stricture of the colon.

Two women, aged 57 and 55, also died, each from collapse caused by long-continued obstruction and sickness. In the first of these cases the bowel was not found owing to its having a long meso-colon.

Inguinal colotomy was twice performed for carcinoma of the rectum. The patients were aged 55 and 28 respectively, and made good recoveries.

SUB-TABLE, SHOWING THE NUMBER OF CASES OF ERYSIPELAS, PYÆMIA, &amp;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 ...                         | 3                     | 3   | 5     | 8   | 5      | 12  | 6      | 5   | 12     | 4   | 6      | 8   | 3      | 3   | 1      | 3   | 1      | ... | 39     | 46  | 3       | 3   |  |
| Occurring in Hospital                  | ...                   | ... | ...   | ... | 2      | ... | 3      | 4   | 4      | 2   | 2      | 3   | 2      | 2   | 1      | 1   | ...    | 13  | 12     | 1   | 1       |     |  |
| Occurring after operation              | ...                   | ... | ...   | ... | 4      | 1   | 2      | 1   | 1      | 2   | 3      | ... | 3      | 3   | 1      | 1   | ...    | 13  | 8      | 4   | 5       |     |  |
| PHLEGMONOUS ERYSIPELAS AND CELLULITIS— |                       |     |       |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |         |     |  |
| Admissions ...                         | 2                     | ... | 3     | ... | 4      | 2   | 17     | 3   | 12     | 1   | 15     | 3   | 9      | 2   | 5      | 2   | 1      | 67  | 14     | 10  | 4       |     |  |
| PYÆMIA AND SEPTICÆMIA—                 |                       |     |       |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |         |     |  |
| Admissions ...                         | 1                     | ... | ...   | ... | 1      | ... | ...    | ... | ...    | ... | ...    | ... | ...    | ... | ...    | ... | ...    | 2   | ...    | 1   | 1       |     |  |
| Occurring in Hospital                  | ...                   | ... | ...   | 1   | ...    | ... | 1      | ... | ...    | ... | 2      | ... | ...    | ... | 1      | ... | ...    | 2   | 1      | 2   | 3       |     |  |
| Occurring after operation              | ...                   | ... | ...   | ... | ...    | 1   | ...    | ... | ...    | ... | ...    | ... | 1      | ... | ...    | ... | ...    | 3   | 3      | 3   | 3       |     |  |
| DELIRIUM TREMENS—                      |                       |     |       |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |         |     |  |
| Admissions ...                         | ...                   | ... | ...   | ... | ...    | ... | ...    | ... | ...    | ... | ...    | ... | 2      | ... | ...    | ... | ...    | 2   | ...    | ... | 2       | ... |  |
| Occurring in Hospital                  | ...                   | ... | ...   | ... | ...    | ... | ...    | ... | 6      | ... | 3      | ... | 2      | ... | ...    | ... | 12     | ... | ...    | 2   | ...     |     |  |

## APPENDIX TO SUB-TABLE OF CASES OF ERYSIPELAS, &amp;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 two cases of abscess in the neck. In one case of caries of the spine. In one case of compound fracture of the skull. In one case of compound fracture of the nose; and in one of fracture of the spine. In one case of disease of the knee-joint. In one case of necrosis of the jaw. In five cases of wounds of the scalp.

*Female.*—In four cases of abscess. In one of elephantiasis of the leg. In one case of rectal stricture. In one of suppurative otitis. In three cases of wounds of the head and face; and in two of wounds of the forearm and hand.

*After Operations.*

*Male.*—In three cases of amputation, of the forearm, penis, and toes respectively. In one case of anal fistula. In one of cyst of the neck. In one of excision of the superior maxilla. In one of epitheliomatous glands in the neck. In one case of naso-pharyngeal polypus. In one of sebaceous cyst. In one case after an operation for an ununited fracture of the tibia; and in two cases after removal of sequestra.

*Female.*—After amputation of breast two cases; excision of rectum one; removal of loose cartilage one; removal of strumous glands one; removal of tumour of breast one; removal of sequestra one; wiring of ununited fracture of femur one.

**PYÆMIA AND SEPTICÆMIA.***Admissions.*

In two cases without any clear history of a cause.

*Occurring after Admission.*

*Male.*—In one case of scalp wound.

*Female.*—In one case of extensive burn.

*Occurring after Operations.*

*Male.*—In two cases of amputation of the thigh. In one of removal of the tongue; and in one of removal of the tongue complicated by section of the jaw.

*Female.*—In one case after amputation of the breast. In one after excision of the knee. In one after removal of an enlarged bursa patellæ.











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Annex

