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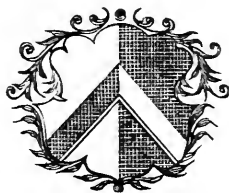
SAINT BARTHOLOMEW'S HOSPITAL REPORTS.

EDITED BY

W. S. CHURCH, M.D.

AND


JOHN LANGTON, F.R.C.S.



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The Chicago Medical Journal and Examiner, Dr. Byford (Messrs.
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18 Henrietta Street, Covent Garden).
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CONTENTS.

	PAGE
LIST OF SUBSCRIBERS	xi
IN MEMORIAM—FRANCIS HARRIS, M.D.	xxxiii
THE BOOK OF THE FOUNDATION OF ST. BARTHOLOMEW'S, WITH AN INTRODUCTION BY NORMAN MOORE, M.D.	xxxix

ART.

I. On the Amount of Destructive Impulses in the Insane. By T. Claye Shaw, M.D.	1
II. Cases Resembling General Paralysis of the Insane. By J. A. Ormerod, M.D.	23
III. Note on Tuberculous Tumours of the Larynx. By Percy Kidd, M.D.	37
IV. On the Presence of the Tubercle Bacillus in Old Specimens of Diseased Lung. By Vincent D. Harris, M.D.	45
V. Profuse Non-Fatal Pulmonary Hæmoptysis. By Samuel West, M.D.	51
VI. Five Cases of Functional Nervous Disorder. By Samuel West, M.D.	59
VII. Cases from Mr. Willett's Wards. By W. T. H. Spicer and Owen Lankester	65
VIII. Notes of Three Cases of Coal-Gas Poisoning. With Remarks on the Symptoms as illustrated by these and other Cases. By Charles A. Morton	73
IX. The After-Treatment of Tracheotomy. By S. Herbert Habershon, M.B.	79
X. Two Cases of Parasitic Hæmaturia. By Norman Moore, M.D.	89
XI. Some Cases of Sclerosis of the Spinal Cord. By Archibald E. Garrod, M.B.	93

ART.	PAGE
XII. On the Nature and Origin of Rodent Ulcer. By G. B. Ferguson, M.D.	101
XIII. Clinical Contributions to Practical Medicine. By Dyce Duckworth, M.D.	105
XIV. Two Contributions to Renal Surgery. By W. J. Walsham	121
XV. Variola as seen in the Casualty Department. By A. Haig, M.B.	131
XVI. A Contribution to the Topographical Anatomy of the Spinal Cord. By H. H. Tooth, M.B.	137
XVII. From the Department for Diseases of the Larynx. By Henry T. Butlin	145
XVIII. Cases of Mental Disturbance after Operations. By W. P. Herringham, M.B.	165
XIX. A Case of Lead-Poisoning with Bosses on the Metacarpal Bones. By W. P. Herringham, M.B.	169
XX. Parametritis and Abscess of the Liver. By E. W. Roughton, M.D.	173
XXI. The Formation of Abnormal Synovial Cysts in Connection with the Joints. By W. Marrant Baker	177
XXII. On the Breath Sounds in Health and Disease. By J. F. Bullar, M.B.	191
XXIII. Cases from Dr. Church's Wards. By T. G. Styant, M.B.	211
XXIV. Note on the Six Gifts of Theophilus Philanthropos, or Robert Poole; an Appendix to "Our Hospital Pharmacopœia and Apothecary's Shop," vol. xx. p. 279. By W. S. Church, M.D.	231
XXV. Proceedings of the Abernethian Society for Winter Session 1884-85	237
Descriptive List of Specimens added to the Museum	263
List of Prizemen	300
Hospital Staff	302
<hr/>	
INDEX	305

LIST OF ILLUSTRATIONS.

	PAGE
SECTIONS OF THE MEDULLA OBLONGATA AND SPINAL CORD	
	(to face) 142
DIAGRAM ILLUSTRATING THE PRODUCTION OF THE RESPIRATORY SOUNDS	192
ILLUSTRATION OF AN APPARATUS FOR PRODUCING EXPANSION AND CONTRACTION OF THE LUNGS WITHOUT THE ADMISSION OF FRESH AIR	194
DIAGRAMS ILLUSTRATING THE PRODUCTION OF UNNATURAL RESPIRATORY SOUNDS	199, 202
DIAGRAM ILLUSTRATING THE MOVEMENT OF THE AIR IN THE LUNGS AND TRACHEA	204
ILLUSTRATION OF THE ARTIFICIAL THORAX	207
ILLUSTRATION OF A SLIDING FRAME FOR THE ARTIFICIAL THORAX	208
ILLUSTRATION OF A SLIDING FRAME FOR THE ARTIFICIAL THORAX WITH LUNG IN SITU	208
DIAGRAMS ILLUSTRATING MR. WOMACK'S PAPER ON THE TEMPERATURE AFTER DEATH	255

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FRANCIS HARRIS, M.D.

BY

SAMUEL GEE, M.D.

FRANCIS HARRIS was born on December 1, 1829, at Winchester Place, in the ancient "Manor of the Bishop of Winchester known as the Manor or Liberty of the Clink," in Southwark.¹ His father, who represented the borough in Parliament for some time, died whilst his son was a very young child, and was buried in St. Saviour's Church. In the same church Francis Harris had been christened only a few months before. After his earliest schooling, and some later studies at King's College, London, he entered at Caius College, Cambridge. What led him to choose medicine for a profession I do not know, unless it were a natural bent towards the physical sciences, which was fostered by an uncle who was somewhat of an amateur chemist. He graduated B.A. in 1852. For many details concerning his life from this time forward, I am much indebted to some memoranda which have been kindly furnished by Dr. Chance. "The chief thing that I remember about him at that time (1852)," says Dr. Chance, "is that his hair was even then (he was only twenty-two) marked by grey. He told me afterwards that his hair had begun to get grey as early as sixteen. It may possibly have resulted from a very serious illness which he had when about that age. He suffered, namely, from very severe hæmorrhage from the lungs, was nearly dying, and was said by the medical man who attended him, and who probably did not know much about the stethoscope, to have lost the greater part of one lung." When he was at the worst, a consultation was held (Dr. Chance is not responsible for this story). Young Harris

¹ "The south outwork of the City, and hence our name of Suthweorce, which some modern folk affect to call Sùtherk."—*Old Southwark and its People*, by William Rendle, F.R.C.S., 1878, page 5. See also "Southwark in the Time of Shakspeare," by the same author, 1878.

insisted upon going down to a house which his mother had at Brenchley, and the doctors agreed that, inasmuch as he was dying, it mattered not where the end came. To Brenchley he went, provided with bottles of physic for inward and outward use. Next morning, looking from his bedroom window, he saw a rose-tree, sickly, faded, and pining away like himself. Forthwith he charitably bestowed his remedies upon the tree, with this result—the rose soon died, whilst he almost as quickly recovered. There is little doubt that his disease was pleurisy. Dr. Chance continues: “The Cambridge school of medicine was then, I may say, superficial, altogether different from what it is now. There were certainly not more than from eight to ten students. But even then there were unusual advantages for students. There being so few of them, they could visit the cases in the wards when they liked, and were on much more intimate terms with their teachers than they could be in a larger medical school. They were even allowed to make the post-mortems themselves. I certainly learned more there in two years than I did at St. Bartholomew’s in the same space of time, and I have no doubt Dr. Harris would say the same.” I may add, that he used to tell me that nothing struck him more, when he first came up to St. Bartholomew’s, than the business-like character of the lectures and instruction generally, compared with what he had been accustomed to at Cambridge. Indeed, Dr. Chance says that the University school was at that time superficial. In 1854 Dr. Harris took the degree of M.B. From November 1856 to August 1857 he was House-Surgeon at the Hospital for Sick Children in London. In 1857 he was admitted M.R.C.P., London. In this year, Dr. Chance “went to Paris to see what was going on there. One day soon after I arrived, I met Dr. Harris accidentally in the street. He was then living in the Rue de la Harpe (now Boulevard St. Michel), and he soon persuaded me to go and live at the same house with him (it was quite in the medical quarter). In the spring of 1858 we met again in Berlin, though we did not go there together. He first lived with a Professor Kannegiesser, for the sake of studying the language; but ultimately he came to the house in the Leipziger Strasse, in which I was living. Here we were more together, for we both attended Professor Virchow’s lectures and courses, and but little else, for these occupied several hours each day. In the

summer, he and I, accompanied by an Alsatian of the name of Kœchlin and a South American Spaniard of the name of Lima, went a tour of four or five weeks and visited Saxon Switzerland, Dresden, Prague, and Vienna. Our object was to visit the hospitals in Prague and Vienna, and it was in those towns that we principally spent our time. We were six months together in Germany, and I should say Dr. Harris was about the same time in France." Returning to England, he was elected Obstetric Physician to St. George's and St. James's Dispensary, and Assistant-Physician to the Hospital for Sick Children in May 1859. The same year he took his degree of M.D., and chose for his academical disputation "The Nature of the Substance found in the Amyloid Degeneration of Various Organs of the Human Body." In this essay, which was printed in 1860, he maintains "that the reactions of these substances (corpora amylacea and amyloid degenerations) with iodine and sulphuric acid indicate their analogy, not their perfect identity, with the substances of the amylaceous group." This was his only published work. "He had not been used to writing for the press," says Dr. Chance, "and when he wrote letters, he commonly made but little use of stops, and substituted dashes. When, therefore, he came to write the thesis for his M.D. degree (a thesis which attracted a good deal of attention at the time), he also used dashes to a great extent instead of stops. The printers contented themselves with copying what they had before them, and I well remember Dr. Harris's horror when the proof-sheets arrived studded with innumerable dashes."

The Dispensary he soon gave up, together with any intention he may have had of applying himself to obstetrics. It was Dr. Baly's accidental death in 1861 which brought about this change of plans. There was an opening for a physician at St. Bartholomew's; Dr. Harris took advantage of it, and was elected Assistant-Physician to the Hospital. About the same time he was appointed Lecturer on Botany, a science in which he took much interest to the end of his life, as will be shown hereafter. In August of this year he was married to a lady who was his second cousin, and who, with a son and two daughters, survives him.

In 1865 he resigned the Children's Hospital and the Lectureship, and bought an estate in that part of Kent which had been

well known to him from childhood. His love of a country life drew him away more and more from London and the pursuit of his profession. His friend says : " I was not only not surprised to hear he had retired from practice; I was surprised that he ever went in for it, and continued to practise so long. That he might have made a large practice is undoubted. His presence was good, and calculated to inspire confidence. He was calm and self-possessed, and therefore likely to make the best use of his unusually sound judgment. All that he wanted was energy, ambition, and lack of money. If he had no money, I believe he would have made it; but even then he would have stopped when he thought he had sufficient. His chief aim was—so it seems to me—to enjoy life in a reasonably comfortable manner, and anything that interfered with his enjoyment he would get rid of if he could. One of the last things he ever told me was that he was getting into practice fast [about 1864], much too fast for him; and he confessed, with a smile, that he sometimes told his servant to say that he was not at home, in order that he might not be bothered with patients." Dr. Chance adds : " I used to go to him, not only for the sake of his conversation, but to ask him for advice, as I considered his judgment to be very sound."

I purposely omitted saying that on Dr. Harris's return from Germany he was appointed Demonstrator of Morbid Anatomy at St. Bartholomew's. The reader will now be glad to peruse a letter which Dr. Andrew has sent me, and which refers to this period of his life :—

" I am much obliged to you for having given me this opportunity of recording the obligation which many other old students of the Hospital not less than myself must feel towards our late colleague, Dr. Harris.

" When appointed Demonstrator of Morbid Anatomy at St. Bartholomew's, he was fresh from Virchow's pathological theatre at Berlin, and full of enthusiasm and delight in his work. I well remember crossing the Hospital square with him one afternoon, and meeting a member of the surgical staff, who, struck by the expression of satisfaction on his face, asked what good fortune had befallen him. ' Just examined a case of amyloid degeneration,' was Harris's reply. The case was, I believe, the first one fully described in English, and supplied him with the subject of his

thesis for the M.D. degree at Cambridge. As a teacher, he was clear and accurate in statement, cautious and shrewd in his reasoning, always ready to help his pupils, and sparing no pains in doing so. Very many of my evenings were spent at his rooms in New Cavendish Street watching his microscopical examination of morbid specimens; and I still recall with admiration his mastery of the means of investigation then in use, his deft fingers, the extent of his reading, and the soundness of his knowledge. On such occasions, too, the severity of our studies was always relieved by his ready wit and sense of humour. All these powers and acquirements were unreservedly placed at the service of the Hospital and School."

In 1868 he was elected Physician to St. Bartholomew's, and from this time forth I myself was closely associated with him, and may therefore undertake to speak of him as I knew him during the last eighteen years of his life. He had now (1868) retired from all medical work excepting at the Hospital. He lived as much as possible on his estate, which was situated partly in Lamberhurst and partly in Brenchley parish, in the Weald of Kent, the Andreds weald of our forefathers—

"Saepe hunc Anderidâ, sub caelo Octobris, ab urbe
Venatum in silvâ ruris agebat amor."—R. BRIDGES.

His house, called the Grange, was close to the thirty-ninth milestone upon the highway from London to Hastings. From his garden there was a remarkable prospect, reaching half round a distant horizon to Best Beech Hill and Coursley Wood in Wadhurst, Ticehurst, Bedgbury Park, Goudhurst, Horsemonden, "high Brenchley's hill," Sutton Valence, and the hills east of Maidstone. In the foreground was the valley of the Teise, one of the "pretty handmaids" of the Medway celebrated by Spenser. The soil of the Weald is ill-suited for agriculture, and hence the country is charming in respect of scenery. Much of the old forest remains; the clearings are devoted to little else than pasture hops, and gardens. I cannot write this about my friend and not recall to mind the many happy days I have spent beneath his roof. For he was a perfect host, wishing to oblige to the utmost of his power, yet making no show, pressing nothing upon you, and leaving you to do as you pleased. The verses of Phineas Fletcher,

born twelve miles off, at Cranbrook, might have been most fitly applied to Dr. Harris and his guests—

“Then do not marvel Kentish strong delights,
Stealing the time, do here so long detain me.”

He took especial pleasure in his garden, his orchard-house, his vinery, and latterly in his orchid-houses. Here he turned his botanical knowledge to good account, and made numerous experiments in crossing orchids. Since his death many of his seedling hybrids have come into bloom, whereof two have been named after him. The first, *Dendrobium Harrisii*, from a cross between *D. nobile* and *D. heterocarpum*, a flower more than three inches across, almost pure white, with a large lip and a large dark purple eye. The next, *Calanthe Harrisii*, from *C. Veitchii* and *C. vestita lutea*. Doctor Reichenbach of Hamburg, who is great in orchid lore, awards a high meed of praise to the Calanthe, which bears an inflorescence of twenty or thirty flowers, each more than two inches across, and pure white.

Other seedlings which have not yet bloomed, or have not yet been named, are Dendrobiums, Calanthes, Cypripediums, and Cattleyas.

In 1874 he resigned his Hospital duties on account of ill-health. Two or three years before this time he began to suffer from progressive emphysema of the lungs and pulmonary catarrh, connected with a disposition to gout; and those infirmities gained upon him somewhat quickly. During the last three or four years of his life dyspncea was almost continual, and sometimes very severe. In June 1882 he passed through an attack of pneumonia. A recurrence of this disease put an end to his life on September 3, 1885. He died in London, and was buried at Brenchley by the side of his mother. His death was felt to be a great loss by many friends both in town and country, to whom his kind and hospitable spirit had made him dear.

Heu ubi et Harrisius? nec tantum Musa gemebat
Absentem, quantum viribus orba domus.¹

¹ Carmen elegiacum Roberti Bridges de nosocomio Sti Bartolomaei Londinensi, v. 369.

The Book of the Foundation of St. Bartholomew's.

ALL the accounts of the foundation of St. Bartholomew's Hospital and of the Priory of St. Bartholomew which have hitherto been published, with almost everything which has been written about the founder, are based directly or indirectly upon a manuscript called *Liber fundacionis ecclesie Sancti Bartholomei Londoniarum*. The manuscript measures $10\frac{1}{4}$ in. by $7\frac{1}{8}$ in., and is written on vellum, containing eighty-six leaves of vellum, and encased in a modern binding. It is preserved in the British Museum, and is numbered "Vespasian B IX." This title is taken from the bust which surmounted the bookcase which contained the manuscript in the Cottonian collection. It was a fortunate chance for us that the book stood beneath the tenth Cæsar, for the fire which in 1731 destroyed a part of that splendid collection began at the opposite end of the room, and injured many of the contents of the cases surmounted by the earlier emperors. With the Cottonian collection the manuscripts came to the British Museum. Records of four of its former owners are to be found on its leaves. On the first page is written, "Thomas Cotton." He was son of Sir Robert Cotton, who died 1631, and was no doubt the last of the private owners of the manuscript whose names are recorded on its pages. On a vacant page at the end an earlier owner has written, "*Iste liber pertinet ad Thomam Otwell de London;*"¹ and below the title is the autograph of a third owner, probably intermediate between Otwell and Cotton, "Ri. St. Geo. Norroy, King at Arms." Sir Richard St. George was Norroy King at Arms from 1603 to 1623. On the same page as his name, and continuous with the title, is the record of the original ownership of the manuscript, "*pertinens pri-*

¹ Lower down on the same page is written, "Thomas Powell of London, stationer;" and on leaf 83b, which is otherwise blank, "Mistress Otwell I bid you farewell for you do well and in bewtie beareth the Bell."

oratui ejusdem in Westesmythfelde." This, with the title, is in the same character as the MS. itself, while the other entries are in several modern hands. It proves that the manuscript belonged to the Priory of St. Bartholomew in Smithfield. When that foundation was broken up at the general dissolution of the monasteries, this book left the library of the Augustinian canons, and was turned out into the world like its masters. A careful search in the libraries descended from those formed in London in the sixteenth century will probably discover some of its shelf companions, but at present it is the only surviving relic of the library¹ of the priory. The manuscript contains two versions of the same work; the first, of forty leaves, in Latin; the second, of thirty-eight leaves, in English. The Latin is in a straight Gothic character, with large letters: the English is in a less vertical and differently shaped: a manuscript, of about the year 1400, in the Cambridge University Library, exhibits, as Mr. Henry Bradshaw pointed out to me, a similar distinction between the character in which Latin and that in which English is written. There is no colophon stating the name of the composer or of the scribe, or the date of the composition, or of the writing, but there is internal evidence which makes it possible to determine both. The author states that he belonged to the Priory of St. Bartholomew, and to the Augustinian Order. He was one of the thirty-five canons who formed the community in his time. Many details throughout the work confirm the truth of this statement, while his use without special note of quotation of the words of a charter of Henry I., which was the most precious muniment of the priory, is strong confirmatory evidence. Several statements of the author show that he was living, and probably wrote, in the latter part of the reign of King Henry II. He mentions no later king. He

¹ In a deed which, by the kindness of the Dean and Chapter, I have examined at St. Paul's, three other volumes of this library are mentioned—a psalter and gloss in two volumes, and the Epistles of St. Paul. The deed, of which some parts are a little faded, is of the year 1250, and states that Richard of Wendover gave these books to the Prior and Convent of St. Bartholomew, and that they received him into their fraternity. The Antiphonarium, mentioned in Rahere's life, makes a fourth volume of this library. A finely-illuminated MS. in the British Museum, said to belong to the Priory, contains evidence that it was the property of the hospital, which had a library of its own.

says that he had talked with those who remembered Rahere, who died September 27, 1143, and that he himself had been a canon during the priorate of Thomas, Rahere's successor, who died January 18, 1174. He speaks of ecclesiastical privileges obtained from several popes, from Anastasius IV., who reigned 1153-1154, from Adrian IV. (1154-1159), and from Alexander III., Adrian's successor, who died August 30, 1181. Evidence exists that later popes also favoured the priory, and these would certainly have been mentioned had the writer lived to hear of their grants.

More general evidence is his mention of the castle of Munfychet in the city as still standing, for it is known to have been finally demolished in the reign of Henry III. These circumstances demonstrate the place, the time, and the author of the work. It was composed in the Priory of St. Bartholomew in West Smithfield, between the death of Prior Thomas and that of King Henry II., that is, between the years 1174 and 1189, and its author was an Augustinian canon of the Priory. He wore a white rochet with a great black cloak and hood like those upon the effigy on Rahere's tomb, and he kept the canonical hours in the beautiful Norman church which is all that is now left of his beloved Priory. He was as familiar with our hospital as we are, and the first reports of cases admitted into it are contained in his pages. Adwyne was the name of the first of these reported patients, and he seems to have suffered from long-continued muscular debility, such as is sometimes seen in patients after a long-continued acute illness. The canon wrote in Latin, in a good twelfth-century style. He had read but little of the poets, but had St. Jerome's version of the Bible at his finger ends. He uses its phrases on every possible occasion, and seems as much at home in the Minor Prophets as in the Psalms.

It is only the Latin life which can have been composed in the reign of Henry II. The English version, which contains a few amplifications, is proved by its language to be of later date, and since the existing Latin manuscript and the English were clearly written on parchment at the same period, the date of the English version fixes that of the manuscript as it stands. The language is Middle English, and the character

that of about the year 1400. The scribe has supplied by a slip of his pen an important indication of his period. In the middle of the translation where the original Latin has "Henry II.," he has given "Richard II." as the king's name. The Latin version was written before any Richard had reigned in England, and nothing is more likely than that a scribe, who had lived with Richard II. on the throne, should inadvertently put the name of the reigning king for that of a past sovereign of the same number but of a different name.

To sum up the facts: the manuscript in the British Museum was written about the year 1400, and the English translation was composed at that period. The Latin manuscript, also transcribed then and rubricated in the same style, was originally composed about the year 1180.

Besides its interest to us in St. Bartholomew's, the manuscript well deserves a careful perusal for the glimpses which it gives of life in London in the reign of Henry II. Space compels me to leave it to speak for itself, only adding that the reader must bear in mind that the Augustinian canon's object was to write the spiritual history of our founder and his foundation, and not to compose a detailed historical work. This life of Rahere is now published in full for the first time. I have chosen the English version because it has an interest as an example of our prose literature soon after the time of Chaucer. In the text I have expanded the contractions, which are very few and so often repeated as to present no difficulties; and I have otherwise printed the words exactly as they are in the manuscript, adding a few notes solely with a view to making the perusal easy to a general reader. There are very few words which are not easily intelligible when sound and not spelling is regarded. The precise evidence as to the date of the foundation of St. Bartholomew's Hospital given in the manuscript, and many other facts elucidated by it, deserve consideration, but would add too much to the length of this introduction. I hope on a future occasion to set forth in detail the whole life of our Founder.

NORMAN MOORE.

LIBER I.¹

FOR asmooche,² that the meritory³ and notable operacyons, of famos goode and devoute faders⁴ yn God, sholde be remembred for instrucion of aftyr cummers⁵ to theyr consolacion and encres⁶ of devocion thys Abbrevyat Tretesse,⁷ shal compendiously expresse and declare, the wondreful and of celestial concel⁸ gracious fundacion⁹ of oure hoely¹⁰ placys callyd the Priory of seynt Bartholomew yn Smythfyld, and of the hospital by olde tyme longyng¹¹ to the same, with other notabiliteis expediently to be knowyn. And most specially the gloriouse and excellent myraclys wroghte¹² with yn them, by the intercessions suffragys and meritys, of the forsayd, benygne feythfull and blessid of God apostyl sanct Bartholomy, yn to the laude of almyghty God and agnicion of his infinite powere.

FFYRST SHAL BE SHEWYD WHO WAS FFUNDER¹³ OF OWERE¹⁴ HOELY PLACES, AND HOWH¹⁵ BY GRACE, HE WAS FFYRST PRYOR OF OWR PRIORY; AND BY HOWH LONGE TYME THAT HE CONTYNUED YN THE SAME.

Thys chirche yn the honoure of most blessid Bartholomew apostle, fundid Rayer, of goode remembraunce and theryn

¹ The MS. begins as above, without any heading of Book or Chapter, and the first sixteen lines form a sort of preface which is not in the Latin. Then follows in red the title of the first chapter, and then the text begins with a large and beautifully illuminated T. The heading of each subsequent chapter is in red, with a red number in the margin.

² *asmooche*, as much.

³ *meritory*, meritorious.

⁴ *faders*, fathers.

⁵ *cummers*, comers.

⁶ *encres*, increase.

⁷ *tretesse*, treatise.

⁸ *concel*, counsel.

⁹ *fundacion*, foundation.

¹⁰ *hoely*, holy.

¹¹ *longyng*, belonging.

¹² *wroghte*, wrought.

¹³ *ffunder*, founder.

¹⁴ *owere*, our.

¹⁵ *howh*, how.

to serve God, aftir the rewle¹⁶ of the moost holy fader Austyn, aggregat to gidir¹⁷ religiouse men and to them was prelate xxii yere, usynge the office and dignite of a priore: not havynge cunnyng¹⁸ of liberal science, but that that is more emynente than all cunnyng, for he was richid yn puryte of conscience; ayenste¹⁹ God by devocyon, ayenste his brethryn by humylite, ayenste his enemyes with a benyvolence. And thus hym self he excercised them patiently sufferynge, whoose provyd puryte²⁰ of soule, bryght maners with honeste probyte,²¹ experte diligence yn dyvyne²² servyce, prudent besynes²³ yn temperalle mynystracyun,²⁴ in hym were gretely to prayse and commendable. In festis²⁵ he was sobir,²⁶ and namely the folowere of hospitalite, tribulacions of wretchis, and necesiteys of the pouer peple oportunyly admytting, patiently suppartyng, competently spedynge. In prosperite nat ynprided;²⁷ in adversite paciente; and what sumevere unfortune ranne ageyn hym, he restyd hymself undir the schadowe of his patron, that he worshippid,²⁸ whom he clippid²⁹ to hym, with yn the bowell of his soule. In whose helpe for all perelles³⁰ he was sekyr³¹ and preseryd. Thus he subgett to the kyng of blisse with alle mekenesse, prevydyd with alle diligence, that were necessarie to his subiectys,³² and so provydyng he encresid dayly to hymself, before God and man grace, to the place reverence, to his frendes gladnesse, to his enemyes peyne,³³ to his aftircummers joye. And suche certeyn was the lyef³⁴ of hym aftir his conversyon bettyr than hit was befor,³⁵ in goodnes ever more encresid. And yn what ordir he sette the fundament of this temple, yn fewe wordys lette us shewe, as they testified to us that sey³⁶ hym, herd hym, and were pre-

¹⁶ *rewle*, rule.¹⁷ *aggregat to gidir*, aggregated together.¹⁸ *cunnyng*, cunning (knowledge).¹⁹ *ayenste*, towards (erga).²⁰ *puryte*, purity.²¹ *probyte*, probity.²² *dyvyne*, divine.²³ *besynes*, business (*sollicitudo*).²⁴ *minystracyun*, ministration.²⁵ *festis*, feasts.²⁶ *sobir*, sober.²⁷ *ynprided*, elated.²⁸ *that he worshippid*, quem venerabatur.²⁹ *clippid*, embraced.³⁰ *perelles*, perils.³¹ *sekyr*, safe.³² *subiectys*, subjects (*subdito gregi*).³³ *peyne*, pain.³⁴ *lyef*, life.³⁵ *befor*, before.³⁶ *sey*, saw.

sente yn his werkys and dedis,³⁷ of the whiche summe have take ther slepe yn Cryste, and summe of them be zitte³⁸ a lyve and wytnesseth of that that we schall afir say.

CAPITULUM II.

WHAT LYEF HE LEDDE A FORN¹ HIS CONVERSION.

Thys mann sprongyng² or boryn of lowe lynage,³ whan he attayned the floure of youghth, he began to haunte the housholdys⁴ of noble men and the palices⁵ of prynces, where undir every elbowe of them, he sprede her⁶ coshynys⁷ with japys⁸ and flatterynges, delectably anyongtyng her eerys,⁹ by this maner to drawe to hym ther frendschippis. And zitte he was nat content with this, but ofte hawntid¹⁰ the kynges palice, and amonge the noysefull prese of that tumultuous courte inforsid¹¹ hymself with jolite¹² and carnale suavyte,¹³ by the whiche he myght drawe to hym the hertys¹⁴ of many oone,¹⁵ ther yn spectaclis, yn metys,¹⁶ yn playes,¹⁷ and othir courtly mokkys¹⁸ and trifyllys¹⁹ intendyng, he ledeforth the besynesse of alle the day.²⁰ And nowe to kynges attendens, now folowyng the entente of grete men presid yn²¹ proferynge servyce that myght plece²² them, besily²³ so occupied hys tyme that he myghte opteyne²⁴ the rathir the petitions that he wolde desire of them. Thiswyse to kyng and grete men gentylls and courtours y knowen, famylier and felowly²⁵ he

³⁷ *dedis*, deeds.

³⁸ *zitte*, yet.

¹ *aforn*, before.

² *sprongyng*, springing (*oriundus*).

³ *lynage*, lineage (*prosapia*).

⁴ *housholdys*, households.

⁵ *palices*, palaces.

⁶ *her*, their.

⁷ *coshynys*, cushions (*pulvillos*).

⁸ *japys*, jokes.

⁹ *eerys*, ears.

¹⁰ *hawntid*, haunted.

¹¹ *inforsid*, enforced.

¹² *jolite*, jollity.

¹³ *suavyte*, suavity.

¹⁴ *hertys*, hearts.

¹⁵ *many oone*, many-one.

¹⁶ *metys*, banquets (*epulis*).

¹⁷ *playes*, pastimes (*jocis*).

¹⁸ *mokkys*, nonsense (*nugis*).

¹⁹ *trifyllys*, trifles.

²⁰ *tota die intendere negocium ducebat*.

²¹ *presid yn*, pressed in.

²² *plece*, please.

²³ *besily*, busily.

²⁴ *opteyne*, obtain.

²⁵ *felowly*, socius.

was. This manere of levynge²⁶ he chose yn his begynnyng, and yn this exercisid his youghth; but the inwarde seer²⁷ and mercyfull God of all, the whiche oute of Mary Magdalene cast oute vii feendys,²⁸ the whiche to the flysshere²⁹ gave the keyes of hevyn³⁰ mercyfully convertid this man fro the erreure of hys way, and addid to hym so converted many ȝiftys of vertu, for why: they that are fonnysche³¹ and febill³² in the worldys reputacion, oure Lorde chesith,³³ to confounde the myghte of the worlde.

CAPITULUM III.

HERE FOLOWETH HOWE CONVERTID HE WENTE TO ROME.

This man therfore by the grace of God, of hys synnes sumtyme¹ penytent a parposyng to halfe² his dayes, that he myghte obteyne³ parfite and plenere pardon and indulgence of his synnes: to that entente⁴ he decreid yn hym self to go to the courte of Rome, covetyng yn so grete a laboure to do the worthy fruytes of penaunce. The whiche habite of hevynly inspirid soule and purpos he wolde nat with a slowthfull mynde be deferrid yn to tymes and yeres, but the conceyved goode dede by feithfull desire constawntly executyng, he toke his way,⁵ oure lord God directyng his pace, and hole and sownde⁶ whydir⁷ he purposid came, where at the martirdomes⁸ of the blessid Apostles Petir and Poule, he wepyng hys dedis and reducyng to mynde⁹ the scapis¹⁰ of hys youghth and ignoraunces, prayd to oure Lorde for remyssion of them, behestyng¹¹ furthermore, noon like to do, but thyes¹² utterly to forsake, ever

²⁶ *levynge*, living.

²⁷ *inwarde seer* (inspector).

²⁸ *feendys*, fiends.

²⁹ *flysshere*, fisher.

³⁰ *hevyn*, heaven.

³¹ *fonnysche*, foolish.

³² *febill*, feeble.

³³ *chesith*, chooseth.

¹ *sumtyme*, sometime.

² *halfe* (dimidiare).

³ *obteyne*, obtain.

⁴ *entente*, intent.

⁵ *domino gressus ejus dirigente*

⁶ *hole and sownde*, incolumis.

⁷ *whydir*, whither.

⁸ *martirdomes*, places of martyrdom (*martiria*).

⁹ *reducyng to mynde*, ad memoriam reducens.

¹⁰ *scapis*, delicta.

¹¹ *behestyng*, promising.

¹² *thyis*, these.

devoutly his will promyttyng to obeye. These ii clere lightys of hevyn, ii men of mercy, Petir and Poule, he ordeyned mediatoures betwyn hym and the lorde of all erthe,¹³ promysynge that he wolde be ware, of all passid unhabillnesse,¹⁴ and yeve affectuallly his diligence and laboure, to that he hathe promysyd, and whyle he taryed¹⁵ ther, in that meene whyle, he began to be vexed with grevous sykenesse, and his doloures, litill and litill, takynge ther encrease, he drewe to the extremyte of lyf,¹⁶ the whiche dredynge¹⁷ with yn hymself, that he nat zitte for his synnys¹⁸ hadde satisfied to God, and therfore he supposid that God toke vengeance of hym for his sinnys a monges owte landisshe¹⁹ peple, and demyd²⁰ the last oure of oure²¹ of his deith²² drewe hym nygh. Thys remembrynge inwardly, he schedde²³ owte as water his herte in the syght of God, and albrake owte in terys,²⁴ than²⁵ he avowyd yf helthe God hym wolde grawnte, that he myght lefully retorne to his contray,²⁶ he wolde make and hospitale yn recreacion of poure²⁷ men, and to them so there i gaderid,²⁸ necessariës mynystir,²⁹ aftir his power. And nat long aftir, the benigne and mercyfull lord, that byhelde the terys of Ezechie, the kyng, the importune prayer of the woman of Chananee rewardid with the benefeit of his pite,³⁰ thus lykewyse mercyfully he behelde this wepyng man, and gaf³¹ hym his helth, approvyd his avowe,³² so of his sykenes recoveryd he was, and in short tyme hole y maade,³³ began homwarde to come, his vowe to fulfille that he hadde made.

¹³ *erthe*, earth.

¹⁴ *unhabillnesse*, folly (*ineptiis*).

¹⁵ *taryed*, tarried.

¹⁶ *lyf*, life.

¹⁷ *dredynge*, dreading.

¹⁸ *sinnys*, sins.

¹⁹ *owtelandisshe*, foreign.

²⁰ *demyd*, deemed.

²¹ *oure*, hour.

²² *deith*, death.

²³ *schedde*, shed.

²⁴ *terys*, tears.

²⁵ *than*, then.

²⁶ *ad patriam suam redire liceret*.

²⁷ *poure*, poor.

²⁸ *i gaderid*, gathered.

²⁹ *mynystir*, minister.

³⁰ *pite*, pity.

³¹ *gaf*, gave ("gif-gaf makes good friends" is a well-known saying in Antrim).

³² *avowe*, vow.

³³ *hole y maade*, made whole.

CAPITULUM IV.

OF THE VISION THAT HE SAWE IN THE WAY, AND OF THE
COMMAUNDEMENT OF SEYNT BARTHOLOMEW THE APOSTLE.

Whan he wolde perfete his way that he hadde begon, in a certayne nyght he sawe a vision full of drede¹ and of swetnesse, whan aftir the labourous and swetyng that he had by dayes, his body with reste he wolde refresshe. It semyd² hym to be bore up an hye,³ of a certeyn beiste⁴ havynge viii feete and ii wyngges⁵ and sette hym yn an hye place, and whan he from so grete an highnesse wolde inflecte and bowe down his yie⁶ to the lower party⁷ donward, he behelde an horrible pytte⁸ whose horryble beholding ynpressid in hym the beholder grete⁹ drede and horroure, ffor the depnesse of the same pytte was depper than eny man myghte atteyne to see. Therfore he, secrete knowere of his defautes, demyd hym self to slyde in to that cruell a downcast, and therfore as hym semyd ynwardly he fremyshid,¹⁰ and for drede tremelyd,¹¹ and grete cryes of his moweth¹² procedyd. To wham dredyng and for drede crynge apperid a certeyn man pretendyng in chere¹³ the majeste of a kynge of grete bewte,¹⁴ and imperiall auctorite,¹⁵ and his yie on hym fastynd, he seyde goode wordes, wordes of consolacion bryngyng¹⁶ goode tydynges¹⁷ as he schulde sey in this yn this wyse, "O man," he seyde, "What and howe muche servyce shuldes¹⁸ thou yeve to hym, that yn so grete a perele hath brought helpe to the:" annone he answerde to this seyyng, "whatsumever myght be of hert¹⁹ and of myghtys,²⁰ diligently shulde I yeve, in recompence to my delyverer." And than saide he, "I am Bartholomew the Apostle of Ihu Crist that come to socoure²¹ the, yn thyn

¹ *drede*, dread (terrore).

² *semyd*, seemed.

³ *hye*, high.

⁴ *beiste*, beast.

⁵ *wyngges*, wings.

⁶ *yie*, eye.

⁷ *to the lower party*, ad ima.

⁸ *pytte*, pit,

⁹ *grete*, great.

¹⁰ *fremyshid*, shuddered (inhorruit).

¹¹ *tremelyd*, trembled.

¹² *moweth*, mouth,

¹³ *chere*, mien (vultu).

¹⁴ *bewte*, beauty.

¹⁵ *auctorite*, authority.

¹⁶ *bryngyng*, bringing.

¹⁷ *tydynges*, tidings.

¹⁸ *shuldes*, shoulddest.

¹⁹ *hert*, heart.

²⁰ *myghtys*, powers.

²¹ *socoure*, succour.

angwysshe,²² and to opyn²³ to the the secrete mysteryes of hevyn, knowe me trewly, by the will and commannmente of the hye Trinite, and the comyn²⁴ favoure of the celestiall courte and consell to have chosyn a place yn the Subbarbis²⁵ of London at Smythfeld wher yn myn name thou shalte founde a chirche and it shall be the house of God: ther shalbe the tabernacle of the lambe, the temple of the Holy Gost. This spirituall howse almyghty God shalle ynhabite and halowe yt and glorifie yt and his yen²⁶ shall be opyn and his eerys²⁷ yntendyng on this howse nyght and day that the asker yn hit schall resceyve, the seker shall fynde and the rynger or knokker shall entre. Trewely every soule convertid penytent of his synne and in this place prayng, yn hevyn graciously schall be herde: the seekere with perfite herte for whatsumevyer tribulacion withowte dowte he schalle fynde helpe: to them that with feithfull desire knoke at the doyr²⁸ of the spowse, assistent angelys shalle opyn the gatis²⁹ of hevyn, receyvyng and offeryng to God the prayers and vowys of feithfull peple. Wherforet hyn handys be there confortid in God, havyn in hym truste, do thou manly³⁰ nethir of the costis of this bildyng dowte the nowght, onely yeve thy diligence, and my parte schalbe to provyde necessities, directe, bilde and ende this werke, and this place, to me accepte, with evydent tokenys and signys protecte and defende contynually hyt. Undyr the schadowe³¹ of my wyngys, and therfore of this werke knowe me the maister and thy self onely the mynyster: use, diligently thy serveyce, and I shall schewe my lordeschippe." In these wordes the vision disparyschyde.³²

²² *angwysshe*, anguish.

²³ *opyn*, open.

²⁴ *comyn*, common.

²⁵ *subbarbis*, suburbs.

²⁶ *yen*, eyes.

²⁷ *eerys*, ears.

²⁸ *doyr*, door.

²⁹ *gatis*, gates.

³⁰ *do thou manly*, viriliter age.

³¹ *schadowe*, shadow.

³² *disparyschyde*, disappeared (disparuit).

CAPITULUM V.

WHAT HE YN HYMSELF TRETID¹ OF THYS VISYN.²

He awakid began to revolve wysly in his mynde that he hadde seyn. In that meene while, to his flitting soule³ was mewyd⁴ to have a dowtable sentence,⁵ whethir it schulde be hadde, and take for a fantastykke illusyon, that ofte happyth⁶ to men yn ther slepe, or for an hevyly warnyng or answeere, the whiche he demyd himself nat worthy to have. Thus stryvyd togedyr⁷ in his herte, feithfull mekenesse and drede and uncertayn he was, to whom more credence schulde be gowyn, and as a meke man he wolde them have hydde and nat presume hier thynges above hym self, than he undrestode. Also tymorously he dred to laches⁸ the preceptis of the apostle, and so lachesynge,⁹ nat meke, but prowte,¹⁰ to be bownde, with the streite¹¹ examinacion of the hie juge. Therefore, with worthier sentences and better allegacion whan he was informyd, drede of God and the apostle optenyd the victorye, to whom grace was felowschippe, and blessedly areysed up the meke man, confortid the faynt-hertid, the suatperynge man¹² stedfastid. The goode forseyd dede in stabill degre with his welsumme and happy purpose to performe. He therfore, techynge¹³ hym inwardly, as we beleve, by his unccion that beforne hadde instructe hym by nyghtly vision, ordaynyd to make perfite that was commawnded, namely, whyle he was commawnded oonly and grettely to yeve diligence and laboure. And soethly the overplues shulde be as the commawnder wolde ordeyne. Trewly by dremys¹⁴ many secretis of Goddis wille hath come to the knowleche of men. In the seryous¹⁵ scripture of the olde and newe testamentis, as nat¹⁶ onys¹⁷ but oftyn we have redde, wherof oone wittnesse of

¹ *tretid*, thought on.² *visyn*, vision.³ *flitting soule*, fluctuanti animo.⁴ *mewyd*, moved.⁵ *dowtable sentence*, dubiam sententiam.⁶ *happyth*, happeneth.⁷ *togedyr*, together.⁸ *to laches*, to disregard (negligere).⁹ *lachesynge* (negligendo).¹⁰ *prowte*, proud.¹¹ *streite*, strict.¹² *suatperynge man* (initiantem).¹³ *techynge*, teaching.¹⁴ *dremys*, dreams.¹⁵ *seryous* (serie).¹⁶ *nat*, not.¹⁷ *onys*, once.

them bothe sufficith us to bryngforth. Holy Danyel in his dreame lernyd the dreame of the kynge, and the interpretacionn of the same, oure Lorde revelynge he knewe. Rightwys Joseph yn his slepe was warnyd nat to drede to take Marye his wyf, and stondynge the article of persecucion to flee with her in to Egipte. And whan Herode the autoure of persecucion was deed, by the angle he was commannded to retorne azen in to Jurye. Visions in nyght tymes i made pretende nat alway cause of deseit but sumtyme pregnant and frutefull sentences of hevenly mystery, worthy to be trowid¹⁸ with feith¹⁹ and admiracion. With theys and many moo auctorites²⁰ of scripture, we ben taght²¹ of the whiche to have perfite discrecion. I trowe²² yt nat of mannys witte, but of a godly gyfte and therfore after the lawe the residue of the lambe lat us leve yt to the fyre that ys the Hoely Gooste.

CAPITULUM VI.¹

EXPOSICION OF THIS VISION.

Forthermore what yf it be inquerid what pretendith the vision of the federyd beiste, what the horrible pitte, what setting² of the man an hye what I feill of this in fewe wordis I schalle expresse. I deme³ the beiste to signifie the devyl, the which in Ezechiel mysterially ys callid the grete egle.⁴ Nowe for the dignite of hevenly nature. Nowe for magnitude of spirituall wykkednes, the whiche bothe there yn Ezechiel, and also in this vision, the beyste semyd grete wynges to have, by that ys understonde he swollyn with pride of elacion purposid in will to be like almyghty God, and to the same elacyon man with deceyvable promysse proudly he arysyd⁵ azenste his creator, with the whyche synne never cesith he to attaste⁶ alle the kynde of

¹⁸ *trowid*, believed.

¹⁹ *feith*, faith.

²⁰ *auctorites*, authorities.

²¹ *taght*, aught.

²² *trowe*, think (reor).

¹ Chapter V. in the Latin ends with the words "ideo secundum legem: relinquamus igni," so that the

translator has here added a gloss of his own.

² *setting*, setting.

³ *deme*, deem.

⁴ *egle*, eagle.

⁵ *proudly he arysyd*, superbe exheret.

⁶ *attaste*, attemptare.

men, many to ynfoldeyn,⁷ and many with hym to adde, to everlastyng fyre, no houre ne tyme cessith not, hys iv feete ben iiij wyndys of the which is spoken yn zacharie: or els iiij gendrys⁸ of temptacion, the which anumbrith⁹ the psalmyst, or els iiij vices of whiche spekith the prophete Joel, seiying: the residue of the Eruce etyth the buttyrflye, and the residue of the buttyrflye etyth brucus, and the residue of bruce etyth rubigo, undirstondyng lecherie by Eruca, by the buttyrflye vaynglorie, by brucus gluttony, by rubygo ire signifying and wrath. Note well that Eruca ys a worme,¹⁰ that growith of the worttys, Locusta that fleith frome floure to floure, brucus is the issue of the buttyrflye, or¹¹ he have wynges. Of iiij wyndys remembrith zacharie¹² seiying I lyfte up my eiyn and sawhe, and to me was seyed beholde iiij hornnys, and I seied to the angle. that spake in me, what ben theys,¹³ and he seide to me, these ben the hornnys that shall blowe and ventilatte,¹⁴ Jude, Israel and Jerusalem. By the which iiij wyndys he signified iiij passions of the soule that ys to seye, drede, and hevynesse, love and gladnesse,¹⁵ that dissipate alweyes the quyete¹⁶ of mynde, and no soule ther is bownde with bridyll where theys regne. Of iiij gendres of temptacion seide David of the rightwes man, thus,¹⁷ Thou schalt nat drede for the nyghte drede, ne for the arrowfleyng in the day, ne for the besynes¹⁸ walkyng in derknesse, ne for the yncourse¹⁹ and mydday devyl. The fyrst temptacion is lighte and hydde,

⁷ *ynfoldeyn*, in fold.

⁸ *gendrys*, kinds.

⁹ *anumbrith*, enumerates.

¹⁰ That which the palmer worm hath left hath the locust eaten: and that which the locust hath left hath the cankerworm eaten, and that which the cankerworm hath left hath the caterpillar eaten.—Joel i. 4. The sentence beginning *Note well*, is an addition of the translator.

¹¹ *or*, before.

¹² Then I lifted up mine eyes, and saw, and behold four horns. And I said unto the angel that talked with me, What be these? And he answered me, These are the horns which have

scattered Judah, Israel, and Jerusalem.—Zech. i. 18, 19.

¹³ *what ben theys*, what are these.

¹⁴ *ventilatte*, ventilaverunt.

¹⁵ Timor et tristicia,
Amor et leticia.

¹⁶ *quyete*, quiet.

¹⁷ Thou shalt not be afraid for the terror by night; nor for the arrow that flieth by day; nor for the pestilence that walketh in darkness; nor for the destruction that wasteth at noonday.—Psalm xci.

¹⁸ *besynes* represents the *negocio* of the Vulgate, and

¹⁹ *yncourse*, the *incursu*.

the secunde lighte and opyn, the thirdd grevous and hydde, the iiiith grevous and opyn. With these and be forseyd maners as be his feete, this singuler ennemy of mankynde compressith us to the erthe and so to hym he throwythe downyn men, and them so prostrate with horrible cleys of malice violently constrayneth. And furthermore, men adherent wilfully to hym, he drawith from vice in to vice, from evillys to wors, compelleth them to breke owte of rewle tyl his synnys ben complete, and as he were lyfte up yn to the hye towre of all wikkidnesse, where God vengynge they falle downe in to the lowest of the pytte, that ys, into the moost profunde helle, ordeyned for wrecchis, and of all wrecchis moost wrecchidde.

By this vision I trowe be signified to man, that he shulde attende and considre, the manyfolde snarys²⁰ of oure sotell²¹ enemy prudently, and aware them holsumly,²² leyste that by a cruell downecastyng suppid up²³ wrecchidly he shulde perysche. But sithen it is not yn manys wytte, his way, nothir in his kunnyng to directe his jornay, there ys addid to hym consolacion of hevynly mercy, and nat a litill but mochyll occasion to optene vertue. And by that moere spedily to deserve godly helpe, by the whyche besily he myght fulfille the comawndemente of the apostle. I esteeme hym a wysman that canne undirstande by theys thynges that arne shewid to hym; and not i hidde from hym, but schewed yn dede and worde what ys to be doyn.

CAPITULUM VII.

HOWE THE KYNGES FAVORE Y HADDE, THE PRECEPT
AND HIS VOWE HE FULFILLID.

Therefore i passid that remaynyd of his way, he came to London, and of his knowleche¹ and frendes with grete joye was receyved, with whiche also with the Barons² of London he spake famyliary of these thynges, that were turnyd and sterid³

²⁰ *snarys*, snares.

²¹ *sotell*, subtle.

²² *aware them holsumly*, salubriter caverunt.

²³ *suppid up*, absortus.

¹ *of his knowleche*, a notis.

² *barons*, men, citizens.

³ *sterid*, stirred.

in his herte, and of that was done abowt hym, in the way he tellid it owte. And what schulde ben done of this, he cowncellid. Of them toke he this answey, that noone of these myght be perfityd; but the kynge were first i cowncelled. Namely sith the place godly⁴ to hym y schewid was conteyned withyn the kynges market of the whyche it was not leuefull to prynces or other lordys of there propyr auctoritate eny thyng to mynuysse,⁵ nethyr jitte to so solempne an obsequy depute. Therfore usyng theys mennys cowncell in oportune tyme he dressed hym to the kynge, and before hym and the Bisshoppe Richarde⁶ beyng presente, the whiche he hadde made to hym favorable byforne, effectually expressid his besynes, and that he myght leuefully bryng his purpose to effecte, mekely besought. And nyh hym was he in whoes hande it was, to what he wolde, the kynges hert yncline, and yneffectualle these prayers myght nat be whoes auctor ys the apostle, whois gracyous herer⁷ was God, his worde therfore was plesaunte and acceptable in the kynges yie. And whan he hadde peysyd⁸ the goode wille of the man prudently, as he was wytty graunted to the petitioner his kyngly favore, benyngly yevyng auctorite to execute his purpos. And he havynge the title of desired possession of the kynges majeste was right gladde. Than nothyng he omyttinge of cure and diligence ii werkys of pyte began to make: oone for the vowe that he hadde made, an othyr as to hym by precepte was injoynde. Therfore as the case prosperously succedid, and aftyr the apostles word, all necessaryes flowid unto the hande. The chirche he made of cumly stoonewerke tabylwyse, and was an hospitall howse a litill lenger of, from the chirche by hymself he began to edifie.

The chirche was fowndid as we have take of oure eldres⁹ in the moneth of Marche in the name of oure lorde Ihu Crist in memorie of moost blesside Bartholomewe apostle, the yere from the Incarnacion of the same lorde oure Savyoure, M.C.xxiii.: thanne haldyng, and rewlyng, the holy see of Rome mooste

⁴ *godly*, divinitus.

⁵ *mynuysse*, diminish.

⁶ *Richard de Belmeis*, elected Bishop

of London May 24, 1108; died Jan. 16, 1128.

⁷ *herer*, exauditor.

⁸ *peysyd*, perpendens. ⁹ *eldres*, elders

holy fadir Pope Calixte¹⁰ the secunde; presidente in the church of Ingland, William,¹¹ Archebisshoppe of Cawntirbury, and Richarde,¹² Bysshoppe of London, the whiche of due lawe and right halowid that place yn the eiste party of the forsayde felde and byssshoply auctoryte dedicate the same, that tyme fulbreve and shorte¹³ as a cymytory. Regnyng the yonger son of William Nothy, first kyng of Englischemen yn the North Herry the firste¹⁴ xxx^{ty}. yere, and a sidehalfe the thirde yere of his reigne to the laude and glorie of the hye and indyvyduall Trynyte to hym blessynge thankynge honoure and empyer worlde with owtyn ende. Amen.

CAPITULUM VIII.

WHAT WAS YN REVELACYON SHEWYD TO KYNGE EDWARDE OF THIS PLACE.

Heir we may nat silence kepe but evydently expresse that by relacon of oure senyours we have fownde dyvynly schewid, this to be a place of prayer, longe beforne tyme, to the glorious kyng Edwarde the confessoure, the son of Etheldrede the kyng, brothir of Seynt Edwarde the martir, of whom many goode thynges they seye they hadde herde in ther tymes nowe to be declarid. Thys blessid kyng, whan he was in the Chirche of God, replete with manyfolde bewte of vertu, as the boke

¹⁰ Calixtus II., elected February 1, 1119; died December 12, 1124.

¹¹ William de Curbuil, elected archbishop February 4, 1123; died November 26, 1136.

¹² Richard de Belmeis, elected May 24, 1108; died January 16, 1128, but he was disabled from public affairs by an attack of hemiplegia in the latter half of 1123.

¹³ breve tunc admodum cimiterium.

¹⁴ The Latin MS. reads: "Regnante juniore filio willi nothi primi regis anglorum ex aquilonaribus henrico primo anno xxx. mo et circiter tercium regni ejus ad laudem et gloriam"

Henry I. was crowned August 5, 1100, so that the thirty-third year of his reign was from August 5, 1132, to August 4, 1133. The twenty-third year of his reign extended from August 5, 1122, to August 4, 1123. The dates of the ecclesiastics named are: Pope Calixtus, 1119-1124; Archbishop William, 1123-1136; Bishop Richard, 1108-1128. They prove that the xxx. of the translation and of the Latin are errors of transcription for xx. An important charter was granted to the Priory in 1133, and with this in his mind the scribe might the more easily err. The MS. has Herry.

of Gestys declarith, as a religious and full of the spirite of prophicie he schoone bright beholdyng thynges ferof,¹ as they were presente, and thynges to cumme as they were nowe existente with the yis of his soule by the Holy Goste for he was illumyned. The whiche in a certayn nyght whan he was bodely slepyng, his herte to God wakyng, he was warnyd of thys place with an hevynly dreame made to hym that Gode this place hadde chosyn his name ther yn to be putte and sette: and holy and worschipfull it schulde be schewyd to cristyn peple. Wherupon this holy kynge, erly arisyng, come to this place that God had shewid hym and to them that abowte hym stoid expressid the vision, that nyght made to hym, seyde before all the peple, prophecied this place to be gret before God whoes cleyr prophecyes howh they be supportyd grettly with the myghte of treweth: experience hath approvyd yt, and every feithfulman may cleirly beholde the same.

CAPITULUM IX.

WHAT III MEN OF GREYCE SEYED BEFORNE OF THYS PLACE.

It was seyed that III men of greyke y sprongyn of noble lynage goynge owte frome ther countre and kynrede, takyng on them for God the holy laboure of pilgirmage, and whan with devoute soule they sowght the helpe of seyntes in many places, from the grete see, they hadde enteryd Englande, desiryng to visite the bodies of seyntes theyre restyng, and by ther merytes in the laste examinacion to be succurrid and defendid whā they came to London, they wente to thys place, and ther prostrate honoured and worschippid God, and afor̄n them, that ther was presente, and behelde them, as symple ydiottys,² they began wondirfull thynges to seye, and prophecye of this place seyyng, “Wondir nat 3e, vs here to worschipp God, where a fulle acceptable temple to hym, shall be bylid, ffor the high maker of all thyng wyll that it be bylded and the fame of this place schall attayn from the spryng of the sunne to the goynge downe.”

¹ *ferof*, far off.

² *tanquam simplices et idiotas*.

CAPITULUM X.

OF THE CLENSYNGE OF THYS PLACE.

Truly thys place aforne his clensynge pretendid noone hope of goodnesse, right uncleene it was, and as a maryce dunge and fenny with water almost everytyme habowndynge.¹ And that that was emynente a bove the water drye, was deputid and ordeyned to the Jubeit or galowys of theyys, and to the tormente of othir that were dampnyd by judiciale auctoryte. Truly whan Rayer hadde applied his study to the purgacion of this place, and decreid to put his hande to that holy bilyng, he was nat ignoraunte of Sathanas wyles, for he made and feyned hym self unwyse, for he was so coattid, and outward pretendid the cheyr² of an ydiotte, and began a litill while, to hyde the secretnesse of his soule, and the moore secretely he wrought, the moore wysely he dyd his werke. Truly yn playnge wise, and maner he drewe to hym the felischip of children and servantes, assemblynge hym self as one of them, and with ther use and helpe stonys and othir thynges profitable to the bylynge, lightly he gaderyd to gedyr, he played with them and from day to day made hym self moore vile in his own yen, in so mykill that he plesid the apostle of Cryste, to whome he hadde provyd hym self. Thorowgh who is grace and helpe whan all thyng was redy that semyd necessarie he reysid uppe a grete frame. And now he was provyd nat unwyse, as he was trowid, but verry wyse: and that, that was hydde and secrete opynly began to be made to all men. Thus yn merveles wyse he comfortid in the Holy Gooste, and instructe with cunnyng of trweth, seide the worde of God feithfully by dyverse chirches; and the multitude bothe of clerkys and of the laife,³ constauntly was exhortid to folowe and fulfyll those thynges that were of charite and almesdede. And yn this wyse he cumpasid his sermon, that now he sterid his audience to gladnesse that all the peple applaudid him, and in contynent anon he proffered sadnesse and sorow of ther synnys, that all the peple were compellid yn to syghyng

¹ *habowndynge*, abounding.² *cheyr*, mien (*Skeat*).³ *of the laife*, laicorum.

and wepyng, but he trewly yn the same cheir and soule evermore perseveraunte expressyd holsumme doctrine and aftir God, and feithfull sermon prechyd, and yn his techynge unrepveyd was fownde, those thynges techynge that the Holy Gost by the apostles, and appostolyke expositoures have yeve to the chirche unmoveably and stedfastly to beholde fforthermore hys lyfe acorded to his tonge and his dede approved well hys sermon, and so yn the sacrifice of God the moueth and bylle of the turtyll was returnyd to his armepittes, and recleynd unto the wyngys leisse that he prechyng to othir schulde be fownde reprovabyl yn hym self. Of this almen grettly were astonyd,⁴ boeth of the novelte of the areysid frame, and of the fownder of this newe werke. Who wolde trowe this place with so sodayn a clensyng to be purgid, and ther to be sette up the tokenys of crosse:⁵ and God there to be worshippid where sumtyme stoid the horrible hangynge of thevys, who schulde nat be astonyd, ther to se, constructe and bylyd thonorabyl byldynge of pite, that schulde be a sekir⁶ seyntwary to them, that fledde ther to, wher sumtyme was a comyn officyne⁷ of dampnyd peple, and a general, ordeynyd for payn of wrecchys who schulde nat mervel ther to be hauntyd the mysterie of Oure Lordys body and precious blode, where was sumtyme schewid owte the blode of gentyly and hethyn peple. Whois hert lightly schulde take or admytte suche a man nat producte of gentyly bloode, nat gretly yndewid with litterature of mannys,⁸ or of dyvyne kunnyng, so worschipfull, and so grete a worke prudently to begynne, and hyt begunne to so happy a progresse, fro day in to day to perfecte and parforme? This ys the change of the right hande of God: O Chryst these ben thy workys, that of thyn excellent vertu and synguler pyte makyst of unclene, clene; and chesist⁹ the feble of the worlde to confownde the myghty, and callist them that be nat, as yt were they that been:¹⁰ the whiche Golgotha the place of opyn abhominacion madist a seyntwary of prayer, and a solempne tokyn or sygne of devocion.

⁴ *astonyd*, astonished.

⁵ *tokenys of crosse*, crucis insignia.

⁶ *sekir*, sure.

⁷ *officyne*, officina.

⁸ *litterature of mannys*, humanarum literarum.

⁹ *chesist*, chooseth.

¹⁰ *et vocas ea que non sunt tanquam ea que sunt.*

CAPITULUM XI.

OF THE RIOTTYS AND ASSEMYLYNGES OF THE ADVERSARIE
PARTYS, AND OF THE PRYVYLEGYS OF THE CHIRCHE.

Thus procedynge the tyme, clerkis to leve undir regular ynstitution, in the same place in breif tyme were vuyd to gidir: Rayer optenyng cure and office of the priorhede, and mynstryng to them necessities nat of certeyn rentys but plenteously of oblacions of feithfull peple; and nat longe aftyr that drede that he drade come to hym, and that he dredyd happid hym. He was to summe the odor of lyif yn to lyif, to othir the odor of deith yn to deith. Summe seid he was a deseyver, for cause that yn the nette of the grete ffyscher evil fischis were medillid¹ with goode aforne the houre of the laste disseverawnce, his howscholde peple were made hys enemyes, and so roys azenste hym wyckid men, and wykynes lyid to hym self.² Therfore with prikyng envye many privatly, many also opynly, azenste the servant of God cesid nat to gruge, and in derogacion to the place and prelate of the same browghtyn many sclawnders with thretnynges, the goodes that they myght they withdrewe and toke a wey: constreyned hym with wykkidnes, made wery³ hym with injuries, provoked hym with despitis, bygilid hym with symulate frendschippis; and summe of them brake owte in to so bolde a wodnesse,⁴ that they drewe among them self a contracte of wikkid consperacion, what day i sette and place the servant of God they myght thorowgh wyls and sutilte draw to ther cowncell wyth a deceyte, and hym so ther present to plukke from the stappis⁵ of his lyif; and so his remembraunce they wolde had doyn away from this worlde. But ther is no wysdom, ther is no kunnyng, ther is no cowncell, azenste God, in whom he cast his thowght, and with the apostle put his strengith. He therfore that was his hoope was his myght, and for hym he discunfyit his ennemyes, therfore whan the day abydde comme, whiche was deputed to the innocentis deith, oone of them partner of so grete a wykkidnesse, secrete to hym self abhorryng so grete a synne, aforyn the houre

¹ *medillid*, admixti.

² et insurrexerunt contra eum viri iniqui
sed mentita est iniquitas sibi.

³ *wery*, weary.

⁴ *wodnesse*, madness.

⁵ *stappis*, steps (*vestigia*).

of this perell drawyng neir, shewide by ordir to the servante of God, the summe of al ther cowncell. He for this, to God and to his patrone ȝaf thankys, that the secretes of his ennemyes were nat hydde fram hym, and that by the benefete, of Oure Lordes pyte, he hath skapid the deith to hym arayed¹ for thys and lyke causys apperynge. Aȝen he wente to the kyng with a lamentable querell,² expressyng howe with untrew despitys, he was deformyd, and whate fastidious owtbrekynges hadde temptid hym, besekyng his royall munyficence, that his persone and the place that he hadde grauntid hym, he wolde defende. Also yn his suggestion to the kyng, he made this reson: he bidith no rewarde of God, that hath begunne a goode werke, and so byggunne, with a dew ende hath nat fynyshid the same, wherefore for the ynward bowelles of the mercy of Cryst, that he trustid yn, for the dignyte that he schoone with, and for the power of his emynence, he wolde opyn the bosomme of his pite to them that were desolate and honoure God yn his servantes, and restreyn the berkyng wodnesse³ of unfeithfull peple, so that to the goode bygynnynges he now joynyng bettir yssuys,⁴ and largeor exsecucions, myghte byle to hym self eternal howse yn hevyn whyle that he worschippith and defendith the howse of God, yn erthe. Thus the kyng mervellyng the prudence and constaunce of this man, answerd, that he wolde applie hym to his just and nessessarie petitions, and that ffurthermore he behestid hym self to be a tutur⁵ and defensur of hym and of hys, therfore he made this chirche with all his pertynences with the sam fredommys that his crowne ys liberttid with,⁶ or ony othir chirch yn all Inglonde, that is most y freid and relesid hit all customys and decreid for to be free from all erthly servyce, power, and subjecion, and ȝave sharpe sentence aȝenste contrary malyngnors.⁷ This and many othir insignys that ys to sey dignyteys of liberte, he grauntid to the prior and to them undirneith hym servyng, and to the forsayd chirche, and with his chartur and seel confirmyd⁸ hyt, adjuryng also all his

¹ to hym arayed, sibi paratam.

² querell, complaint.

³ berkyng wodnesse, latrantem in-
⁴ yssuys, issues. [saniam.

⁵ tutur, tutor. ⁶ A.D. 1133.

⁷ malyngnors, malignantes.

⁸ The original of this charter is not

extant. It was, however, produced in a court of law by the prior and convent in the reign of Henry VI., and there is in the Hospital a copy made in the same reign. Another copy, not I think the original enrolment, was preserved in the Tower, and is now in the Record Office.

heyris and successoures yn name of the Holy Trinite, that this place with royall auctorite, they upholde and defende and the libertees of hym i grauntid they schulde graunte and conferme. With suche privelegge, thus whan he was streyngethyd and confortably defendyd, glad he went owte from the face of the kyng. And whan he was cummyn home to his, what he had obteynyd of the royall maieste expressid to othir, that they schulde joy with hym, and to othir that ther schulde be affrayed. Also this worschipfull man proposid for to depose the quarell of his calamyteys afore the see of Rome,¹ Goddis grace hym helpynge, and of the same see writynges to brynge to hym, and to his aftyr cummers profitable; but dyverse undirgrowynge impedymenty, and at the last lettyng the article of deith, that he wold had fulfillid, he myght nat: and so only the reward of good wylle he deservyd. Aftir his decese iii men of the same congregacion whoys memory be blessid in blisse, sondirly² wente to sondirly² byschoppis³ of the see of Rome, And three privileges of three bysshoppys⁴ obteynyd, that is to seye of seyntes⁵ Anastace, Adrian, and Alexander, this chirche with three doweryes, as it were with an unpenytrable scochyn⁶ wardid and defendyd azenst ympetuous hostylyte. Now beholde that prophesye of the blessid kyng and confessoure seynt Edward that befor tyme hadde profysyed and seyn by revelacion of this place, of grete party is seyn and fuffillid. Beholde trewly that this holy chirche and chosyn to God, schyneth with manyfolde bewte, ffoundyd and endewid with hevenly answer, i sublymate with many pryvilegies of notable men, and to a summe of laude and glorie rychessid with many relikys of seyntes, and bewtyfied with hawntid⁷ and usuall tokenys of celestiall vertu. This nat unprofitably byfore tastid, lette us draw nere to the narracion of myracles.

¹ From this it seems probable that the newly-introduced Augustinian canons had their difficulties with the secular clergy. The king had settled all the civil difficulties, the ecclesiastical remained.

² *sondirly* *sondirly*, singuli singulos.

³ *byschoppis*, presules.

⁴ *bysshoppys*, pontificum.

⁵ Anastasius IV. reigned July 9, 1153–December 2, 1154.

Adrian IV. reigned December 3, 1154–August 30, 1159.

Alexander III. reigned September 7, 1159–August 30, 1181.

⁶ *scochyn*, shield.

⁷ *hawntid*, frequentissimis. The words of the charter here referred to are "hanc autem ecclesiam cum omnibus que ad eam pertinent sciatis me velle manutenere et defendere et liberam esse sicut coronam meam et accepisse in manu mea et in defensione contra omnes homines."

CAPITULUM XII.

OF LIGHT HEVENLY SENT OWTE.

Whan therfore in the forsaid place, at the bygynnyng was made an oratorye in honoure of the blessid apostle, many and innumerable were schewid tokynnys of myracles, but what for the grete plenty of them, and necligence of writyng of the same, they be almoyste unremembred, wherfore of these a fewe, specially of these that lattir dayes were knowe to us more by sight, than by heryng, as they cam to oure mynde, feithfully we shall tell. In the begynnyng of this areysed frame oure senyores tellid us, that on a day at evensong tyme, whan derkenys drew upon, ther was seyn a light from hevyn sent schynynge on this chirche, abidyng there uppon the space of an howre, that they sawe them self, and many othir men also, the whiche lyght aftir returnyd up an hye, and to no man aftirwarde aperid, and that yn a moment was take a wey from the yis of the beholders. Howe grete a tokyn this was of pite and grace hevynly, opynly aftirward was schewid, by multitude of toknys yn the same place.

CAPITULUM XIII.

OF WOLMER CONTRACT AND THERE I CURID.

There was an sykeman Wolmer be name with grevous and longe langoure depressid, and wrecchid to almen that hym behylde apperyd, his feit destitute of naturall myght hyng down hys legges clevyd to his thysis, part of his fyngerys returnyd to the hande, restyng alwey uppon two lytyll stolys,¹ the quantite² of his body, to hym onerous, he drew aftir hym, and to the encrese of his wrecchidnesse was addyd grete poverte, yn more affliccion to hym than his langoure : sith to a man that nethir myght labur, ne goo, were withdrawe necessities of his

¹ *stolys*, stools.² *quantile*, molem.

lyvelode, this wrecchidnes was so mykill to hym the more grevous, that it was longe abidyng, trewly almost xxx wynteres with this so grete a sykenes was he deteynyd: and he thus othir¹ with crepyng, othir¹ with the helpe of othir² i born sate at London yn the Chirche of Poulis,³ askyng almes of them that enterid yn. This i don nowe come the tyme acceptable, the yere of benygnyte, in the whiche Rayer hadde sette the fowndementys of his holy temple, and the fame of the newe werke, as it were a full swete odor dyffusyd by the mowthis of all the peple, it myght nat be hydde from hym, the whiche by the mercy of Oure Lorde conceyvyd a swete desire and feithfull, that he myght be borne to that place, ther to beeseke God of his helpe. And he of his frendes thiddir thus borne yn a basket felle down a forne the awter,⁴ porrectyng his meke prayers to hevyn, and to the hye and glorious meritys of the blessid apostle, alleggyng them to the hye and dredfull juge, that by them he myght obteyne forgevenesse of synne and his bodyly helth. And with owte tariyng, that welle of pyte, that was and is opyn to the menstruat woman and synful man, was present at his callyng, and a streem and ryver of helth and grace of hym self made welowte: and by and by every crokidnes of his body a litill and litill losid,⁵ he strecchid un to grownde his membris and so anoon awawntyng hym self up warde, all his membris yn naturale ordir was disposid. As it were a newe man he was seyn to procede forth, than⁶ howe grete a crye of them, that were present was lyfte up to hevyn: what terys i schede owte for joye: what praysyng to God, uppon soe mervelous and wondrefull myracle were yeve and payed to God, yt may bettyr be conceyved, with a devoute soule, than expressid by worde. This dede anoon was dyvulgate by all the cyte, and with a grete fame gretely accendid the peple of boith ordres, the clergie and the laife. And from that tyme, the noble matrones of the cite keppe ther nyght wacchis, the clergie and laife by companyes fyllyn with grete devocyon of soule, and herte gladdenes,⁷ hawntyng this place and with ofte visitacon solempne laude yeldid to God, with the fowndatore.

¹ othir-othir, vel-vel.

² Cf. othir, aliorum.

³ Chirche of Poulis, in ecclesia lundoniensi beati pauli apostoli, St. Paul's Cathedral.

⁴ awter, altar.

⁵ losid, dissoluta.

⁶ than, then.

⁷ herte gladdenes, cordis allacritate.

CAPITULUM XIV.

OF THE ANTHYPHONER.

A certeyn man toke a way a boke from this place, that we callith an antiphonere, the whiche was necessarie to them that schulde synge ynne the chirche, in that specialy that ther was nat at that tyme grete plente of bokys, in the place. Whan it was sowghte besily and not i fownde, it was tellid to Rayer the priour what was done of thee boke and he toke this harme with a softe herte¹ paciently. At nyghtys tyme, whan as he was ynne his chambre to take his reste the glorious apostle of God, Bartholomew spake to hym and seyid, "sey Rayer, what is that, of whoeys loste,² me presente, thus ye playne." And he seied "syr thy clerkis hadde a profitable boke to them, in the whiche to the honoure of God and of the,³ in the holy temple of thy glorie they were wownte to synge; and now yf it be hidde yn ony place, or stolyn a way, they know nat." "In⁴ the mornnyng eerly commaunde thyn hors to be redy, and hastly entre the cite and whan thou cummyste yn to the Jewes strete,⁵ spare thy sporys,⁶ lose thy brydyll lette thyn hors to my governaunce, and yn to what howse thy hors wilfully putte yn his fote, know welle of me, ther thy boke schall be fownde. Dowte no thyng, prudently and constawntly inquire." No more this i seid yn a moment he disparisshid. Rayer yn the mornynge slyd owte of his bedde, and diligently all that was commaunde hym he executid, and with the enemies of pees he spake pesibly; and the boke that he sowghte he fownde, and toke hit and broght hit hoome.

CAPITULUM XV.

OF A WOMAN I HELYD.

The tonge of a woman so gretly was swolle that she myght nat shete here moweth; and so, opynly grevvyng that sche myght nat hidde the swellynge thys woman of her freendes

¹ *softe herte*, placida mente.² *whoeys loste*, cujus amissione.³ *the*, thee.⁴ In the Latin the apostle's second remark is indicated by *inquit*.⁵ Old Jewry.⁶ *sporys*, spurs.

was broght to this chirch and offerid to Rayer the pryor, whiche havyng compassion of her, as he was a man of mercy and grete benygnyte, offeryd to God and to his patron prayer for her. And he revolvyng his reliks that he hadde of the Crosse, he depid¹ them yn water and wysshe the tonge of the pacient ther with, and with the tree of lyif, that ys with the same signe of the crosse paynted the tokyn of the crosse upon the same tonge. And yn the same howre all the swellynge wente his way, and the woman gladde and hole went home to here owne.

CAPITULUM XVI.

OF A RICHE MAN.

Hit ys tolde of a richeman uplond dwellyng, that come to this chirche, and he so delitid with the gladnes of this place, and with the servyce of God ther contynualy and devoutly y doyn, he seid to the priour "syr many goodnes of this vertuous place by opyn fame I have knowe, and moo with myn yene I have seyn, wherfore I purpose in my soule from this day forwarde I shall commytte me and all myn to seynt Barthilmewe advocatte of this place, and to his servyce I shall me subdew, everywher calle hym and preche hym my lorde, and with my substawnce as he wolle inspire me, his clerkys honoure. Then seiede Rayer; "Wele thou hast purposid, and dowltes a wyse keper of thy goodes thou hast chosyn, whom yf thou serve as thou with feithfull mynde hast promysid, without dowte by him thou shalt optene the blysse of God." After these wordes the man went his way. A wondyr thyng and a worthy to be remembrid: nat longe aftir it happid hym sittynge at his table, oone of his servantes tolde hym that his kechyn² was a fyre sodenly, and likly to perish with woodenes of fyre,³ he was prayd therfore hastily to come, and delay nat helpe to bryng to the howse nowe peryshynge and nowe fallynge. And to the serventes so yn soule he stunyd⁴ and with grete

¹ *depid*, dipped.² *kechyn*, kitchen.³ *woodenes of fyre*, furente incendio.⁴ *stunyd*, consternatus.

feer affrayed, the same howscholde fadir¹ answerde; "Have nat I late me and myne commyttid to blessid Barthilmew the apostle, and him I have made and deputid keper of my hede² and of all thyng that perteyneth to me. Yf therfore it plesith hym his to kepe to hym self, he shall nat nede oure helpe, but also all hole and saf, not mynnschyd to the solace of his servantes yf he be wylling hys myght I know wel ys sufficient: forsouth yf it be the respecte of the ire of God from above, that sendith to us worthy paynys for oure demerites, what or how moche, yn withstandynge may oure besy purpos prevayle, as who seyth lityll. Suffir therfore noon of us put to his hande, lette us abyde yn sylence, and yn hope the sanacyon of God and³ the myght of oure tutoure." And yete as the word was yn the moweth of the speker, and at the nomynacion of the glorious apostle, the same fyre semyd to suffre violence, for the flamyng naturally ascendyng upward, defawtid of ther power, and undir certyn lymytys were restreynyng. And whan this was broght to the howsholdfadir, beholde what he seid, "Howh mykil avayleth the feith, and howh emynently apperith the vertu of the apostle, whan schulde the unpetuous flame yeve way to oure myghtis the whiche yn a momente by the apostle of God ys qwenchid, thankys of us therfore be to hym, that as nowe and also frohens forwarde wolde vouchesafe thus to kepe us.

CAPITULUM XVII.

OF THE SHIPPENEN YN PERYLL.

Certeyn men of the kyngis cyte of London went owte to fer cowntrees,⁴ and certeyn tyme made them redy to come home agayn with all thers. And whan they trustid them to the wavvys of the see, than blowynge of the syde the westryn wynde y callid zephirus, with a swifte curse⁵ they tendid to the desirid havyn, and they behelde aferre, as it were the space of ii furlonges, the high scharpe hedis⁶ owte warde aperyng of rochis of stoyne by the whiche they most⁷ nedysly passe, yf it

¹ *howscholde fadir*, paterfamilias.

² *hede*, head.

³ In the MS. *ad*, but in the Latin *et*: a stroke representing n was omitted by the scribe over the *a*.

⁴ *cowntrees*, countries.

⁵ *curse*, course.

⁶ *scharpe hedis*, cliffs.

⁷ *most*, must.

plesid them to go further by that wey. And the maister of the schippe seyng beforne grete perell to hym cummynge, yn that the schippe with the rochis schulde be gobette mele be mynused and brokyn, her merchauntise schulde peryssh, with the men, and noon hope ther was of scapyng. Nevertheles he exhortid them to truste yn the pyte of Oure Lorde, and mekely to porrecte¹ to hym ther prayers, to whom nothyng ys impossible, no thyng to harde. And to this, seide the Londoners, "What seide they drede we, men of letill feith, the which have blessid Barthilmewe, the doer of so grete merveles at London. And we have hym at home anyhe by us glorified, therfore lette us prostrate oure self yn prayer to hym, and to hym with all confidence offir oure avowys, and he that so grete and so shynyge benefetys. sheweth to strangers, he schall nat hyde the bowelles of his mercy to his concytyseyns."² And whan so prostrate they hadde so prayed to gedir they areysed up from ther prayer and lokid abowte them, this way and that way. Ther they sey them self by grete space y put of wher before ther prayer they semyd that they drewe full nye the peryl, therfore they were gladde and a noon as they came to lande, they dressid³ them to the chirche of the gloriouse apostle, and ii tapers of grete quantyte offerid for ther vowe.

CAPITULUM XVIII.

OF AN YONGE GROWNGE MAN.

Ther was a yonge man Osberne by name whoes right hande clevyd to his lyfte schuldyr, his hede compressid down to the hande laye unmevable, and nethir the hande from the schuldyr, ne the hede from the hande myghte be departed, this man cummynge a forne the auter of the blessid apostle Bartholomewe with sighyng terys his mercy mekely besought. And he deservyd graciousy to be herde. And therfore whan the fredome of his lymys were y hadde, God that is mervelous in his seyntes, he with alle them that wer present, with worthy preysyng magnyfied.

¹ *porrecte*, porrigere.

² *concytyseyns*, concivibus.

³ *they dressid*, contulerunt.

CAPITULUM XIX.

OF A WOMMAN CONTRACTE.¹

A certeyn woman in seynte Jonys² parisshe at London with longe sykenes febelid contynuelly kepte her bedde and, helth dispeyrid, she abided only the last houre of thys lyfe, whan she herde of her neyghbores how many and howe grete thynges by the vertu of God were don yn the chirche of the holy apostle, by the vertu in her conceyvyd of unskunfitid³ feith with goode hope she askid herself thider to be borne. And thidir whan she was i browght, that she hadde herde, by experience she provid, felynge the profit and consecutyng the effecte, of her petition, grauntyng that, Oure Lorde Ihu Cryste the auctore of oure feith which helith contrite in herte and byndith up the contricioness of them.

CAPITULUM XX.

OF A CHILDE BLYNDE FROM HIS BIRTH.

A childe blynde from his birth, oon ledynge hym, fadyr and modyr folowyng, was browght to the solemnyte of the glorious apostle, and as he enteryd the chirche he fill down to the erthe and ther a whyle turnyd hymself, now this way, nowe that way: and with taryng restid undir the hande of the hevenly leche⁴ that lightyth every man cummyng in to this worlde, in whoes light all we see light. And a noon the inward born blyndenesse fledde a way, and the blode from the yen by the chekis down rennyng, light and sight to the syke was restoryde, nat that he hadde befor, but than first it was yeve to the childe. And than he knew his parentys with opyn yen, that never he sawe befor, and sundry thynges by ther propyr namys distynctly he callide.

¹ *contracte*, crippled. cf. *Porta Contractorum*, Crippleage.

² The nearest ancient parish of St. John is that in Aldersgate, now united

as St. Agnes and St. Anne with St. John Zachary.

³ *unskunfitid*, invicte.

⁴ *leche*, physician.

CAPITULUM XXI.

OF WYMUDE THAT WAS DUM.

A yonge man Wymund by name yn the courte of Eustase De Brooke, nat a litill while y nurysshed. Dumme he was, know to all men that hadde knowleche of hym, this man berynge hevyly the detrimente of his tonge, presumyng of mercy of God and on the meritys of the apostle, he drewe hym to his chirche and ther contynually kepthe devoute wacche And feithfully that he askid he deservyd to obteyne, upon a day aftir cumplyn¹ the bonde of his tonge was losyd and with a grete voice he prayeid the vertu of the apostle thankyng and blessyng the myght and the wysdome of God, the whiche openyth the dumme moweth, and the tongis of infantis maketh opyn and diserte.

CAPITULUM XXII.

OF GODRYKE THE BOCHER.

Whan trewly the plantacion that the hye faydr hadde plantyd, that is to seye, the forseid chirche, whan it a roose hyer and the fame of the apostolike vertu everywhere to neyghbores perfity sownyd, and was knowen; Rayer joynyd to hym a certeyn olde man Alfyn byname, to whome was sadde age and sadnes of age with experience of longe tyme. This same olde man not longe before hadde bilid the chirche of seynt Gyls at the gate of the citee, that ynne englissh tonge is callid Cripilgate. And that goode worke happely he hadde endyd. Demyng Rayer this man profitable to hym, he deputyd him as his compayr; and with his counsell and helpe, that was for to be don, disposid and parformyd. It was manner and custome to this Alfunne, with mynystis of the chirche, to cumpasse and go abowte the nye placys of the chirche besily to seke and provyde necessities to the nede of the poer men, that lay in the hospitall, and to them that were hyrd to the

¹ *cumplyn*, *compline*.

makyng up of ther chirche; and that, that was commyttid to hym, trewly to brynge home and to sundry men as it was nede for to devyde. And ther was a certeyn bocheyr Goderyke byname a man of grete sharpnesse, more than semyd hym, he was a streyt man, the whiche nat oonly to the asker wolde nat yeve, but was woonte with scornynge wordes to ynsawt them. It fil upon a day that while this forsaid Alfunyne wente abowte the bochers, man by man, and aftir othur whan he cam to this Godryke and mevid hym aftir the apostle with goode and honeste wordes oportunely and importunely by cause he was nat willynge to yeve, he perseveryd stedfastly and he wolde not go from hym voyde, and whan the olde man beheld that, nat for drede, nether for love of God, ne also for mannys shame he myght not tempyr the hardnes of that yndurat herte, from his rygoure he brake owte yn these wordes, "O thou unhappy, O thou ungentle and unkynde man, to the yever of all goodys, that for the geifte of heavenly goodnes will nat comyn with the poremen of Cryist, I besече the wrecche, put a way a litill and swage the hardnes of that unfeithfull soule, and take in experience the vertu of the glorious apostle, yn whom yf thou truste, I promytte the that every piece of thy, that thou yevest me aporcion of, shall the sonner be solde to othir, and no thyng to the mynyssynge or lessynge of the pryce, and what more." He was mevyd nat with the ynstyncte or ynward sterynge of charite but overcummyn with importunyte of asker, he drewe owte a peis of vilest and castyd yt yn to his vessell callynge them trewantes, and bade them lightly go from hym; to whom Alfunyne answerd "I shall not go fro the, tyll my worde and promysse be fulfilled." And with owte tarynge, there was a cyteseyn covetyng to bye fleyssh, for hym and his housholde, and of that heip of the whiche Alfunyne spake before he boughte atte the wille of the seller, and bare hit with hym. And whan this was dyvulgate by all the bocherie, for a wurthy myracle, as it was fittyng, it was take. And from that tyme, they began to be more prompte to yeve ther almes, and also fervent in devocion. And stryvyd who myght prevent anothir yn yevynge, namely, he whoes hardnes of unfeithfull soule, the vertu of Cryist, hadde undirnymyd, the whiche lorde promysid

to the 3ever of a dyschfull of coolde water to hym that cummyth yn the name of a disciple nat to lake his meide.¹

CAPITULUM XXIII.

OF EDEN THE WYFFE OF EDRED.

An nothir tyme the same Alfynne those thynges that nedid to the makyng of ale he went a bowte to matronys howsis in cumpasse and askid, and whan he came yn to the parissch of Seynt Giles of London, for this same gaderynge, he cam yn to a devoute matron, Eden by name, the wyf of Edred the whiche with mervellus devocion lovyng Crystis apostle, her almes to his chirche, or els she brougte, or els was wonte to sende yt: to whom cummyng Alfynne he prayed her of her blessing, that sumwhat sche wolde departe with hym, for the love of God. And sche answerd that she hadde but oonly vii ceves² ful of malte; and she shulde take a wey ony thyng of these, she myghte nat than, parforme the brethen,³ that she hadde begunne, "Never the lees," she saide, "albe that I be certeyn to have damage or harme, yete hadde I lever to suffir harme of myn ale, than yow to go voyde with owte frute of myn almes," thus seyyng, she mesurid one cevefull and yave it to the mynystis, the whiche passyng forthe and i go, she began to mesure that remaynyd, and wondir to seye, vii mesures she fownde, the whiche her self trowyng to have errid in numberyng, began to telle ageyn: and than she fownde viii: the thirde tyme she numberid and fownde ix: and than at the foureth metyng fownde x. Beholde that she that studied to fulfill the plenytyde of the lawe, that is charite, of the rightwys rewarder, for her mede fownde x. The which woman, that, that, remanyd so habowndyng, commawndid to be born to the same chirche anoynd, and tolde everywhere, the marvelous encresse, blessing God that by his seyntes workith tokenys and virtues to whom whan he wolde myghte is redy.

¹ *lake his meide*, lack his reward.³ *brethen*, beer (cervisiam).² *Ceves*, sieves.

CAPITULUM XXIV.

DE GODENA CONTRACTA.¹

A certyn woman Godene by name, hadde her leggis returnyd to her thyys that never myght stonde upright, but with contynuall use of sittynge ledde a tedious lyfe, yn sorowe and wepynge she on a tyme was born to the chirche of the blessid apostle, and askid the yifte of parfit helth, and obteynyd it grauntynge that oure lord Ihu Criste the whiche losith stokkid² men, reysith up down pressid, and directith the rightwys.

CAPITULUM XXV.

OF A MAN THAT MYGHT NOT SLEPE.

A certyn man at Norwiche opynly i know,³ while on a tyme he wolde be lette blode and of hym self toke noon hede, as it was expedient, hadde lost the rest of slepe, the whiche how good, and how necessarie it is to man, for to expowne it is nat now necessarie, this reste longe and dayly sweites and labores allightith, and aftyr labur repayrith man aȝeyn to labour, and this reste nat onely of men but of bestis conservyth the nature sownde and hole. The sayed wrecchid man lackynge this rest ledde on nyghtys withowte slepe almost vii yere. And by and by his senowys were contracte pale and lene, and ryvelyd abowte the moweth all discolouryd, and all his bonys to be numbryd, apperid to the sight of them that byhelde hym: and to the heip⁴ and encrece of his greve and febylnes was putte to nedynesse, so moche that the man beforne was riche yn frendes and money, and now of bothe destitute he was applied to ydelnes ffor nethir to hym self, nethir to his, myght he ony thyng provyde. In vii ȝeire of his unfortune, whan the relikys of the same chirche of seynt Batholomewe, were brougth and put yn, to the oratorye of sente Nicholas⁵ at ȝermoweth,

¹ *contracta*, the cripple.² *stokkid*, in the stocks.³ *opynly i know*, notissimus.⁴ *to the heip*, ad cumulum.⁵ The parish church of Yarmouth is dedicated to St. Nicholas.

this man drewe to the same relikys devoutly, and mekely prostratte hymself, askyng and sekyng remedy. And he fownde that he sowght, he range at the doyr, and oure porter opynde to hym, and shewid to hym magnyfycently the bowelles of his mercy, and grovelynge to the grownde he multiplied his prayers and began to slepe: and whan he hadde slepte a grete while he roys up hole, and wente to his owne, yeldynge thankynge to God, that mortifieth and revvyth, smytyth and helyth.

CAPITULUM XXVI.

OF A DUM CHILDE.

Also a childe that longe tyme was dumme, to the laude of the glorious apostle, the vertu of God opynde both tonge and moweth and right wesly he spake.

CAPITULUM XXVII.

OF AN OTHUR CALLID NYCHALAS.

A childe faire of forme, Nicholas by name, so had he his legge so strecchid forth, to the upper parties of his thyy, that he myght nat putte yt forward ne drawe yt bakewarde, yn asmoche that the synowys were dryed up and always lackid bowableness, he therfore lenyng on a staffe usid that yn stede of his fote. This childe cummyng to the chirche of the blessid apostle Bartholomew was expert that Oure Lorde is full sweytt to al men and his mercy ys abovyn all his workys, by the merites of the most glorious apostle, hete of lyf was ynfowndid to seyr and drye membrys and anoon folowid full helth, the whiche chylde abided ther a while and servyd the chanons ther, yn ther kychyn, and for the yifte of his helth, he gave the servyce of his body.

CAPITULUM XXVIII.

OF ADWYNE THE CARPENTER.

An nothir man Alfynne by name in the towne of Dunwych¹ that dwellid on the see syde, so was contracte that he myghte nat use the free office, nethir of hande, ne of fote, his legges were clevyng to the hynder parte of his thyes, that he myghte nat goo, and his handis turnyd bakewarde, no thyng with them myght be do, ne worke: the extremyteis of his fynghers were so rigorisly contracte in the synowys, that he myght unneith put mete to his moweth.² In this grevous sykenes he passid his yonge age. And whan he attayned to mannys age and not yette hadde he power of his lymmys, yette sith the fame of tokenys and myracles of the blessid apostle come to hym by relacion of othir men, he began to leyfte up his sorowfull soule in to abetter hope. And thow helth were yn that tyme dilaid, it was promysed to come. Therefore, for that he was ferre from that chirche, he yave shipmen for hyr hyr and by shippe he was browght to the chirche, and put yn the hospitall of pore men. And ther a while of the almes of the same chirche y sustenyd. And he began yn the meyn while, by the vertu of the apostle to take breith unto hym, and he desirid helth,³ by certeyn incrementys began to come ageyn; first with handys thow they were crokyd, he dyd make smale workys as disstafes, and antell,⁴ and othir wommenys instrumentys, and forthermore by succession, whan othir membrys usyd ther naturall myghte he followid yn greter workys, hewerrys of wode with axe,⁵ and squarerys of tymbyr with chippyng axe,⁶ and nat longe aftir, the crafte of carpentrye, yn the same chirche, and yn the cite of London he excercisid, as it hadde be taught hym from his childehode, blessyng God, whoes yen, be oon them, that dredith hym, and uppon them that hope on his mercy.

¹ In Suffolk.² vix ori escas porrigibat.³ et optata sanitas.⁴ antell, pensa, weights.⁵ hewerrys of wode with axe, cesores lignorum securi.⁶ el dolabra magnis operibus imitabatur.

CAPITULUM XXIX.

OF A DROPYK MAN.

A certeyn dropik man that bare his surname of the happe¹ of this siknes, myght nat hyde away his ynwarde greyf, but to the sight of uttir beholders, he shewyd owte his greyf and wracchidnys soithly an humor reynnyng undir the skyn made a bolluyng inflacion and the wombe² swellyng owte, shewid owtwarde, what pestilence was hydde ynward. this man was browght to the chirche of seynt Bartholomew, but for the gretnes of his doloure, he was turmentid, and in to dyvers parties he walowid hymself yn the pament:³ and at the last yn the sight of all men he cast owte wondir venym, and his ynwardes were purgid from this dedly fylthe and all hole returnyd to his awne howse.

HERE ENDITH THE FIRSTE BOKE.

¹ *happe*, event.

² *wombe*, belly.

³ The Latin MS. has a capital at the beginning of each sentence, a full stop at the end, and marks divisions of sentences by one stop only: . It gives capital initials to most proper names, as *Raherus*, but always has *deus*. In the

English MS. capitals are chiefly used as a part of the punctuation, sometimes to proper names and sometimes not. In this text I have used the capitals as indications of clauses, marked by commas or other stops, and for the rest have followed their practical use of marking the sense to the eye.

LIBER II.

AND HERE BEGYNNETH THE PROLOG OF THE SECUNDE.

To us confessynge to God, and bigynnynge to telle his mervels, we truste feithfully he shall yeve a goode endynge, the whiche hath yeve a goode begynnynge. Nowe rennyth to oure mynde one solempne thyng, to be seied for many, and whan this hath be movyd, both by opyn resunne¹ and unyversall wytnes, more licencyous we may passe yn to othir, y don by like vertu, and evyn power. Hedito we have writyn examplys of myracles, the whiche were don, in the dayes of goode remembrawnce of Rayer priore and foundatore of this place to the laude of God, and excitament of holynes; and nowe it is for to do and procede of these thynges that we han seyn and herde don in the dayes and tymes of the succesores of the forsaide priore. The grete solempne thyng ys thys, ffirst whan the rememberid priour was ȝit a lyve, the whiche edified the frame of this precious worke upon the fowndament of appostles and prohetys, ffor as moche as the bygynnynges of grete thyynges, nedith gretter helpe, thanne most was prompte and presente haunttid plenty of mynystryd grace from God, fforthermore those than aftir to the avowers, that the celestiall fadir drewe yn to the odor of his oynnementys² renuydde a newe solempnyte, of them, than ranne to religion with an ynwarde newydde devocyon. Also a newe solempnyte was for obvenyouns and ȝiftes; in money, in howseholde, in corne, and in meveable goodis, grete nowmbyr. And than aftir a joconde feiste, bisy in this place was hadde of recoverynge men yn to helthe, of them that langwsshid; of drye men, of contracte men,³ of blynde men, dome⁴ men, and deif men, ffor these causys whan the day of his natyvyte in to hevyn was knowyn

¹ *resunne*, reason.² *oynnementys*, ointments.³ *of contracte men*, not in the Latin MS.⁴ *dome*, dumb.

it was solempnyzed and honourid with grete myrth and dawn-synge yn erth. And menne presydde hydder thykly for variawnte causys, and shuldrid to gider, and as languyshynge men were there abidyng the mevyng of the water of grace, that yn a certeyn place, as this same, and yn certeyn tyme they shold presume, and truste well the wonte grace, to be zeven to them, as was befor to othyr, as the dayly reliyks of them, preche and schew to us, and this is, that, that we seide befor, oone solempne for many, or els many to make one solempne feiste. Ffor as the blesside kyngdome of Israel, all was, as it hadde be one proficye of Cryste and of his chirche, so al these thynges that ben seide or shall be seide, they beholde the ende and consummacion of this document, ffor trewly God is yn this place, and though there be non place with owte hym, the whiche God yn place ys not comprehended, nothir mesurid, nat for the place these be doon oonly, but for man, ffor the whiche bothe man and place is reverencid. Neverthelese there is no so privy man of Crystes secretys, that may contempne the reverence of holy place, whiche deputat ys only to dyvyne use, and consecrate ys to the remedye of soulys, where oure holy thynges be put, wher is the distribucion of the sacramentis, and wher that is, that is most beste, the presence of Crystes body, nat withoute experience of his vertuys with grete office of angely mynystracion, and with solempne worschip of devocyon of all seyntes, dredefull therfore is this place to the understander, ther is no thyng her els, but the howse of God and the gate of hevyn, to the belever. Trewly they that byleve nat ne undirstonde not by charite yn belevyng of these mysteryes, but scornyth oure Sabatte dayes, and poluteth oure halowys that clensyn othir men, we schall take them as men transfiguryng them self, yn to an angell of lighte thowgh they be darke bodyes: demynge pyte to be feynyd for lucre, and so they sholde be takyn till the consummacion of synne, antecryste, shall come whan the erthe shall be take unto wykkid men, and halowys yn to conculcacion, that they may be opyn than, that now be hydde yn the denne of theyfes. Spirituall sothly seyntwary, that heir ys bilid of qwyke stónys: abilydng certeynly styddefastly here permanent unspottid shall be translatid yn to the kyngdome everlastynge; and as yn the erthly empyr unfittyng it is, and suspecte any man excepte only oone persone, to schewe knyghthode yn his

propre name, we have oone of these that Oure Lorde hathe ordeynyd prynces uppon erthe, we have as I seye, the doer of mervels oure patrone, and duke,¹ seynt Bartholomew, whom by the grace that he hath plentwesly receyvyd of Cryste, we beseke hym, that with his myghty auctorite, that commendeth the vertu of his mayster, us aftir hym nat oonly he wolde lede, but also that he drawe and heigge² oure wayes, with thornys, that we go nat aftir the desires of oure fleshe. And with fadirly chastynge compelle us to entre the soper³ of the lambe, and the everlastyng mariage of hym, that takith away the synnys of the worlde, the whiche petition he vouychesafe to geve us, the which lyvyth and reigneth God per all worldes with owtyn ende, Amen.

ALSO ANOTHIR.⁴

Also as we be lernyd of worldly kunnyng, as it were by the spoylys of egipcyanys,⁵ the office of a negligent man is, nat to know the begynnynges of his werkys, nethir to charge the endynges, gretly yn us it semyth reproveable, that ar lernyd men, nat to know the grownde and the reson of them, that we worschippe: Moyses sothly, that fyrst taught us, to spoyle the egipcians he taught us, how we shulde answeere to oure aftir cummers, askyng upon oure sacramentis what they wolde meyn, seyng thus, for to signyfie to them, the religion of the same. Therefore aftir the 3erys of his prelatie xxii⁶ and vi monthes, the .xxv⁷. day of September the vii moneth, the cley howse of thys worlde he forsoke, and the howse everlastyng he enterid, that fowndid this howse in to the laude and honoure of the name of Cryst, that yn the howse of his fadir he myght be crownd yn his myldnes, and yn his mercyes. And in asmykil,⁷ as of no workys with owtecharite cummyth forth profeite with owte whiche charite, othir goodys may not prevayle, the whiche also charite

¹ *duke*, ducem.

² *heigge*, sepiat, hedge.

³ *soper*, supper.

⁴ *Also another*, Item aliud.

⁵ *egipcyanys*, Egyptians.

⁶ XXII. This would make Rahere begin his priorate, March 1123, as the manuscript implies, and would give

September 20, 1144, as the day of his death. The Latin reads "Igiture post annos prepositure XXII. os et menses sex vigesimo die sept' septi mensis relicta domo lutea." As Easter day in 1144 was on March 26, September was the seventh month in that year.

⁷ *asmykil*, as much.

may nat be hadde with owte other goodys, by the whiche man is made goode: rightly so we of hym have this hope that no thyng hath he omysid by hym that tochith grace, of that, that we seke here in thys passyng lyfe, as is the comunyon of Crystis feith, and comunycacion of his sacramentis and namly insignys of a contrite herte by penaunce, ffor why, amonge these we trust that be passid, and yn thys we trust as we hope in the meritorie helpe of oure myghty patrone, to whom the litil flokke of XIII chanonns as a few sheippe he hath lefte with litil lande, and right fewe rentys, neverthelese with copious obvenconys of the awter and helpynge of the nygh parties of the populous cyte they were holpyn. Sothly they florysch now, with lesse fruite than that tyme, whan the forsayd solempnyties of myracles were exercysyd by a lykewyse, as it were a plante whan yt is wele y rotyd, the ofte wateryng of hym cesith. The tyme of a 3ere turnyd abowte, succedid to the prepositure and the dignyte of the priore of this new plantacion admyttid by the bysshope of London lorde Robert,¹ Thomas² oone of the chanonns of the chirche of seynt Osyth,³ the 3ere of oure Lorde M^o. and C^{mo}. and xliijth. the sevyn indiction,⁴ reigntyng Stephyn, the sone of Stevyn, Erle Blesence,⁵ the whiche promovyd. Theobalde⁶ Beccence, in to the archebisshope of Cawntirbery. This Thomas as we have provyd in comyn, was a man of jocunde companye, and felowly jocundite, of grete eloquence, and of grete cunnyng, instruct in philosophy, and dyvyne bokys exercysid and he hadde yt in prompte, what sumever he wolde uttir, to speke yt metyrly, and he hadde in use every solempne day, whan the case requyrid, to dispense the worde of God, and flowynge to hym the prees of peple, he 3ave and so addid to hym glorie utward, that ynward hadde 3eve hym this grace. He was prelate to us mekly almost xxx 3ere, and in age an hundrid wyntir almost, with hole wyttis, with all crystyn solempnyte, tochyng Crystes grace he decessid

¹ Robert de Sigillo, Bishop of London, 1141-1151.

² Thomas was therefore elected Prior about September 1141.

³ St. Osyth in Essex: a house, like St. Bartholomew's, of Augustinian canons, founded by Richard de Bel-

meis, Bishop of London, the friend of Rahere.

⁴ The seventh indiction is A.D. 1144.

⁵ Blesence, of Blois.

⁶ Theobald, Abbot of Bec, in Normandy, elected Archbishop, Dec. 13, 1138. He died April 18, 1161.

and was put to his fadres, the 3ere of Oure Lorde. M.C.lxxiiij, of the papassie of blesside Alexawndir the third, xv, 3ere,¹ of the coronacion of the most unskunftid kyng of Englonde Henry the secunde xx.ⁱⁱ 3ere,² the xvij day of the moneth of Janyuer, yn the same 3ere of the election of lorde Richard³ Archbyssshop of Cawntirbery, aforne whom oure brethren were put, and sette of his goode grace hym praynge, whom the grace of God from the forsayid paucyte, encresid yn to xxxv.^{to} Encresyng with them temporall goodes evynly, the whiche the 3ever of all goodys, promysid to be cast to them, that sekith the kyngdome of God, yn this manys tyme grewe the plante of this appostolike branche yn glorie, and grace before God, and man, and with moor ampliati bylyng, were the skynnys of oure tabernaculys dylatid, to the laude and glorie of oure lorde Ihu Criste to whom, be honoure, and glory, worlde with owtyn ende. Amen.

CAPITULUM I. SECUNDI LIBRI.

OF A DEYF MAYDE DUM BLYNDE AND CONTRACTE.

The 3ere from the incarnacion of Oure Lorde M.C.xlviiij. aftir the obite of Harry the first, kyng of Englonde,⁴ the xij yere, whan the goldyn path of the son, reducid to us the desirid joyes of festfull celebrite, than with a newe solempnyte, of the blessid apostle was yllumynyed with newe myracles this holy place. Langwissyng men grevyd with variant sorys, soiftly lay yn the chirche with schynyng lightys, prostrate, besekyng the mercy of God, and the presence of seynt Bartholomew. And certyn the longe mercy of God, was not fer fro them the whiche alway is present to the vowis of feithfull besekers. Summan, joyed with voyce of jubilacion, that he hadde receyvyd remedie of his akyng hede, an nothir for reparacion of his goyng, that he lackyd, an nothir from ryngyng of his erys. This man was free from corrupcion of lymmys, this

¹ *i.e.* 1174.

² *The xx. of Henry II., 1173-74.*

³ Richard, prior of Dover, was consecrated Archbishop of Canterbury

April 8, 1174. The year 1174 began March 24, and ended April 12.

⁴ Henry I. died December 1, 1135. So that these events took place in the year 1147.

man putte a syde blieriednes of yen,¹ and joyid the clerenes of sharp sight recevyd, many other men joyid to be swagid from the vexacion of feverys, 3evynge thanke to the honoure of the appostle. Certeyn whyle everywhere, for suche thynges was 3eve applause and gladenes of all the peple, in the lyfte corner of the chirche, of summen was herde wepyng and waylyng where lay a certeyn damsell deyf and dum lackyng sight, of boeth yen, and with returnyd leggis contract whoes parentys waylynge lay grovelynge to the pavymment, and cesid not from prayer, tyl all thyng was fynyschid of the clergy, that was expedient to so grete a feste. It plesid therfore the goodnes of God to condescende to ther peticionns, and not furthermore his creature of the malicious power to be vexid, but from every bownde of syknes fully and perfytly to be delyveryd, therfore whan the chanonns sange the seconde evyn songe, the mayde began grevously to be turmentyd and sorer than she was woonnte to be vexid, frotyng at the moweth, smytynge her breste and betynd her hede a 3enste the grownde, trewly whan they come to the ympne of oure blessid lady, that the altarys shulde be yncensid, the forsaid mayde began with a sharpe voyce to crye, and her membrys with a grete myght she strecchid owt, anoon joyfull skippyng forth here yen now newe, and now clere, with the lynnyn clothe, that she was clothid yn, wpyd them, and dried them, and thus with sted-fast stondyng whan she was repayrid of heryng, and of the acceptable light of seying so graciously recevyd, she ran to the table of the holy awter, spredyng owte bothe handys to hevyn and so she that a litill beforne was dum now joyng in laude of God perfytly sowndyd her wordes, and to her parentys ther for joye wepynge plenteously affirmyd her self free from all maner of syknes.

CAPITULUM II.

OF A CHILDE DELYVERYD OWTE OF BONDYS.

Hit happid on a tyme, that a pore man for to bye his vitayles,² cam to London, also his wyfe to sustene ther pore lyfe, was

¹ *bleriednes of yen*, oculorum lippitudine.

² *vitayles*, victuals.

wonnt also from the contray cume to the cite, to receyve her wagys, for that she hadde sponne,¹ this pore man with his wyf hadde yn custome every 3ere to visite the place of Seynt Bartholomew with his offerynge, and mekly commend hym self to the holy reliks of the same chirch. The olde serpent enemy to all mankynde, the whiche ever is besy, to devoure, or els to troble, the pees of feithfull men, envyinge the tranquyllite of these man and woman, and the honest poverte, he suggestid to a certeyn bayly of his byssynne that he shulde pretende, to the forseide pore man leyng awayte and a spyes, he roos therefore erly, yn the mornnyng, this gylfull² man namyd Alureid, the bedyl or forcryer, and leyid wacche, as a rampawnde lyon, azenst the pore man, ther was no taryng, but the ynnocent and the theyf meitt, and whan this gallowus man toke hym by the skyrtis, of his palle or mantyl, he cryed uppon hym horribly, undir nymdid hym, and reprevid hym of thefte, and smytte hym wykkidly with his fyste, seiynge "Wher be thy mersmentes, that thou by theifte hast take away, deceyvyng the mynystrys of the shereve³ with drawyng tol a thowsand tymes." And whan the pore man arayed hym to answe, ther come rennyng to hym, many of the same gylefull felschip, accusyng the ynnocent, they smytte hym, they trode hym undir fote, they bownde hym, and yn captyvyte led hym to pryson, and whan they come to the howse of this forcryer or bedyl, or y may say of that robber, they bownde hym with fetterys, beit hym with scorgys, askyng of hym, that he hadde nat, that is to say gret quantyte of money. At the last very of betyng, they put abowte his necke a coller of iren, of grete weighte and a grete chayne on othir parte of the inner towre, rennyng thorow the myddyl of the wallys that they myghte kepe hym more surly, and fastnyd the ende of the cheyne, with a staake, thus this wrecche, withowt remedye, withowt mercy, yn wepyng and sighyng, in colde, and brosyng,⁴ drayf forth many dayes. Upon a day whan of custome the chanons of the chirche of seynt Bartholomewes a fore the mornnyng, the matens endid, and began to synge, Te deum laudamus, and the peyll of bell was roonge, the forsayed pore man the whiche

¹ *sponne*, spun.

² *gylfull*, guilefull.

³ *shereve*, sheriff.

⁴ *brosyng*, bruizing.

was artid in bondys, herynge the sownde of the bellis, and the melodye of ympnys,¹ the howse sothly that he was crucyat yn was nygh by to the chirche, and he began with devout soule and lamentable voice to crye, and as he cowde or myght to calle upon seynt Bartholomewe whan he hadde so don intently and ofte, he deservyd to have the affecte of his feithfull petition, and felt now, nat as beforn hym self so chargid with ferramentes and iryns, wherfore leftyng up handys and armys he fownde hym self y losid, and skippyng forth with all iryn machynamentis, he came to the doer, and fownde yt opyn, and whan the grete cheyne and coller of iryn and of the fetterys grete payse² that he bare made so grete anoyse, the forsaide Alurede sodaynly, awakid, skippid owte of his bedde, and with a swyft paase folowid. Anoon as he was owte, and his fugityve by the mone light sawh, he wolde a folowid hym, and he wolde a cried, but thorow the wyllle of God, nethir he myght meve his fote, nethir breke owt with his voyce. So the pore man skapyng by seynt Barthilmew help, and with a grete joye enterynge his chirch, prostrayt hym self afore the holy auter of the apostle makynge knowlegge that by his helpe he was delyvered, yeldyng to God, and hym thankynges, and tolde to them, that stoid abowte, the ordir of the benefeit i 3even to hym.

CAPITULUM III.

OF SHIPPEN YN GRETE PERYLL.

Certeyn marchawntes havynge ther shippis stuffid with nessesaries to howseholde, with hope of lucrur commytted them self to the meveable wyndis, and uncerteyn see, purposyng to London to eschange with encreys of the marchawndise, sothly whan they were mevyd from the porte of Flawndrys, and with swifte course bygan to passe thorow the see, the light of the son was closid yn derke clowdys, and the eyr was changid and began to be fulle of stormys and thonderygne horrible. All the

¹ *ympnys*, hymns.

² *payse*, weight.

elementys portendid to the wrecchid shipmen deith of nature. And whan a litil a forn xi schippis fro the havyn of the peseble porte, with joye ther shulde be losid, a mervelous happe and a lamentable caase, in a breyf space, with the wodnes of wynde, every of them were cast from othir, ther was amonge othir, one grete schippe amonge them, that were yn peryll, with so grete a violence of contrary wynde so smyt and festnyd yn the derke sandys, that as mykil as it was yn mannys knowlege, stode to the myddis yn the sande: neverthelese ther was oone a monge the wepers, and waylers and mystrustres ripyr and sadder of age whiche with a meke and contryte herte, offerynge sacrifice to God seid, "I warne yowe, overcumme in labour, and now here felowis of peryll, unto this tyme, that the goodnys of God hath be mercyfull to us, lette not us be unkynde to the procedent meritiss of oure former: lette us prayse oure maker for the perceyvyd ziftis of affluent grace, and also for this evylles that we suffre, justly oure demerytys requyrynge, lette us take hit with a pacient soule. Now now as ye se, stondith yn to us, the day of oure jugement: now, wil we, nul we, we become for oure synnys to the butte and terme or marke of universall kynde of man. Nevertheles, O you men trust ye, ȝit remaynyth hope, and ȝit here ther is place of foryevdnesse, and God may delyver us from our peryll: noo cownsell artyth hym, noo thyng excludith he from them that callith upon hym yn trewith and yn tyme of angwyssh, whoes dyvyn will, eternally precedith every creature, his dignyte transcendith and his power disposith, lette us confesse to hym oure synnys, lette us shewe to hym the nakidnes of oure synfull nature, lette us now or never, begyn to be ashamyd of the wykkidnes of oure shamefull conversacion, lette us calle to us the citycens of the hevenly courte, and beseke the helpe of the blessid modir of God Marye, that she peys to us the kyngde of eternall glorie. And ȝit ther is a litill space, I beseke you with oo sowyl to here: and ȝe here me patiently now, now, it shall be opyn to you the way of helth, the porte of jocundite, the gate of youre dilyverawnce, I have herde specialy of oo seynt, an hevynly cityseyn, I have herde of seynt Barthilmewe that a monge the knyghtis of the hevynly kyngde ys worthy to be callid uppon whiche plesawntly oon,

descendith to the prayers of devoute askers, therfor lette us offer oure vowys to so grete a patrone that it may plesse hym, by hys prayers to delyver us, and oure shippe with marchawndyse. Lette us therefore lyfte up oure handis to hevyn, and avowe with clere devocion, that whan we cum whidir we purpose to London, we shall bere thedir, in the honoure of seynt Barthilmewe a shippe of sylver, aftir the forme of oure shippe, made on oure costys and collecte or gaderyng maade amongse us, offerynge yt to that chirche yn mynde of oure delyverance." Unneith he cesid of speche, that al men ther togidir helde up an highe ther handys, and made ther vowys, callyng on seynt Barthilmewe, and nat yn ydle. Al men trewly by holdyng and the houre of the nyghe deith abidyng: presente was seynt Barthilmewe mercyfully, and with his holy hande drewe forth the shippe by the for ende the which goynge forth with his wonnte pase, in the over party¹ of the see come in to the streym, and was delyvered from the sandys, than at the laste all were gladde, and blowynge a goode wynde they come to the porte of the desired cyte. And so they goynge owt of the shippe, that litill shippe forgyd and made of silvyr joyfully they bare, to the chirche of the holy apostle, and to the prior i callid with summe of his chanonns they tellid the processe of all this storie, yeldyng thankys to almyghty God, and to the glorious apostle and martir seynt Barthilmewe.

CAPITULUM IV.

OF THE ORATORY OF OURE LADY.

In the eeste parte of the same chirche ys an oratory, and yn that, an awter yn the honoure of the most blessid, and perpetuall vergyne Mary yconsecrate. Ther was in the congregacion of those brethren a certeyn man Hubert byname, cumme of grete kyn, informyd yn liberall science, of goode age and of wondirfull myldenes, that yn his all thyng worldly hadde forsake for the love of Criste, nakidly askapyng the wrake of this worlde. And the habite that he did on of holy religion, with feithfull maners worshipfully he bewtifid, whan he was admyttid in to

¹ *over party*, superflue.

traces remain under the late Fringe

² This is the Lady chapel of which Factory.

the feleshyp of brethren he turnyd all his study to love God, and to prayer, and redyng bysyly toke hede, and many that were his elders he passid yn rightwysnes, and trewth. This man yn the forsayd oratorye, afore the holy awter ofte prostrate hym self, and offerid hym self, a loveable and qwyke hooste in to odure of swetnesse to God, and to his blessid modir. To this man a monge praynge yn the same place, sumtyme apperid the modyr of mercy, seiying with a hony and swete moweth "Chanons, she sayd," of this chirche thy bretheryn, my derlynges, yn this place consecrate to my name, sumtyme payid to me solempne office of massys, and devoute servyce of feithfull reverence 3eif to me, and now hath undircrcept them necligence, charite chyillith, that nethir heir the holy mysterys of my son be hawntid, nethir to me wonnte praysyng of them be 3evyn, therefore from the highe descense of hevynnes by the consent of my son hedir I descende, for the 3evyn obsequy of honoure to 3eve thankys, and for the necligence to undirnym and reprove, and for to warne my derlynges. Heer sothly prayers and vowys of them I shall receyve and mercy and blisse I shall yeve to them everlastyng," thus she seyed, and from the sight of hym sodanly dysperyshid. He that these wordys herde, opynly expressid them to hys bretheryn. And yn to the servyce of the modir of God made them moore prompte and fervent. O wyth what reverence, with what feithfull and swete affection, ys that place worthy to be worshippid, whiche ys so holy, wher the shynyng queyn of hevyn, the lady of the worlde, the modir and most cleene spowse of the eternall kyng hath vouchesayf to shew her propre presence, and to the puttyng forth and praysyng of her name, mercyfully hath excited with plesaunte exhortacion, repellynge the sleweth of her servantis.

CAPITULUM V.

OF A CERTEYN CLERKE.

It happid yn a towne that ys callid Enfelde,¹ beestis to dye, with harde and sodayne pestlence, the whiche pestlence was

¹ *Enfelde*, Enfield.

causid, of the corrupcion of the ayre, or els as we bettir trow, for to noye man to his amendment, ʒeven of God from above. Hit did grete harme yn townys neir adjacent, also ther was a mong them a certeyn clerk a lover of treweth, and equyte, that lyk unfortune, lyke harm had sufferid, ix of his oxys with this pestilence weere slayn; and a yonge hefker¹ alone levyng, lay yn thrysshelholde lyke deithe as the othur abidyng. The seied clerk thes thinges consideryng seied thes wordes "Lo our synnes askyng the unmercy of oure Lordys ire, howgh yt commyth uppon us, and the bestys that ben ordeynyed, to the use of man, by and by dyen, this is expedient us for to do, that be tweyn oure squorgyng,² ʒeve we thankynges to God, in that God ʒevyth, and God takyth, and as it plesith God, so it is don, blessid be the name of God. In that, this clensyng scourge, may be withdrawe from us, and this pestilence furthermore attayn nat, to oure bowndys, this hefker, that is oonly leyfte to me, ʒyf it leve, I a vowe yt to be sent to the chirche of most blessid Barthylmewe the apostle, that by his glorious prayers, may be turnyd from us, the respect of Goddis yndignacion, and ʒyf this beist dye, whan the skyn shall be takyn from the fleshe and I have solde hit I shall make the pryse to be sent, to the same chirche." In the meyn whyle a marchaunte was att hande, with whom the clerke began to treit of sale of this beist, demynge it shulde not escape the peryll of deith and whyle they alterid to gidir the hefker airisupp hole, and sownde, and began to ete of the hey that was by, and the clerke this beholdyng, anoon payed his vowe and sent this hefker to this forsayd chirche, with goode hope made full gladde that Oure Lorde by the merytis of the glorious apostle, hadde accepte his vowe and his prayer.

CAPITULUM VI.

OF A CALF HEVENLY Y MARKYD YN BOTHE Erys.

A certeyn woman dwellynge beside the castell of Munfychet³ ledyd an holy lyif and thow she stode yn the bonde of mariage,

¹ *hefker*, heifer.

² *squorgyng*, scourging.

³ Castle of Mountfichet, finally destroyed 1276, was near Blackfriars.

as it was us seyid, she gave her soule to contynence and with prayers and abstynence did her devir¹ God to plesse. She hadde a cowe with calfe the whiche by tokenys outwardre drewe neir to calvyng, and stondyng neyr the tyme that the fruyt shulde be proferid forth, the cowe began inwardly with throwys to be tormentid hugely, that it was trowid to suffir deith, that beholdyng this devoute woman seyid to her servauntys, "Yf the glorious apostle Barthilmewe of his wount pite wyll restore to us oure cowe hole, the calfe that she bryngeth forth, we shall marke yt on the ere, and diligently norysche hit, and whan it is wenyd I shall sende yt to his chirche." And with owt taryng whan all therto was assentyng, the doloure was swagid, the fruyt was forth brought, and a marvelous thyng, and a novelte wondirfull there nowe happid, the calfe that newly was browght forth yn to the light from his modir is wombe, hadde boith endes of his erys kyt of. And the same tokyn and marke that the woman seied befor she wolde make yn one ere, apperid y made yn boith. And havynge no tokyn of the wonde newe, but as a thyng hadde be kut of, and helid azeyn, so vestige apperid, who was the doer, or with what instrument thei were kut, we comyt that to hym, that serchid the deyp secretes of man to whom is no thyng harde, no thyng ympossible, they wondrid all, that wer presente, and with a grete astonyng, all hertys were smytyn, this woman acceptable to God norysshyd forth this calf berynge yn hymselfe opyn toknys of the heavenly marks, and yn due tyme browght with her, the calf to the chirche of the apostle and fulfillid her vowe, blessynge God, that makith grete and unsercheable thynges with owte numbre, whoes grete vertu and wysdome is with owte numbre.

CAPITULUM VII.

A GRETE MYRACLE OF A FRAGMENT OF BREDE.

Certyn shypmen at Sandwyche² glad and mery, with a prosperous cownse forowid the dowtable see.³ And them

¹ *devir*, duty.

² *Sandwyche*, Sandwich.

³ *forowid the dowtable see*, dubia sulcabant equora.

askyng the depth of the see, that, that was befor y pesid, now was excitid by the rage of wyndys and the forwarners of variannte tempeste to come, the clowdys yn hevyn ranne a bowte the swellynge, yn his fervor with the hepys growyng of wavvys, leift up hym self, and cast the shippe nowe hydyr, now thydyr. The governer wyste never whydyr to come, whydyr he shulde turne hym, yn that, that the gretenes of peryll hadde stonyid ther mynde, berefte them discrecyon of ther crafte, the wavvys smyte upon them and more myghtly caste them in to the wavvys, than bare them up, and the unhappy shypmen thus owte of the wey y caste. At the laste they were drownd, oone of them oonly clevyd to the flyttynge maste, and with all his myghtys, ascendid on the tree, and saate a bove. Whiche ther sittynge and sumwhat commynge to hymself, to the erys of Godis, he sesid nat to crye and askid the blessid apostle of Cryist, seynt Barthilmew to be nygh hym, that sumwyse he myght this peryll askape, and whan he longe hadde y multiplied his prayer, and no remedye sawe commynge neir, he seid, "O glorious apostle of Criste, Barthilmewe, how ofte have I callid the, in the article of so grete nede, and I have not deservyd to be graciously i herde, therfore ther is no thyng els nowe to me but deithe, I beseke the, at the mercy of God, be meyn for my synnys, that I, that have not deservyd to be delyvered from these perellys, lette nat me be deputid to everlastyng flammys, that whatsumever yn this presente lyf be denayid me of mercy, may be fulfillid yn tyme to come, by thyn intervencion and merytys." To hym thus seyyng beholde anoon was present the glorious apostle of God, with gladsum face and plesaunte chere, and at his beke or wyll the ire of wyndys were restreynynd, the fervor of the swellyng see was i sesid, clerenes to hevyn, tranquyllite to the see was i 3even, he beyng nygh to the crynge man seyed, "Thy wepyng sighys of thyn contrite herte sownyd yn to myn erys, ne I denayid nat to 3eve the helpe, but delayd hit, nowe therfore come I to the, a messanger of good tydynges, to 3eve the a 3eifte of desirid helth, for why the mercyful lorde hath perdonyd thy lyif. And loo a shippe of Dovyr¹ shall come to the, and

¹ *Dovyr*, Dover.

receyve the, and glad and hole restore the to thy frendys." He thus seyynge porrectid to him a pece of breid, and yn a moment vanysshid away, from his sight. An anoon a shipp of Dovyr was presente, yn the whiche he was recevuyd aftir the worde of apostle, hole and glad come home to his, and than tho thyngys the whiche the pite of glorious apostle anenst hym magnyficently hadde i shewid, with feithfull relacyon he made opyn, and to the confirmacion of the heavenly benefeit, the part of breid that the apostle gave hym he shewid, magnifynge God whiche puttyth a terme to the see, whiche all thyng, whatsumever he will he doith.

CAPITULUM VIII.

ALSO A MYRACLE Y DONNE YN THE SEE.

An nothir tyme befell a nothir myracle, marchauntys of Flawndrys with chargid vessellys, with marchaundise havynge wynde and wedir, enterid the see dredyng noon adversyte, and faveryng the see, purposid to Lundon. And whan they were passyng by the myddys of the see, loo here gladnes was turnyd yn to waylyng, and joye in to sorowe, lyif yn to deith, unwarys brake up an violent tempest, and swellng the wavyys of the see, with unhappy fortune the last happe of unfortune was trowid nygh to them. What shall I drawe my sermon a longe, the wyndis contynually wexynge woide, boith shipp and shipmen were cast in to the depthe of the see, and both the shipp of her marchauntyse and they of ther lyif ar privatid, oone of them only lenyng to the maste yn the same ii dayes myghtly clevynge gret payne sufferyd and yn meyn while he usyng the benefeit of his voice, he prayid the undefawtyng mercy of Criyst, by the meritys of seynt Barthilmewe myght be neir hym, yn that highest angwyse, to whom whan for defawtyng of his hert the utteryng of his voice began to breke, beholde aforne the weylyng man seynt Barthilmewe stoid cherefully confortynge hym, puttyng forth his hande, and drewe hym owte of the wavyys, and with drye stappys, sette hym at Dykysmuth porte, and so disparisshid. And he fre from all peryll was not unkende to the vertu and grace of the apostle but what he hadde

sufferid of greyf, what of mercy he hadde optenyd, by the holy apostle, with trewe worde he made hit opyn, ȝevynge thankys to God, in whom who that trustith, ys nat confowndid, and who that callith hym in to hymself is not cotempnyed.

CAPITULUM IX.

OF A YONGE MAN ROBERT BY NAME.

A certeyn yonge cumly of person, Robert by name, from his yonge age norysshid yn courte, from Northampton¹ purposid to London. And it happid hym, thorow a thyke woode to make his passage, where he wery of his jorney, toke his reste, on the grownd and a while with a litill slepe recreate hym, that his way begon, the swyfterly he myght parforme; but loo whyle he sowghte reest, he fownde labur, and whan he wolde with a litill reest his wery lymys refresshe he was yntanglyd with the snarys of his ennemy. In his slepe he was raveshid from his resonable wyttys, in his slepe his olde ennemy apperid to hym, yn the forme of a right fair woman, the whiche with flateryng chere it semyd to have sitte at his hede, and whan with flaterynge blandysh, a goodwhyle she hadde flateryd hym, and smothid hym, she put a litill bird in to his moweth, and so apperid no more. The man awakid, was afrayed of this unwonnt vision, and the same houre he lost his wytte and reson and of all myght was private,² and what was to be don, or lefte he knew nat, ledynge hym woidenes,³ nowe this way, now that way, he wanderid rennynge, unknowynge what he did, hastyly he went whedyr the impetuosnes of the malicious woodenes ympellid hym. At the last he was takyn at Lunden and browght to the chirche of seynt Barthilmewes, and ther yn shorte space his witte was recoveryd where a litill tyme he taried, blessing God that to his apostles hath vouchesaf to commytte his excellent power, to hele syke, to clense lepers, and to caste owte feendys.

¹ It is curious that the passport in the Rules and Orders is made out for a native of Northampton.

² *private*, deprived.

³ *woidenes*, madness.

CAPITULUM X.

OF A CERTEYN KNYGHT RADULPH¹ BY NAME.

A certeyn knyght Rayf by name, of the howseholde of William Demunfychet,² whan he made his wey by Essex to London, by the dome of God,³ he was ravashid of a feende, and made woid,⁴ and yn to a reprovabill witte be taken, and he so woid i made, slyde down from his hors ant rent his clothis, the money that he bar he skaterid a brode, and thrywh stonys to them, that he mette with, and now erryng yn wodis, nowe yn hillys, and now a monge he medyllyd hym self. Amonge the preysse of peple and them that came aȝenst hym he cast them yn peryll, or yn drede. Thys man on a tyme, thowh gretely he withstode, was take, and browght to the same chirche, and whan he hadde taryed ther ii nyghtys he come to his mynde agayn.

CAPITULUM XI.

OF A CERTEYN MANNYS SONE.

Ther was also in the towne of Berwyk⁵ a certeyn man, Spylman by name, thst usid the plowe, and solde woode, and with woode to sylle, he come to London. Y know to many men he hadde a childe that was greuously syke, with the fallynge evill. The fallynge evill aftir phisiciens is a syknes, that compressith the ventriclis and the weys of the brayn, lettyng the operacion of the wyttis, as sight, heryng and othir bodyly wyttys takith a way, and werith all the body with an harde passion. This

¹ The title of this chapter in the Latin life is "De milite quodam Wilhelmo nomine," but it goes on "Miles quidam Radulphus nomine de familia Willelmi de Munfichet."

² The family of Montfichet flourished in England from 1066 to 1258, and the name is still preserved at Stansted Mountfichet, in Essex. There were two Williams of the name. The first founded the abbey of Stratford Langton,

in 1135, and was not living in Henry II.'s reign; the second, his nephew, is a witness of the charter of foundation of that abbey, and is probably the lord whose retainer Rayf was.

³ *dome of God*, *judicio Dei*.

⁴ *woid*, mad.

⁵ The Latin MS. gives the true name of this town *Bernech*, Barnack, in Northamptonshire.

childe laborynge yn this sykenes, was browght to the forsaide chirche, yn the solempnyte of the glorious apostle, and whan the iiij lesson of his passion was redde, the helth receyvyd of all his membris he come to kysse the auctur, and than nat a litill he accendid yn to devocion, all that wer ther presente to the laude of God, and the blessid apostle, and nat oonly of the comyn pepyll, but also of the clergie, thankynges were 3eve to God, for why he ys good, and forwhy in to the worlde. his mercy is.

CAPITULUM XII.

OF THE DOUGHTYR OF WYMUDE THE PREYST.

A preiste Wymunde by name, that governyd the chirche of seynt Martyn,¹ that is situate yn the corner of the wey, that ledith to Westmynster, many yeres he had receyvyd on hym by the institucion of the bysshope of London, the deynrye of nygh chirches for maters ecclesiasticall to discusse. This man byzonde equitye 3even to voluptuous lyif, and his incontinence, was ever redy to slyde to the worse, nat refreynge, with the bridill of clenness and chastite, purchasid hym a lemman, and of her unlefully begait a doughtir, whom he lovyng with fadirly affeccion yn yonge age put her to lernynge, and whan she came to age of mariage, put her to a matrone, the whiche yn a wommannys breyste hadde a mannys herte, and refreynyd her from that vice that folowyth that age, and with wholsumme doctryne studied to enforme her. The mayde therfore was kepte attendawntly and with chaaste discipline inforinyd, and she began to be wyser than her techer, and for to shewe the forme and example of virgynal puryte, to all them that lyved abowt her. Certeyn whan of many wowers, this virgyn was desirid, she myght nat by noon cautelys or suttyll suggestioun be deceyvyd, for neider wolde

¹ St. Martins in the Fields. This is probably the Wymund, "dean of Lincoln," recorded as having held the stall of Neasdon in St. Paul's Cathedral. (Le Neve : Fasti. II. 414.) His exact

date is unknown, but it was between 1103 and 1162, and may have been near the latter year, so that his daughter might easily be grown up in 1174, the year of these wonders.

not she admytte the flatteryng speche of bawdys or lechorys, but the carnal drawghtes of voluptuosite she tanyng myghtly troid them undir foit, unspottid evermore abidyng. Thys clennes envied the ennemye of man kynde, wyllynge to subverte yn her the purpos of clennes. And new suttelteys of noyyng he consellid and sowghte, and unherde deceytys ordeynyd and fownde, azenst the virgyne, the whiche sufferynge the rightwysnes of God not oonly we merveyle but also drede, ffor thowh God ynwardly beholdynge howh it myght be don, we be demynge to us this a monstruous thyng. Therefore this suttell serpent transformyng hym self, yn to the lyknes of a fair yonge man, as he hadde be a gentill man of the kynges blode, more vylyfyat with precyous ornamentis, than y bewtifid for shynyng of his bewte, thus sodenly slyde yn to the chambyr, where sole this mayde sate, the whiche y seyn, with a sodayn fray she was smytte, and whens he came, and howe he entrid she was astonyed and mervellid, and behelde the bewty, and the shynyng of his chere with a sympyl but nat with a prudent ye. The ennemy felt the drede, of the light wommanhede, wherfore he drewe nyghyr and sate down by her syde, and owte of mortall and dedly breste he cast owte harde venym. Ffirst trewly with swete venemys wordis comfortid the dredfull and than prayers and promyssis medillid, yn that she wolde grawnte her assent to fowylle use, and yn the meyn while he knytte his engynnys, of sotell deseit. The mayde a litill withdrewe her drede and toke an hardynes of speche, and thus she answerd, "It is no prudent mannys dede, that usith reson suche a conseyyd desire yn herte, so unshamfully to uttyr, ne so unsemely will to do, ffirste, it were fittyng the nobiley of thy birthe to shewe to my parentys, and than with consent of us both the lawe of matrymony to make, and that i contracte and stregthyd with solempne auctorite of the chirche halowynge, and so to pay the dette of body eche of us to othyr nat for bernynge luste, but oonly by cause of generacion. Thou purposist alweyes the contrary way, thou makyst no mencion of God, nethir of man, but oonly purposist the fury and wodenys of thyn voluptuous soule, and so the shame of God and man y putte behynde, thou prayst me to consent to thyn malignant voluptuosyte, ffyrst forsothe telle me who and

what thou art, and by whom a wyttnes thou art hydder admyttyd, and of other thynges heeraftr use thou bettyr concell and be bettyr avisd. To this the ennemy answerid, what sekist thou heyr the ordir of reson, wher only we talke to gidre for oure wylle, heyr pite is wynnyng, religion is supersticion, where oure dede and purpos ys of the wracke of chastite, no lawe, no custome is to be consellyd, but oonly the rewarde of unclennesse is to be attendid wherfore to aske this, who I am and howh I cam hidyr it is but voyde to enquere, oonly to my petition joyne thyn affeccion, and aftr promysse swiftly an hastly shall folowe effecte." Aftr theys and moo yn this wyse whan they hadde to gider said, the noryssh¹ of the virgyn cummynge uppon mervellid with whom she spake, she herde a voyce of oone that spake, but she sawh no man, but the mayden. At whois cummyng, the ennemy disparyschid a wey, but zeit he was nat forzeitfull of the unshamefaste boldnes, wher that ever the mayd he sawh aloyn, in the manner of a wantan joly yonge man, yn like ordyr he callid on the mayde: she trewly with prayer, and tokyn of the crosse, her self wardyng, so defendyd, that for all his engynnys and waytys she skapid untowchid. On a day whan the mayde was sole yn her chambre, this malignyng theyf was presente fayryr than he was wont, with shynyng chere, and first he yave prayers, and aftr promysse, and whan with this nothyng he profitid, he arayed to bryng yn violence, whois boldes the virgyne felynge befor, with grete cryes she fulfillid the howse. In the meyn whyle, whan the servauntes raan to the noyse, the malignyng ennemy went his way, and smytte the virgyne seyng, "Why wolt nat thou consente, and receyve of my zyftis, sumwhat now thou shalt feil, what may the hande doo of myn enmyte." And an noon yn the goyng a way of the ennemy, the virgyne fyll down yn to erth, owte of her wytte, and with a grete passion, yn her body was tormentid and wallowyng ofte, and azen turnyng with ynordynat gesture of her lymmys, the sorow wytnesyd deith.² To whom rennyng the servauntes fownde her halfe a lyve and with a compleynyng noyse fulfillid the howses. The neyghborys were gaderyd all abowte

¹ *noryssh*, nurse.

internum testatur dolorem. Latin MS.,

² De *inordinata* gestu membrorum 32 A. col. 1, line 1-3.

and grete confluence of peple, for the novelte of suche a dede, and all the peple were turnyd, yn to a stonyng, and an horror, and whan the virgyne was thus longe y tormentid, at the laste fomyng at the moweth, aftyr many sighynges, a litill she toke breith, and tolde was don abowte here how the spirite of malice, hadde aperid, and with what promysse, he hadde atemptid, to drawe here to consente of unclennesse, and howe confusid goyng away, he smytte her, and aftir the stroke so grevous ynfermyte folowid, and uneith she hadde endid her wordys, and loo azen the same wyse as be forne she began to be tormentid. Therefore whan, twyes, or thryes every day and sumwhyle moer oftynner she was so i tormentid, by the peticion of the same virgyne and consell of her parentys, she was browghte to the chirche of seynt Barthilmewe, and she was born forth on a carpete¹ and passid forth afor the hospitall of the same, the forsaid ennemy was present, seyinge to the virgyne, "Whidir art thou born, trowyst thou, that the apostle shall delyver the from myn handys yf thou graunte nat and consent to me, with lenger and harder dycesys thou vexid and made wery shall dye." Azen also whan she was put down from the carpent for to be born yn to the chirche he apperid to her seying "Stonde mayde stonde and forbydde to be born yn to the chirche, for I shall geve the helth, and all that is desirable to helth at thyn wylle I shall make gevyn to flowe to thyn hande," and to this, the mayde answerde no thyng, but trustid yn God, and her handys lyfte up yn to hevyn she besowghte the mercy of God. Therfore this wykkid ennemy seyng hymself thus deluded, and scorned with sharper prikkynges wexid woide azenste the virgyne, and with a moore grevous passion, than he was wonnt smyt her. The channons of the chirche was ther present, seyng this, and with devout prayers besowght the apostle, that with his woonnte pyte he wolde succur this laborynge virgyne. Our 'Lorde graciously herde his praynge servautes, askyng that was right and by the merytys of the holy apostle, delyverid the virgyn from the feende, and so delyverd, restorid her fully to her helth. The mayde than was betake to her parentys, the whiche all yn God²

¹ *carpet*, a mistake for *carpent*, *carpento* in the Latin MS., a litter.

² Latin MS., *in domino*.

joyynge, prechid everywhere, the vertu of the apostle, preysyng and blessing God, the whiche hatyth no thyng that he hath made, whois domys¹ ben manyfolde depe derkenesse.

CAPITULUM XIII.

OF A FEVERUS MAN THAT LACKID HIS YE² SIGHT.

A certeyn man of the castell of Chillam,³ take with grete syknes, in sorowe and bytternes of herte, lede his unhappy lyfe. Atte the laste sorowe grewe, uppon sorowe, for his axes⁴ encresynge he lost the light of boith yen, therfor he graspid abowte, trustynge to othir mennys payse, and sayynge⁵ his way with his stayff, and so a certyn tyme he sate yn derknes. Now the ix^{the} monyth was passid, whan the wrecch cessid nat of his contynuall syknes, ever cryynge and askyng and askyng and crynge, till the mercy of God wolde here hym.

Whan he come trewly to the chirche of seynt Barthylmewe the holy apostle, he receyvyd light of boith yen, and for the gyfte opteynyd, he 3yldynge thankys to God, boith to lerned and othir that stoide abowte witnessid feithfully the vertu of Cryistes apostle.

CAPITULUM XIV.

OF A CERTEYN YONGE MAN Y BOWNDE.

A certeyn yonge man takyn of his ennemyes y bownde, was born yn a carte, for to be commyttyd, to a streyter warde. And whan the passage was made by the same chirche, yn goynge, he callid uppon the name of the holy apostle, and sodenly he fownde hym self i losid, and an noon he skippid owte of the carte and enteryd the chirche. And yn this wyse he skapid, the handis of his ennemyes.

¹ *domys*, dooms, judicia.

² *ye*, eye.

³ Chilham castle, six miles from Canterbury, includes parts of a Nor-

man keep which was standing in the time of this man.

⁴ *axes*, access of fever, febre.

⁵ *sayynge*, trying.

CAPITULUM XV.

OF A CERTEYN YONGE MAN DUM.

A certeyn yonge man, while haply he lay grovelynge on the grownde, desiryng awhyle to rest hym self, by the malice of the olde ennemye, he wexed dumme, and so lakkyng his speche of a certeyn yonge woman cosyn to hym, was leid and browght to the same chirche. And boith of them knelid down, a fore the holy awter, and with waylyng hertys besowghte the helpe of seynt Barthilmewe, and the same day, was restorid to hym, the office of his tonge.

CAPITULUM XVI.

OF A MARCHAUNT.

Ther cam on a day to the sayd chirche a certeyn man, and askid to speke with the bretheryn, and what that happid to hym, he wolde expresse. He was browghte yn to the chapter howse, and the chanonns beyng presente, thus he began to speke "That ye may knowe how pituous and howe glorious a patron ye have, her my lordis, what late happid to me, and to my felshippe, and consider that he that ye worship yn erthe, yn hevyn and yn the see, is of grete mercy, and of grete vertu. We were yn a shippe, many of us to gidir, and arysynge up a sodayn tempest, we began to perysshe, yn so mykill, that mystrustyng to leve, oonly we abyded the last houre of oure perill: in the meyn whyle, we cessid nat to wayle for oure synnys, to knocke oure brystys, to calle yn to us many helpys of seyntes, and trewly yn the hyndyr part of the shippe, with tremulyng lippys, and sorowfull herte y besowghte the mercy of God, where I herde a voice seyyng, "what crye 3e upon so many namys of seyntes, and youre patron by specyal prevylege, grawntid of God, to yow, 3e lacches to calle:"¹ to whom I seyed, "who is that my lord," and he seid, "most blessid Barthilmew calle ye yn to

¹ 3e lacches to calle, invocare negligitis.

you, and hym 3e shall feill most prompte helper in this present perill," and forthwith, I cam to my felshippe, and tellid what I herde, and that they shulde yeve feith, ther to, yn all wyse I monyschid them, and than to gidyr with one soule, and inwarde affeccion of hert, with grete clamoure of voice, we callid yn the holy apostle to 3eve his helpe, to wrecchis perysshynge, and to grannte us port salfe seyynge, "Lord, Lord, save us, we perysch, oure helth ys yn thyn hande, lette thy mercy loke uppon us, and securly we shall serve the." O mervellous is to sey, to the 3eyn crynge, of that holy name the elementys yeve way to us, and servyd oure wille, the sky that beforn was derke clothid hym yn hys light, the see cesid from his fervor, the trowblys tempestuous wyndis uttirly rested them. And so forth than aftyr brethyng of softe plesaunte wynde, that ys callid 3ephirus we saylid and optenyd a port, and now we came to the chirche of oure delyverer, and for the benefeit y govyn to us of so grete a pite both to hym and to you the servantys and frendys of hym, we 3eve thankyng and to God, O ye happy and weylsum 3e, and most weylsum religious men, that joye her undyr so clere a duke, so myghty a prince, and so mercyfull a fadir. Of us ye may conside, howe muche 3e may trust and hope of hym, of consolacion and of grace for whyle he was so mercyfull to us, so strange from his his servyce, what benygnyte and how muche reservyth he, to his most belovyd servantys." Thus he seyid, and commendynge hym self to the prayers of the bretheryn, he offerid his oblacion, and joyne from joyfulmen, he toke his way.

CAPITULUM XVIII.

OF A CERTEYN MARCHAUNTE.

In that tyme that the secunde kynge¹ of Englund besegid Walys, with strange hande,² it happid a notable myracle, and worthy to be tolde. Ther was a man of Colchester, havynge oportunyte to execute that he had decreid, yn his mynde, that

¹ The Latin reads : *Henricus secundus rex anglie*. Henry II. invaded Wales in 1157. Matthew Paris, Rolls ed., II., 214.

² *With strange hande*, represents *cum valida manu* of the Latin MS.

were nedefull to the hoyste lyyng at the seygge. Of his goodis he studied to bryng thidir, and that he wolde be solde, he sette yt at a price as he wolde, and with yn shorte tyme wan mucche money. And whan he hadde layid it uppe diligently, in certeyn the seyid man had sum penyes the whiche of a vowe, were dettefull to the chirche of seynt Barthylmewe, nevertheles he reteynyd these, that these with othir of his owne, by ofte eschangynge he wolde had multiplied, and yn oportune tyme bothe his vowe, and whatsumever encessid a bove of his vowe, he wolde brynge hyt to the forsaid chirche. Therfore whan he disposid hym self to turne home to his, and be watyr he was coartid¹ to make his passage, the shippe with othir no thyng demynge of evyl, he enterid, and whan they saylid forth, he slepyd, his money layid, undir his hede, in the meyn whyle, oone that wente with hym, conceyvyd hit, And he overcumme with desire of that money, theyfly withdrew hyt, and whan they cam to the port, undyr a certeyn stone, nat fer from the port, he hidde hit, the man awakid sowghte his money and fownde it nat, inquiryd of hys felship, yf ony man yn game or earnest had take hyt, they for his demawndynge 3eif hym rebukys, havynge scorne that he shulde reprove them of theyft, the whiche feithfull felship he hadde. Therfore wher he sawh that mannys helpe was uttirly denayd hym, with all his soule he convertid hym self to God and with an ynward waylynge, shedyng owte for sorowe terys, cessid nat to calle on the mercy of the blessid apostle Barthylmewe, and loo in the sylence of the derke nyghte, to hym slepyng apperid yn a vision the glorious apostle of God, and in thys maner many thynges with hym he talkid, "O," he said, "man, what cryiste thou soo oncessantly and with importune cryes cessist nat to unreste me," and he sayd, "thou knowist and well knowist syr, the cause of my crye, and it is no nede to opyn to the, the maner of my wrecchidnesse, the whiche so many sighyngys yn wepyng and waylyng I have opynd a forne thy face, and ageyn reherssid hyt, no it is not hidde from thy pite, from how grete joye, in to how grete waylyng, from how grete riches, with sodeyn case, I am come yn nedynes, and of so grete an

¹ Et per aquam transire necessitas itineris cogeret.

hurte, ther is to me no remedy, ne no counsell ȝevyn, therefore the allone I trustid, that my solace shulde come, thou therefore, that thou mayist ȝoe and for thou mayste, helpe me, havynge mercy of me." To whom answered the seynt, "This money for whoes lost, thus thou lamentyst, unrightwysly thou hast gotyn, and whyle with myn helpe thou askyst to be of that restorid, so thou askist that thou woldyst make me partynner of thyn synne, the whiche of the rightwys dome of God, thou hast lost and for cause yn rycchyng of thy self, othir men thou spoilyd, undredfully, now thou begynnyst to nede, and othir have and consume thy rycches: ȝe forsothe marchauntis, men of untrew soule, forsakers of trewth and equite, nat dredynge God, ne havynge compassion of youre evyn crysten,¹ with gyle and othys al men bygilynge, ye presente God and his seyntes, wytnes to youre wyckednes, consumynge othir mennys poochys to fulfill your pursys, who therefore shulde have mercy on yowe, who shulde norysse suche wreechis, nat mercyable yn so grete a malice." "Lord," he seyde, "yf I have unrightwysly gete my money, ȝit sum of that I have decreid, to converte yn to goode werkys and with them to visite thy chirche, and purpose to rewarde thy servauntys ther." "O," seid he, "this is yur woodnes, that whan with many wylys, ȝe have spoilyd pore men, that of the raveyn of pore men, sumwhat to the worship of God ye depart, that more securly ye may abyde yn youre synne, and yn thys wyse ȝe trowe to pees² God, but God hatyth raveyn ȝeven yn to sacryfyce, and no more the ȝiftis of suche men plesith hym, than the wagis of strompethode, or the sacrifice of an hownde, or as he that wolde sacrifice the childe to the fadyr. Nevertheles wher of joyest thou telle me, and whan thou visitid my chirch." "I wolde," he seyid, "and purposid, but with dyvers bysynes, i lette I myght nat come thidyr." And than the seynt answerid, "Whan all thyng habowndid with the, thou haddist no tyme, to come to my chirche, to prayse God to redeme thy synnys, now y sped and delyveryd of all, thou hast noon impediment, ne no perill of drede, surely whidir that ever thou wolt, thou mayst goo." And he seyid,

¹ *ne havynge compassion of youre evyn crysten*, nec proximis compacientes.

² *pees*, appease.

“Lord, how may I presume thy glorious temple to aske or desire, and voyde from sacrifice, in the sight of God and of the to appere.” “Nay,” sayid he, “I nede nat thy ziftis, it is sufficient to me y nowh the grace of God, for to provyde for the nede of my clerkes ne I am nat unmyghty to zeve fode to them, that servyth me.” “That ys trowth,” seyid the merchawnt, “therefore my goode lorde, leste hapley my wykydnes be more than thy copyous goodnys, loo heyr before the, of my trespase I repente, behestyng amendes, that the mony whiche summtyme I promysid, to thy chirche, and more I avowe me thedir to brynge.” To this the apostle answeyrd, “And I,” seyid he, “undir this condicion, trewly shall not dyscover the gilty by name, but to hym of whom thy money shulde dewly be asked ageyn, I shall gyf counsell, to seye, that he of thy felship late skunftid in batayll, prively toke a way thy money, and yn to thys tyme hath kepte hyt hole, and I of this nat unknowynge, have not y sufferid hym to lessen hit, in that I knewe before, that thou calledist upon me, that by me, thou myghtstid thy loosse recove.” At theys wordys speche and vision made an ende. The man awakid, that he sawh and herde besyly revolvyd yn his mynde, discussynge diligently, the life and dede of his felshipp, and by hym self no thyng certeyn myght comprehend. At the laste he gave way to a flitting and a tempestuous varyaunte soule, and began to aske and counsell a preyst i lernyd by scripture yn suche visions, what were goode yn thys to be done. And the preyste counsellid, dowyntys layid a parte, and commawndid hym to zeve feith, to that he herde, seyng hit were impossible, to be othir wyse, than the apostle hadde sayde. It plesid therefore, them bothe to calle oone of the kynges mynystris for that to such men dyvers thynges ben knowe that be doyn in many placys, the which ofte ben present yn pleyes in quarells in sclaunderis, in jugementes; therfor thei went to gidir to the provost of that place and with promysys prayed him to be favorable to the be forsaid, and so they declarid to him al the processe of this mater. And by the dyligence of this man, the man was sowght and fownde, and browght yn to a secrete place, and only presente the provost and the doer of the trespase, he was callid yn of the preyste and opposid, and the preyste prayed hym, and exhortid hym, that he wolde restore

the money, that he toke a way, undyr the mannys hede, whan he slepid, and this he seyed I was shewid and ynformyd veryly with so trew a wytnesse, the whiche by commyn estymacion myght nat lye, therfore yf he wolde yncline, to ther cownsellys he may go unhurte, yf he wolde denay hit, the kynges officer, hym as a theyf may holde, and sesyn, and for to be condempnyd, betake hym to the jugys. He anoon full of drede, drewe the preist a parte, and his gilt confessid, restorid to hym the money yn hole summe, and no harme sufferynge frely went his way. By this maner the forsaid man by seynt Barthylmewe receyvyd, that was take from hym, and aftirward comyng to his chirche, offerid that he vowid, and to the bretheryn of the place, all thyng that was donne abowte hym opynly declaryd.

CAPITULUM XIX.

OF A CERTEYN YONGE WOMAN.

A certeyn yonge woman was yn the cyte of London i know to many men, and as an hyryd servaunt, wonnte to serve many men; the more was knowe, thys woman on a day, by a bawde bigilid, from the profite of her just laboure, to voluptuousnes of uncleyne synne and by the robber of her clennesses wylfully admyttynge she was robbid of yncomperable tresure. Ne it was nat longe, but loo the reward of syn folowid, and where her hole body and fleyssh she made sugget to synne, uttirly she lost her hole mynde, and that membris that were armore of wykkidnes, be turnyd yn to armur of woodnesse. The hert that is pryncipall of man with oppresion of the feende, the whiche was onyd¹ to hym was derkid, and that which yn syn, God wolde nat drede, yn peyne, nethir God, ne hym self undirstode, the yen now left up an hye, now dredfully rollid abowte, her clothis be rente with her handys, the tonge was unbridillid to blasfemy, and rybawdy, and encresynge her woodeenes, y streyned she was yn streyghte bondys, these bondys with her woodnys myght, lightly y broke, othir were addid, ther to,

¹ *onyd*, united.

thus she was browght to the hospitale of the seyid chirche, and yn short tyme folowid contraxion of all membris, that yn no wyse myght she use them frely, and yn so grete a wrecchidnes, was presente the mercy of the blessid apostle, the whiche the madde woman losid of her woodnes mercyfully, and erectid the contracte¹ myghtly, and fulhole went home to her owne.

CAPITULUM XX.

OF A WOMAN Y TAKE WITH THE PALSY.

An nothir woman dyssolvdyd with the palsy, and growynge ynwardly, the grevous syknes sufferid throwys of all her membrys. She dwellid uppon Temse,² and to the same howse she was browght, and the same woman with the vertu of the apostle, afir a litill tyme was curid of her syknes and joynge wente home to her howse, toke an hows-bond and browght forth childryn.

CAPITULUM XXI.

A MYRACLE OF A MAYDE.

A certeyn mayde and servaunt of a cytyseyn of London was browghte to the forsaid hospitalle, the whiche myght nat strecche forth ony fote that she hadde, or for longe syknes y vexid, she hadde kepte her bedde longe, or by cause her synewys of hammys were contract. The blessid apostle on a nyght apperid to her yn her slepe, and commaundid her to strecche owte her feite, and she at the commawndment of the apostle, lightly her foit did owte strecche, and yn the mornyng risynge up she hadde helth of the toone, and at evensong tyme she hadde fre use of both, they mervelid that were presente, and askid her what betidid her that nyght, and she tolde, what she sawh, and confessid the auctor of her helth, praysynge the apostle of Cryist and zevyng thankynges to God.

¹ *the contracte*, cripple.

² *Temse*, Thames.

CAPITULUM XXII.

ALSO A MYRACLE OF A CERTEYN WOMAN.

The yeir of incarnation of Oure Lord MC¹ and L^{ti} and nyne, of the reigne of kynge Richard the secunde, the sixtene, yn the solempnyte of the apostle seynt Barthilmewe, many tokynnes of vertu were shewid yn his holy chirche. A certeyn womman laborynge yn grevous skyenes, that was born yn an horslytter to that holy temple; and beholde yn the vigill of the same apostle, abowte the houre of complyn, she began bettir to have, and a litill her myghtys that she hadde lost she resumyd, and forthermore anoon aftir ful helth optenyd, ffor why joynge and hole she rooys oute of her lyttyr, and come to kys the hye auter, offerynge her self yn to an acceptable hoist to God, with grace and thankes yeldyng. Anooyn the godly myracle was made opyn and of the convent of that chirche, and mykil peple praysyng and thanke was ȝeve to God, devoutly, and to his blessid apostle.

CAPITULUM XXIII.²

OF A CHILDE THAT RECEVYD HIS SYGHT.

In the same solempnyte a certeyn childe, that hadde lost hys sight, by the meyn of the holy apostle receyvyd hit ageyn, and he seyng with othir seers the mercy of God, and the vertu of the blessid apostle seynt Barthymewe, with the shewyng of the hevenly tokyn gretly he magnified and prechid.

¹ The Latin reads: *Millesimo centesimo quinquagesimo nono regni Henrici secundi regis sexto decimo. Quinquagesimo* is an error for *sexagesimo*. The sixteenth of Henry II., who is the king meant, was 1169-70; but it is clear that the writer was not very exact in the use of the regnal year, for Stephen died October 25, 1154, and Henry was crowned December 19, 1154, so that by calculating from either the feast of St. Bartholomew (August 24) 1169 is in the

fifteenth and not in the sixteenth year of Henry II.

² The number of each chapter is written in the margin of the manuscript in red. In this place, and in most, Cap^m. 23^m; in one place, Cap^{lm}. Arabic numerals are used, and the Roman numerals of this text are to be taken as representing the Latin word indicated by the Arabic numeral and the contraction above it. The Latin version has no numbers to the chapters.

CAPITULUM XXIV.

OF A WOMMAN THAT HADDE LOST HER OONE SYDE.

In the same chirche yn the forsaid solempnyte a certeyn woman was browght, the whiche on a tyme slepyng on the toone syde, was smyte with a palsy, and lost that side,¹ and yn that destitucion of her lymmys, duryd nat a litill tyme. This woman yn the nyght of the holy solempnyte was helid, and with joye hole went home to her owne.

CAPITULUM XXV.

OF A LITILL CHILDE THAT WAS MADDE.

Aftir the utas² of the same feiste, a certeyn litill childe was browght of his modyr to that chirche, the whiche from the feist of seynt Lawrence the martyr, hadde lost all felynge of reson, and for his woodnes laborid sore, grevous and intolerable to the modir he was, and as she seid, he was bore by many placys of seyntis a forn that tyme, but never optenyd remedy, and whan his modyr hadde browght hym to the forsaid place, and ther hadde fulfillid holy wacche and prayer, she deservyd of the most mekest Crystis apostle, the effecte of her peticion, and so optenyd to her self gladnes, and to the childe helth, and every Sonday followyng shewid hym to all the peple.

CAPITULUM XXVI.

OF A CERTEYN WOMMAN.

A certeyn woman of Wyndesover,³ havynge many beystys sufferid a grete harme and losse of them by sodeyn deith, onely oo cow, she hadde a lyve remaynyng of that pestilence. And

¹ Que quadam tempore dormiens uno latere parali si percussa est : unum latus amiserat.

² Octave. The Latin reads : post octavas ejusdem festivitatis.

³ Wyndesover, Windsor : in the Latin, *de Windesores*.

she lackynge foode, almost was browght to the deth, her neyghborys abowte her havyng compassion of her, and of her sorowys, ȝave her counsell, that she shulde beseke the mercy of the blessid apostle for this harmys, and make to hym sum promysse that he wolde restore her cow by hys myghty power, that began to dye, she yevynge grete credence to holsome counsell, anon began to mesure her cove, that she myght have the mesure, for a light to ben offeryd, of that length, and so here vow to be parformyd, and a marvelous thyng; anon the cove revyved, and began to ete, as noone harme hadde happid her. In dew tyme the womman came to the forsaid chirche to ȝelde thankynge to God, and to his glorious apostle, and offerid the light that she avowid, and expressid the benefite of pite, that so mercyfully she hadde receyvyd.

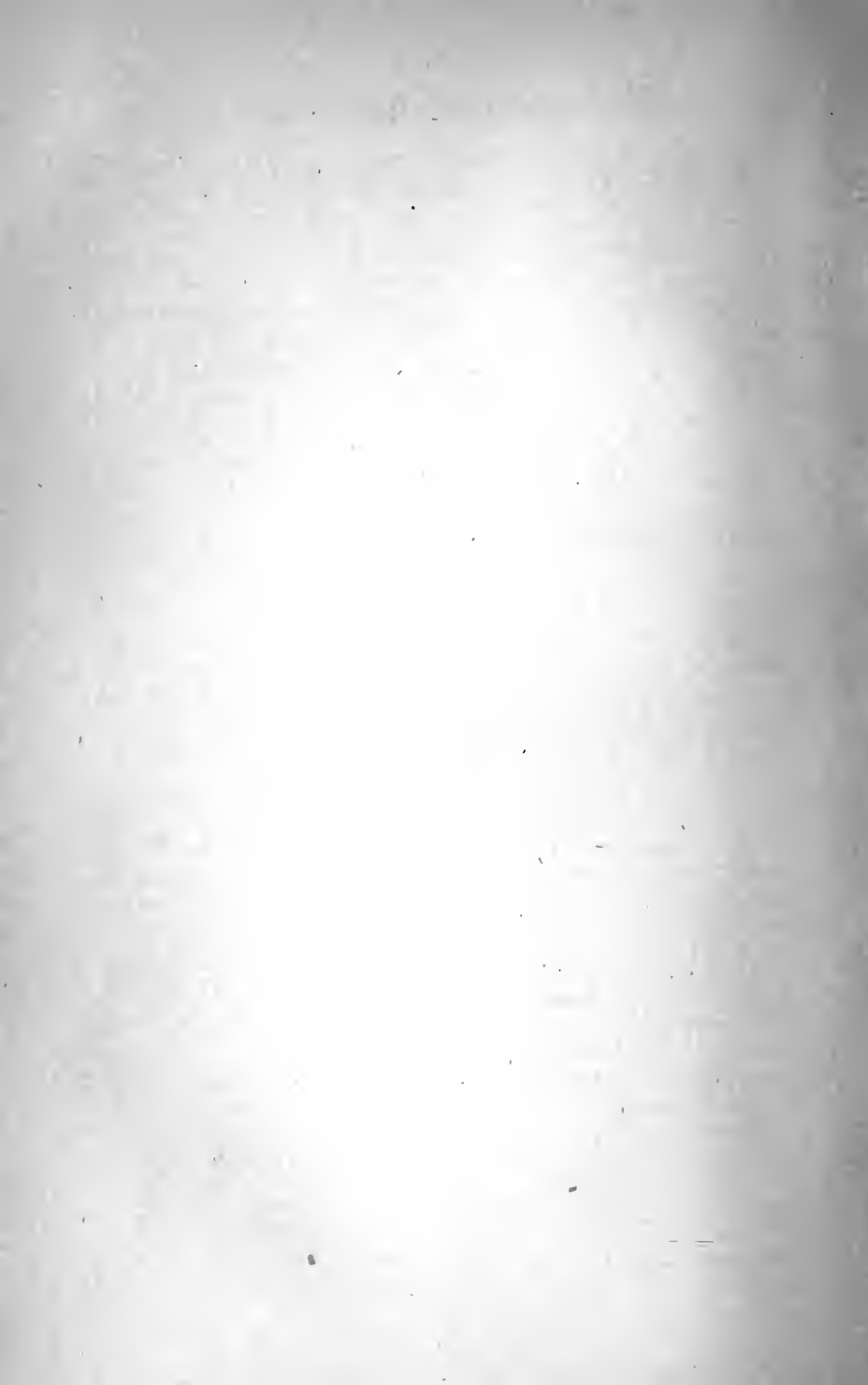
CAPITULUM XXVII.

OF THE REPERCION AND FYNDYNGE OF AN HORS.

A certeyn preist of Kente commynge neyr the gladnesse of the feist glorious purposid to come to of the oftesayid¹ chirche, sittynge on a goode hors, the whiche was deyr to hym, with othir men, that intendid to the same place, and whan the sonne went almost to rest, and nyght derke sprede on the erthe, nede compellid them to take ther yn,² and whan they lokid abowte on every side, and sye noon hostrye, whydyr they myghte drawe, it plesid them to late ther hors to pasture, and they kepte wacche yn kepyng of ther horssys yn the same place. This y don, the prestis hors brake further, noone of them considerynge, nethir the preyst fast a slepe wyttyng, but what myghte falle, to them of adversite, that hastid with a desire, to that place of unwastid pite, as who seith noon evyn by the slepyng preiste, a certeyn man apperid, havyng a shynyng chere, and shooke the vestment that he weyr softly and seyid, "A rise why art thou so longe oppressid with slumrynge?" and he with a litill noyse awakid risid up and lokid

¹ ad sepe dictam tendebat ecclesiam.

² yn, inn.



SAINT BARTHOLOMEW'S HOSPITAL REPORTS.

ON

THE FORECAST OF DESTRUCTIVE IMPULSES IN THE INSANE.

BY

T. CLAYE SHAW, M.D.

One of the most anxious questions that beset the treatment of mental diseases is the probability of suicidal or homicidal attempts during the progress of the attack. I confess that at present the prognosis is uncertain, and that casualties occur when least expected. That out of the enormous number of suicidal or homicidal patients collected in asylums so few accidents happen is due perhaps to the fact that, special warning having been already given, in the shape of a previous attempt or an uttered threat, extra precautions are used. It is also noteworthy that the persons least suspected are those who mostly act in this destructive manner, although one finds occasionally, upon inquiring closely into the matter, that the previously unsuspected person had exhibited for a longer or shorter period before an amount of excitement or a change of symptoms, which appeared to the attendant slight, but which really denoted an advance in the history of the disease. It may be said that if the change of symptoms had been reported, precautions would have been adopted to prevent a probable act; but even allowing that such precautions might have been ordered, I can call to mind several instances where, whilst perfectly cognisant of a change in the

condition of the patient, it was not deemed necessary to order special precautions, and yet destructive attempts followed; on the other hand, an extra watch has occasionally been ordered, which has proved unnecessary.

Two persons shall be taken for comparison, who, in so far as one mind in disease can resemble another, are alike and suffering from the same form of disease. They shall have delusions of the same depressed type, shall equally declare themselves tired of life, and yet the one we might safely put in a general ward without special supervision, and the other would be an unceasing source of anxiety and special care.

It may be said that both should be under special protection, and that it is merely an accidental circumstance that the unsuspected person does not commit some act to show the falsity of the diagnosis; but be this as it may, it is perfectly well known to specialists in mental disease that there are some cases that may be trusted, whilst others, apparently the same in kind and degree, always must be under supervision.

It almost makes one think that the suicidal or homicidal act lies for its prompting in a special part of the brain which must be involved before the attempt is made. But yet such a theory cannot be accepted in the face of suicidal attempts done under the influence of drink, delirium, &c., where true consciousness is really abolished, and the brain has been reduced to the level of a simple reflex machine—for if the upper centres are masked in their action, all notion of purpose must be set aside. Most of these persons, if they commit suicide, do it accidentally, a deliberate intention being rendered impossible by the absence of true consciousness, and so they scarcely come under the class of cases we are considering. Care must be taken to eliminate those people (chiefly women, but not necessarily so) who are always feigning suicide, that is, who attempt suicidal acts for the purpose of frightening those who have the care of them, no real intention of destroying themselves existing. Such persons sometimes succeed by accident—they carry out their deception too well. I remember well the case of a young woman who nearly killed herself—much against her inclination—by getting a piece of her dress tightly twisted round her neck. She was not really suicidal, but always made her attempts when some one was near. I had also a male patient who, after being discharged, was repeatedly brought before the magistrates for feigned suicidal attempts. Such persons cause more trouble than really suicidal patients, because there is no knowing what turn their tricks may take, nor when they may be tried on, whereas really suicidal persons are more consistent in their

attempts, and they either remain so, or the time comes when they recover, and we feel that we can trust them.

One great preventive of suicide is the presence of an attendant, not merely owing to that person's actual presence as a resource in case of an attempt, but from the feeling of safety engendered by the company of a friend. A state of dementia is no safeguard against a suicidal act. One of the most suicidal patients under my care is an old woman who never shows any excitement, but who at times ties anything she can get hold of tightly round her neck. I think that here the tendency to suicide is a real one, and will last until she becomes still more demented. At present she suffers from partial cerebral anæmia, but retains sense sufficient to know that she can do away with herself by acting in a certain manner, and not having any further useful purpose in life, she obeys the impulses of what has become the educated part of her brain.

A person in health never thinks of himself as liable to sudden inaptitude to perform an act to which he is accustomed; but after an illness of an exhausting kind he loses his self-confidence, he fears a paralysis that never comes, he is afraid of walking or of travelling alone lest he should be taken ill, he will not cross a road lest he should stick in the middle of it and be run over. Such persons—and I have seen many—are not suicidal. Why? Because they are not affected with permanent organic disease. At times their nervous system is braced up and acts harmoniously. Then all their fears disappear, and they are ready to undertake anything, and if so, can generally carry it out successfully; but by-and-by the old feeling returns, and though they talk despondingly, still they live on without any suicidal act, because the brain not being organically diseased, they are able to remember and to reason that they are in a temporary state of discomfort from which they will soon emerge.

Take again the class of epileptics. They are at times the most really suicidal of all classes of insane persons; but at other times they could be trusted with any form of lethal weapon with impunity. When suffering from the epileptic attack, or soon after it, there is a functional affection of so intense a kind as to amount practically to an organic one, which renders them incapable of forming the judgment that it is better to endure the ills they have than fly to others that they know not of; but when the attack is over, and the circulation in the brain going on normally, they repudiate the idea of either a suicidal or homicidal attack. Are we then to make the existence of organic brain disease the factor of suicidal and homicidal attempts? I think that we must do so, and I would say that for any destruc-

tive attempt there must be a temporary impairment of harmonious brain action. How is this to be reconciled with the idea of deliberate homicide or suicide in persons who are said to have shown no sign of insanity, and to have acted with deliberation on arriving at the conclusion that it is better to die than to live? I do not believe that these are ever found to happen unless the brain is for the time being unhinged. There are many suicides and homicides brought to light where the perpetrators are at the time of inquiry perfectly sound in their minds, but they have passed through the period of aberration, and must pay for the results of it if it was caused by their own indiscretion; and often they have to do so if by misfortune they have inherited the evil legacy of a proneness to excitability or temporary disorder.

One class of cases in which suicidal or homicidal attacks occur where they might least have been expected is in that of imbeciles. I often receive patients from the "imbecile" asylums who are transferred because of exhibitions of this kind. And very troublesome they are from the suddenness and unexpected nature of their attacks. They are of all classes particularly prone to passion and anger, conditions which represent a most powerful upset of mental equilibrium, and in which for the time there is more loss of self-control than in any other form of mental affection. I consider them the most dangerous class of all of patients, and as their sense of responsibility can never be properly educated, they remain dangerous persons to the end of their lives. As long as any reasoning power is left I am inclined to place confidence in the assurances of melancholy persons that they are to be trusted, but this certainty of the fact that such power does remain must be well grounded, for otherwise it is but a snare, and would lead us to give the patient the wished-for opportunity. Persons undoubtedly insane can argue very well on many subjects at times, but they are all more or less liable to periodical exacerbations, when they become quite unreliable, and if at any time they have exhibited destructive propensities, it is just at these times that such are apt to recur. Of the utmost consequence is it to prevent a first display of explosive destructiveness, for it would seem as if, when once attempted, it is apt to recur again under favouring conditions. The impression left on the mind of a person who has once attempted a suicidal or homicidal act seems to be very profound. It amounts to this, that an experience has been gained by the brain as an actual entity which before had no existence. There is a newly-developed idea which can never again disappear, just as a new sensation or a new experience of a striking character modifies the composition of the individual's character, and

from that moment the person is changed. A man is suddenly placed in a great danger of his life, or in conditions that place his social position in jeopardy, and from these positions he escapes by some means or other. He perhaps has never been so placed before, and thus an impression of a kind never before experienced is thrust upon him, and his store of real knowledge is added to in a way that affects him permanently. He becomes what is called a "changed man" after it; that is to say, his mind is different from what it was before, and can never return to its original freedom from the now dominant idea. This explains why people who suffer from "nervous exhaustion," who have experienced the sensations known as "agoraphobia," never, or rarely ever, in my experience, recover throughout their lives their original mental stability. It would be indeed contrary to what we know of the growth of the faculties if they ever did. When a man has once experienced the feeling that he may have fainting attacks at any moment, that if he goes to a certain place he will have peculiar sensations come over him, &c., I do not think that he ever entirely loses them; they may become less prominent, and if he again arrives at robust bodily health they may for the time disappear, but the slightest ailment causing an impairment in the nutritive conditions of the brain will bring them on again. And so it is, I think, with the suicidal or homicidal feeling—when once either has been established, it is, in my experience, sure to recur if any cerebral anæmia or other lesion is present. One reason, then, why we can trust some persons who are melancholy and have delusions is that they have never attempted destructive acts. For some reason or other the instinct of self-preservation, and the respect for life in others, have never been affected, and so they go on in their own miserable manner for years, but they are quite safe as regards themselves or others. But it may be fairly asked—how long will this immunity from the upset of a natural instinct continue? Can we guarantee that the depressed state and the melancholy delusions will continue harmless? Certainly not; and the more extensive the affection of the brain is, the more likely is the self-protective instinct to become affected; and therefore all persons suffering from brain-disease are liable to become destructively affected; but statistics teach us that of all who do become insane only about 22 per cent. become destructively so. Experience of criminals, *i.e.* offenders against nature and education, shows that when once the nucleus of the first fault is formed there is an insatiable craving, *i.e.* a morbid and unrestrainable impulse, to repeat it. If brain-disease remained fixed in its extent, we might make ourselves easy as to the

results, but it does not. Nothing is more extraordinary than the way in which mental phenomena change in the insane, and no matter how "chronic" the case may be, it never ceases to be interesting from its versatility. This cuts both ways: it sometimes renders a person self-destructive or homicidal, but it also in time reduces the most desperate characters to a state of harmless dementia. I have a patient here who was one of the most violent patients at one time in the asylum from which he came. There he was the terror of the place, but now he is a harmless dement, without any true consciousness and destitute of reasoning power. The sudden and unexpected appearance of destructive symptoms in a previously quiet patient is no more to be wondered at than the sudden development of them in a hitherto supposed sane person. Both are signs of a new departure in the mental processes, and just as the suicidal or homicidal act may be the first prominent sign of insanity in a person, so is it the first sign of a new implication in a person already insane. No state of imbecility is too profound for the impulse to appear, because persons of this class are liable to irritative conditions of the brain in which it may be set up, and no person is so demented but that some excitement of a temporary nature may occur and cause an attempt.

Let us consider for a moment the motives of suicide. We see persons go through the most frightful tortures and inconvenience from bodily disease, and yet the idea of suicide would be most repugnant to them, and with every opportunity they never do it, because their intellect is unimpaired. We see others suffering from bodily pain and incapacity for the exertion necessary to get their own living, and these at last kill themselves, because their ailments, being caused by perhaps some fault of their own, the mind is affected by the same cause (disease), and the instinct of self-preservation, which is a faculty of the mind, is weakened just as the other functions are. We see another person who has suffered some great mental shock, or is in danger of social degradation, and yet he is able to weather the storm, and will undergo a sentence of penal servitude without much concern. Why? Because in him the shock has been successfully resisted, his feelings are too blunt to be affected, and his mind remains sound, *i.e.* his faculty of self-preservation is intact. Self-preservation is, then, a faculty of mind, and is as constituent a part of it as is memory, or as the natural feeling of love of offspring, or of normal sexual desire—and loss of this instinct is a sign of disease, just as the non-secretion of urine is a sign of disease of the kidney, or sudden death is a sign of disease of the heart. If a child is persistently cruel, we view the obliquity

as a defect in the moral nature, and inasmuch as this cruelty is seen to come on after an attack of acute disease, or of convulsions, or is noted in connection with other signs of imbecility, we view it as a result of disease of the brain, which it undoubtedly is. When we see how lunatics can hide their delusions, retaining sufficient control to enable them to suppress what they actually believe, and even dangerous lunatics will conceal successfully for a time their murderous thoughts until an opportunity offers for carrying them out, we can understand how a person may be very insane and yet not commit a suicidal or homicidal act; but we can also see that the same person may become irresistibly destructive, because, in the presence of a disease which has already affected some of the intellectual power, there is no knowing when it may not also affect the mental attribute of self-preservation.

Suicide and homicide are by no means the special attributes of melancholy. There is a female patient here who is a cheerful and pleasant-looking woman, yet withal very insane, and she threw herself into the river because she was told to do so; not because she was depressed and wished to lose her life, but because she was "told" to do so. She acted in the same way as a child would do, who, having no experience of a danger, would go into it when told by a person of superior authority to do so. There can be little doubt that cases of recurrent insanity, where the destructive propensity becomes manifest only in the accessions, point directly to the fact that such is a diseased idea. People under these circumstances repeat the attack with such exactness that every phase may be distinctly forecast. If, then, a delusion of a definite kind, or an act of a specific nature, comes round invariably as a symptom, why should not the destructive act be also as much a symptom? It is so indeed, and by being so proves that it, as a symptom, is directly due to disease. Here then we have suicide or homicide proved specially to be as much a sign of disease as is a delusion. Now some of these recurrent states are attended with consciousness afterwards, others are not, but whether they are so or not seems to make little difference as regards the act of destructiveness if it has once become impressed on the brain. We see epileptics in the condition of mental automatism attempt suicidal acts when, so far as we can judge from what they say afterwards, there is absolutely no real consciousness of what they are doing. In this state the controlling power of the will being in abeyance, and certain parts of the brain being under uncontrolled excitement, there is nothing to prevent an act which may or may not be suicidal, but which is sometimes the one and sometimes the other, and the manifesta-

tion of which ceases as soon as the brain recovers, *i.e.* when the temporary disease has subsided.

I have spoken of this instinct of preservation as an "instinct." Is it really one? Would a child, if left to its own resources, avoid the sharp edge of a knife or the stepping into deep water as naturally as a bird takes to flying? Probably not until it had learnt by experience the danger, but having once learned that such and such things are dangerous to life, it avoids them to its utmost extent. A fully grown person, with every desire to preserve his life, might think it no harm to touch a highly-charged Leyden jar, but his ignorance would not show that he did not possess the instinct of self-preservation. This instinct of self-preservation and the love of life would appear not to be directly connected, and they are certainly very differently developed in different individuals. A man may value his life highly (and would sell it very dearly if in danger of losing it), and yet he will perform acts which his instinct of self-preservation would counsel him to avoid; and a man may be intensely suicidal, but he would resent strongly any attempt of others to injure him. As growth and development progress, this idea of self-preservation grows stronger, and it is especially so in people who have many claims to society to fulfil; now as these are just the people who at times, to our great surprise, attempt an act of the nature we are considering, it becomes necessary to find out if there are other signs of insanity in them. I think that if looked for they will always be found. It very often happens that a sudden and unexpected suicidal act terminates fatally, and we have no opportunity of judging of the presence of other affection of mind; but in the cases I have seen, when such an act has been attempted and has failed, I have had no difficulty in tracing other affection of the brain, and therefore in noting the attempt at injury as one, among others, of the symptoms. A woman was admitted here a short time ago who had thrown herself into the Thames, in consequence, as she alleged, of her husband's ill-treatment. Her story was very circumstantial and was clearly told, and it was only on evidence of a very positive character, and the development in her of hallucinations of sight, that it was evident that she was really affected with delusions. Though she now denies any destructive feelings, I refuse to believe her, as she is still affected mentally, and I believe that the destructive impulse might occur at any moment. This woman's story was so well given at first that it was only after repeated examinations that the symptoms of brain-disease were found. It is impossible for a person in health to realise the sensations he had when suffering from a disease, and so a

person who has recovered from a suicidal attack of insanity cannot realise the impulse that made him attempt his life, and he is "truly sorry" for what he did; but in his insane state he equally forgets how he felt when in health, and it becomes as necessary for him to act according to his then (insane) condition of brain, and to maintain the rectitude of his conduct, as to do the opposite was his natural healthy state.

What we call a diseased state is one which has a life of its own, and from the mental standpoint has its own ideas, acts, and feelings; in a world of madmen these would be the correct expressions of the mind of the day, and a sane person would appear to be the incoherent unreasonable person that madmen now often take him to be. I have often spoken with lunatics about the cases of other patients in the same ward with them, and have often got the reply that they "were only shamming," or that they "were not insane," as they happened to have the same or different delusions from the person speaking. The suicidal impulse may last a long time, and if so, the group of mental symptoms remains the same too, but in many cases the attempt is one of the earliest symptoms of the disease, and being of such a prominent and startling nature, it causes the person to be brought at a very early stage under curative treatment. Thus it is that so many recover, and are indeed on the fair road to recovery when brought to the asylum. In a person who has been long living quietly in an asylum the attack may come on suddenly, showing an extension or alteration in the seat of the disease, and if he is a patient who has been allowed a certain amount of liberty the attempt is often successful. I used to think that general paralytics were never suicidal, because of the generally happy nature of their delusions and feelings, and because I was too apt to associate a suicidal or homicidal act with a condition of melancholia; but I have recently had under care an undoubted general paralytic who was intensely suicidal by strangulation, and there are now two here who persistently refuse food, and have to be fed artificially, who would, indeed, if they were allowed, die from starvation, and yet there is no sign of *melancholy* delusion (though there are numerous other delusions present); and I can recall a homicidal case in that of a man who was of a mild and amiable nature, but very insane, who committed a very foul deed because of his diseased brain. We must look upon these acts as constituent parts of the disease, as factors without which indeed the disorder would not be complete, and as of necessity being as much the result of a certain condition of brain as are the acts of a reasonable being the results of the working of a healthy mind.

The education in a certain channel of a healthy brain will, if the education be a vicious one, produce a physiological criminal, and so a man becomes a murderer or a thief, but his brain is not diseased, and he may never show any sign of insanity. What would be the effect of an attack of insanity on him? It might make him worse, but not necessarily so, though it probably would, because the good side of life never having been presented to him, there is no favourable nucleus which disease might act upon and develop, whilst the man who has always been brought up to respect virtue and abhor vice has seen both sides of the shield, and probably the vicious side very strongly, in order to induce respect for the good, so that there is here a condition of things which may be acted upon by disease. In other words, a good man becoming insane may become destructive, but a bad man becoming insane is likely to become uncontrollably worse.

There is in nature an evident tendency to the abscission of the weakest members, and inasmuch as melancholia and all its accompanying horrors tend to unfit the individual for fulfilling his place in life, it would seem that the culminating act of suicide is simply the natural evolution of a condition in which the individual is of no use to the community, which is better rid of him. There is one condition of things under which life goes on prosperously, and this is generally formulated by the term health, and one prominent factor of this state is the desire of self-preservation. There is another state the converse of this, where life becomes literally insupportable, the individual is too impaired to be able to find the means for his own living or enjoyment, and the formula that expresses this is the term disease. When this state is established the desire of self-preservation is affected, and self-destruction becomes the exponent of the new state of mind. We cannot approach the subject more intimately than this of viewing the destructive as a condition superinduced by disease. If a person has a valvular disease of the heart nothing will cure (though remedies may for the time alleviate) the pressure-signs and physical results of obstruction that ultimately end in death. A man does not really commit suicide; it is the disease that is simply working out its own symptoms. A person affected with renal disease is able for a time, just as is a man with brain disease, to go about and complete his functions, but with the progress of the disease there is a limit to his potentiality of energy and usefulness, and he finally dies from coma produced by albuminuria. It looks as if to every disease there is a final culminating symptom of a very acute and powerful nature which gives the *coup de grâce* to the long but slow process which has been substituting

itself for the natural one of health. Thus, the person who dies from enteric fever frequently does so from rupture of the bowel, than which no surer mode of procuring death could be devised; he who dies from acute rheumatism, as a rule, does so from implication of the heart or lungs, a very sure mode of death, inasmuch as it attacks the source of power and heat. A man who suffers long from kidney or liver disease finally dies poisoned. And so a person labouring under brain disease dies by a process akin to the rupture of the bowel: he commits suicide. How else is his end to be brought about? He is just as responsible for his melancholia or his delusion as for his suicidal act. He can no more prevent the aneurysm in his aorta than he can its rupture. Organs often act for their destruction through the agencies they employ for fulfilling their functions in health. A fatty heart acts for its destruction through the weak muscular wall by which it contracts. The diseased kidney kills by throwing into the circulation the poison that it is its duty to eliminate. And so the diseased brain kills by impressing with its promptings the only agents it has at command, which are just the same as those by which the sound brain acts. The homicidal propensity is, equally with the suicidal, the result of a morbid action. The epileptic who in a fit of excitement takes up a chair to defend himself against a person who he imagines is going to suffocate him, and who kills his supposed antagonist, is no more a murderer than is he who in his sound mind kills another who attacks him, *e.g.* a soldier. The state of his brain for the time being renders such an act the necessary consequence of the train of thought then going on, and the sequence of thought would be as incomplete without the final act as would be the moral necessity of a man on the bank of a river to save another who was drowning without the final act of plunging into the water.

It is often said that in the insane the judgment is at fault, but I think this an error. With a certain state of mind destructive results are the proper and natural ones. No one expects from a serpent the withdrawal from the fatal dart of the fang, nor from a lion that it should hesitate and desist from the final stun of the paw, for every phase of nature is complete in its course. The readiness with which civilised man reverts to the savage type shows simply that the original ferocity is only tamed, not changed. It would probably take many generations of careful breeding, training, and cultivating, before the "animal" nature was taken out of him, and as long as competition exists, it probably never will be, for the quiet and peaceful condition brought about by the absence of necessity for exertion in order to

live will never cease. Patients come under our hands—women—whose language and acts are so different from what their friends are accustomed to, that they are supposed to be under a demoniacal possession. This simply shows that a brain in one state has one group of symptoms, and in another state has a diametrically opposite one, and we can imagine nothing more potent in promoting such a derangement than anæmia. For integrity of brain action there must be a normal reaction of one part on the other.

What can be imagined more likely to disturb this reaction than anæmia, or what is practically the same thing, the sudden injection of a poison like alcohol? Why an anæmic brain should so prominently show the features of the savage type cannot be explained any more than why the symptoms are not those of a simple dementia; but so it is, and in no form of disease is the destructive impulse so great as in insanity caused by anæmia. Lactational insanity is one of the most destructive forms, and the signs are those of extreme exhaustion.

Heart-disease is a frequent accompaniment or cause of destructive tendencies, and I have frequently noted most dangerous symptoms connected with a slow irregular pulse. There is a boy here, epileptic, with a diastolic aortic murmur, and he is liable to most passionate outbreaks, in which he is both suicidal and homicidal, whilst in the intervals between the attacks he is quiet and trustworthy, and disclaims any knowledge of what he has gone through or been the cause of. Again, the most violent patient we have here is an epileptic whose pulse is normal and good between his paroxysms, but when passing through an "attack" his pulse is irregular, very compressible and feeble and slow, pointing to great want of nourishment of the brain, and he is indeed unconscious of what really occurs. So that destructive propensities and the absence of true consciousness are often associated. Another very suicidal patient here has a very feeble, slow, and irregular pulse when the morbid feelings are uppermost, but ordinarily he is very civil and well conducted, and is able to work actively. This irregularity of the heart's action is worth noting in all cases of destructive propensity, and where a patient with incurable disease of the heart has once shown these impulses, he is not, in my opinion, fit to be ever again trusted. Old people are very dangerous in this way, and no doubt the fatty state of their hearts has a great deal to do with the sudden attacks to which they are liable. All know how liable to sudden and unexpected faintness people with fatty hearts are, and the occurrence of this condition, together with an atheromatous state of the arteries, in comparatively young persons has no doubt much to do with the development of the

destructive state in them. I would not go so far as to state that the condition of the heart is to be the criterion of responsibility as regards destructive habits in the insane, but it undoubtedly has a great deal to do with many of the cases, and the great part that it plays should never be lost sight of. Gouty persons, and those who suffer from the hereditary gouty temperament, are notably liable to these destructive feelings, and I could quote many cases of people with the gouty neurosis who are at times subject to unaccountable languor and depression of spirits, and are at times suicidal and dangerous. These depressing feelings are most common in the mornings, and whenever they occur are most easily relieved by a stimulant. There is here a woman, formerly in good position, whose habits of temperance have not been such as to bear inspection, who is at times, when her circulation is good, of a most cheery nature and an excellent companion, laughing at any idea of suicide, yet this woman is one of the most dangerous and destructive in the place, for she suffers from a fatty heart, and when at times—as is the case with this pathological condition—her heart's action fails and becomes irregular, she becomes almost unmanageable. The wonder is that such people do not meet with sudden death oftener than they do. When she is in this state I find the best remedy to be a dose of brandy, and whenever I now find her depressed and her pulse irregular, I always order a stimulant, and the results are most satisfactory. People who have been large drinkers—whether young or old—suffer much from this irregular action of the heart, and one of the most painful feelings that the regenerate drunkard has to contend with is the feeling of depression that comes over him from the irregularity and feebleness of the action of the heart set up by the withdrawal of his accustomed food. The same thing may be witnessed, although the cause is different, in persons who become melancholy and depressed when placed in positions different socially from those they before occupied. To a man habituated to society in a large town nothing is so distasteful as to be relegated to some spot where he misses the stimulus to his brain to which he has been accustomed. His spirits droop, he loses his appetite, his circulation becomes languid, and unless he has a change or becomes interested in some other mode of life, he stands a great chance of becoming destructively insane. Soldiers who are suddenly placed in a condition of idleness, especially if it be accompanied with some degree of privation, after going through the excitement of a campaign, become most depressed and easily succumb. The condition of nostalgia which affects frequently large bodies of men, and especially those of an emotional cast, is always accom-

panied, if not due to, cardiac symptoms. There was a patient here whose pulse was, when she was quiet and well-behaved, of a good tone, but at times it became very irregular and intermittent, and then she was one of the most destructive women I ever saw. She herself described her state as a sudden feeling of pain and faintness in the cardiac region with a violent and irregular thumping of the heart—after this a red colour seemed to appear and she felt an irresistible inclination to smash furniture and glass and to destroy herself, and being a powerful woman she generally succeeded in doing a great deal of damage. I think that here, as in the other cases, the heart affection was the primary one, not that the irregularity of its action was the result of a sudden discharge of energy from the brain. I do not think that I should err in stating that there is not a single suicidal or homicidal patient who does not suffer from a disturbed circulation in consequence of a disabled heart, though there are some here with various forms of heart-disease who have not yet developed the destructive impulse. There are at least four patients here who are suffering from “rheumatic insanity,” and they have all valvular heart-disease and destructive symptoms. In dyspepsia, especially if of gouty origin, irregular action of the heart and depression are very common, and the destructive feelings often met with in this ailment are due to the irregular brain-circulation. Perhaps the most impulsive and destructive classes in asylums are to be found in the masturbators. An exceedingly dangerous person here is one who is greatly addicted to this habit, and its effect on his circulation causes great irritability of the heart, the beats being most irregular after he has been practising his bad habit. The effect of sexual drain upon the action of the heart is recognised, and when once the rhythmic action of the ganglia of the heart has been interfered with, it is with difficulty restored; hence, persons who become what is generally called “nervous,” or who suffer from “nervous exhaustion,” experience feelings of faintness, want of confidence, &c., for a long time, and I have no doubt that their momentary feelings of giddiness or loss of power in one of the extremities are due to sudden irregularity in the heart’s action, and if the pulse be felt at this time, it will be found to be intermittent or altered from its normal rate. Many of the feelings of nervousness and melancholia are ascribed to indigestion, and the recurrence of a foul state of the tongue, constipation, and loss of appetite are often as regular concomitants of an attack of epileptic destructiveness as are most of the other special symptoms. There is a patient here, in whom this disordered state of the viscera occurs regularly before a severe homicidal attack, and if we can man-

age to procure an alvine evacuation early, the attack is often prevented altogether, and so are the cardiac symptoms that, in my opinion, follow the prolonged visceral disorder, and cause the destructive symptoms.

The gastric crises that occur, not only in locomotor ataxia but in many other nervous affections, are, as a rule, accompanied with great depression; and there was recently a striking instance of this in the person of a male patient (who was for a time an in-patient of St. Bartholomew's) whose attacks of vomiting and irregularity of action of the heart, occurring at intervals of three or four weeks, were of a very severe character, and accompanied by pains in the shins, which were of the nature recently described as "alcoholic." This man had been many years in various asylums, and was at times extremely suicidal. Usually he was industrious, and being a muscular man, was able to take a large amount of exercise. There was no sign of ataxia about him, nor had he any delusions, but with the recurrence of the vomiting and shin pains he became intensely irritable and depressed, and was carefully watched. He never attempted suicide here, but I was for a long time apprehensive of it. He had been rather a large drinker, but judging from his lively and intelligent demeanour between the attacks, there was not actually an organic disease of the brain. I became more confident about him, and in these intervals, when his circulation was regular and fair, he was allowed to go about without any special supervision. "Dyspepsia" is the cause of misery to many people, but it is not, as a rule, attended with destructiveness, and I think that it only becomes dangerous when associated with heart-disease.

In terror and great excitement the heart's action is changed, no doubt with regard to preserving the balance of the circulation in the brain, and if, as so often is found in the insane, the heart is itself fatty, there is an additional reason for the violence of their actions if I am right in assuming that the heart is so prominent a factor in these destructive conditions. There are some physiological conditions that indicate the effect of the heart's action upon the conduct of people; for instance, sudden anger in one man will cause a fluttering action of the heart, and faintness with impulsive tendencies (such as smashing, suicide, &c.); in another, "whose pulse doth temperately keep time," there are no signs of excitement; a third is quite another individual for the time being, and the change is shown by general excited conduct. As the heart's action becomes quieter, so the mental symptoms subside, and the well-known effect of tobacco as a sedative to excitement doubtless acts through its influence on the heart. I do not mean to imply that heart-disease by itself,

without any affection of the brain, will cause destructive tendencies, for the action of digitalis proves that we can materially alter the pulse, and yet not affect the mental symptoms at all.

The following are the conclusions which I arrive at:—That the destructive state is one result of a certain condition of brain, and may exist in its greatest intensity without consciousness. That it is especially frequent in those forms of brain-disease attended with weak or irregular action of the heart. That epilepsy, the insanity of old age, puerperal insanity, masturbational insanity, and imbecility, are very liable to exhibit it. That, inasmuch as brain-disease is rarely stationary in its extent, and often proceeds insidiously, it is impossible to deny that any insane person may develop the destructive faculty; but, at the same time, we do see persons who, though insane, still retain sufficient controlling power over themselves to warrant our confidence. That patients may be of the reverse of a melancholy disposition, and yet most suicidal; that, in fact, the nature of the delusion has no necessary connection with destructive habits, and that therefore such habit is not a consequence of a train of thought in the same way as in the sound mind a certain conclusion results from certain premisses, but that it is as much a sign of disease as a delusion is. I believe, indeed, that the destructive faculty may be the only sign to be found of insanity at a particular time, and I view it as a particular form of brain-disease, just as I see that other forms of insanity may occur in association with it or without it. Some insane persons we see go on for years without showing any destructive impulse; if they become glass-smashers or destructive of clothing, do we view the access of this symptom in the same light as we should do one of the suicidal or homicidal kind? I think that we ought to do. At present it seems to us accidental, whether a chronic insane person becomes dangerous to himself and others, or simply becomes destructive of clothing; why the progress of the disease should be at times in the one direction or the other is a mystery. If patients take to pulling their clothes to pieces and eating them, it is certainly not always due to delusion: it is in itself as much a symptom as is a delusion or incoherence or dirty habits, or anything else that we choose to name.

Shock, bad news, lovers' quarrels, jealousy, passion, lead to destructive acts more frequently than any other causes. Why is this? I can only account for it by supposing that a great effect is suddenly produced in the supply of blood to the brain by interference with the heart's action, and that the action of the brain is rapidly placed in a negative state to what it is in health, and hence any act that is the pole of a healthy one may be

expected. The medico-legal bearing of this view of the question is significant. If destructive impulses may be the first sign of a diseased brain—perhaps for a time more or less long continued the only one—the difficulty of deciding how far a person is responsible becomes very great, but it does not alter the fact; and although many persons have been deliberate homicides or suicides, yet many more have been convicted and suffered the extreme penalty because either time has not been allowed for the other symptoms to develop, or they have suffered from a temporary insanity, and have been cured before trial.

It is often asked if suicidal and homicidal tendencies are generally connected in the insane. They may be, and probably always are, in some form or other. As forms of destructiveness they would probably be more likely to be connected than would either of them separately with another symptom, but there is no necessary clinical connection between the two. We see homicidal patients who take the greatest possible care of themselves, and, again, there are suicidal patients who would not hurt a worm; there are others who are destructive to glass and furniture (and who feel great relief in doing such acts), who are quite harmless in every other way; but in all of them there is the same answer to inquiries as to why they have so acted—they “cannot tell you.” They cannot reproduce the train of reasoning by which they arrived at their act, because there is no such train; no more can they do it than an incoherent man in a state of acute mania could go through his jargon again, or a pauper give you a reason for his assertion that he is as rich as a Rothschild. It is not always possible for a sane man to repeat the mental process by which he arrived at a certain conclusion. If, then, this is so with a healthy mind, how can we expect that the insane person can give again his processes of arriving at a conclusion? In the insane there is no direct process of a kind subject to explanation, and a dreamer is just as irresponsible and as unable to control his movements as is an insane man. This very day I watched a general paralytic tearing his clothes for the first time during his illness. He was a very quiet, harmless man by nature, and was always very neat in his person; but when I asked him why he tore his clothes, he simply replied that he was “not tearing them; he was mending them.” He had lost the very meaning of terms, and his mind, as regarded the act of “tearing,” had lost its significance; and this I believe to be the condition of the insane generally, that acts lose their significance. What would be murder or suicide in the case of a sound man is not so to the lunatic, but is purely an act that he follows out as unthinkingly as a sane man does many of the reflex acts which go on co-

ordinately in him, but of which he is only partially, if at all, conscious. I doubt if the lunatic has really a true perception of his ideas; for though professing to be a king, he sits down contentedly with the beggar; although possessing millions, he is happy in a pauper's clothes, and never thinks of insisting on the luxuries and position to which his riches would entitle him. The madman's mind is another existence this side of the grave, and is as incapable of intimate research as is the life on the other side. If we knew (which we do not) that each brain-cell was moved in a definite vibratory manner for each word uttered, or that for every insane delusion there was a recognised affection of a cell or defined group of cells, we might be able to say, in this case or that, that the individual would of necessity do certain things, that he would not be suicidal or homicidal, and so on; but the most recent expositions of the connection between brain action and vibratory motion teach us nothing of this particularity, and all we do know is that such and such results may be expected to follow, but that we cannot surely tell that they will. We are like the philosophers of old, who knew that a comet would return, but could not say when, because they were not acquainted with Kepler's law. How easily is a prognosis upset, not only in mental, but in both general medical and surgical cases, because of the difficulty of gauging the bounds of the lesion! Seeing how surprised one often is at the cure of a reputed hopeless case of long duration, or at the recovery of an unpromising acute case, there can be little wonder if we are unable to predict the vagaries that occur in the course of a madman's career. The change from depression to exaltation is, it is true, often accompanied by the loss of destructive tendencies; and a notable instance of this occurred here recently in a woman, who, up to the time of a severe uterine hæmorrhage, was most melancholy and suicidal, whereas now she has completely changed in temperament, and is one of the most cheerful patients here, but she is much more deluded and insane than when she was in the melancholic state, though not now destructive. Conversely, there is a woman here who, though formerly of a very depressed nature, yet not suicidal, is now in a state of exaltation, but withal extremely destructive.

An attack of insanity is a first experience of a new condition, and the individual then belongs to a community that knows no laws except those not of its own making. There is no difference between the insanity of the peer and that of the ploughman, except perhaps in the range of the delusions, and it is only after an attack of insanity that the latent traits of mind come out. Disease will not produce symptoms unless the germs of the

symptoms are there. There would not be any destructive tendencies shown in the course of a disease unless the idea was there already. We cannot conceive an individual developing a new brain factor under the influence of insanity, any more than that a disease of the liver should produce more gland structure; for the essence of a disease is to produce a structure that interferes with the true one and usurps or alters its function. However superexcellent in its display of function an organ may be in health, there is no difference in its abasement in disease. The high moralist, the exemplary man of business, the brilliant debater, all come to the same level as the destructive dement who scarcely ever showed any sign that he was at one time of the intelligent class, and the levelling tendency of disease reaches the universal platform in death.

The sexual feeling rises to a height that is only extinguished by its gratification, the feeling of hunger in the same way, and so is the necessity of respiration. This in health; but in disease there is no satiety, and the effect of this is to urge to extraordinary acts for the relief of the feelings. These acts, which are the efforts of nature for the preservation of the individual, may be of so ultimate a nature that they entail injury to others, and the law under the circumstances excuses the deed, though it may not justify it. Just the same process occurs in disease of the brain itself: to an unsound brain there is no satiety. It is sufficient for the sane man who, being in danger of losing his social position, has the idea of destroying himself presented to him, to discuss the idea with the presentiment of it; but in disease there is no cessation of the idea; it is always there, as is the feeling of hunger to the man who can get nothing to eat; and eventually it leads to the final accomplishment, or the effort for it, which must follow, unless the central irritation stops. It is as bound to continue as is a railway engine to go on as long as the valves are open and the steam lasts. People not acquainted with the insane are often surprised at the coherence and intelligence of the letters they write; but it often happens that a very deluded and dangerous man will write a coherent and apparently sensible letter on subjects not connected with his delusion, whilst, on the other hand, a harmless patient will write the most incoherent and dangerous-sounding nonsense. There is not really the incongruity here that apparently exists; in the former case, the man, if he expressed the delusions which really exist in him, and which in his destructive practices he exposes, would appear just as insane as the latter. There are here two men who exactly carry out the above-named conditions; one writes coherently, but is really deluded with suspicions of poisoning, and the other

is most threatening and deluded according to his writing, but is, as far as we see, quite harmless. The insanity of the latter is apparent to any one, and an untrained jury would have no difficulty in finding him insane; the former man's insanity is more subtle, and might not be recognised by an outsider; but all the same it is there; and whilst the latter might be taken home by his friends if they would have him, the former must be kept under strict supervision as a dangerous lunatic. Now, what is it that makes these men so different? Not extent of disease, for the harmless one is insane to the very tips of his fingers, whilst the other can converse rationally, if he likes, at any rate for a time; not the nature of the delusions, for both have delusions of suspicion; not presence of motives of revenge, for both have been equally kindly treated by people absolute strangers to them; but the dangerous man has a bad criminal history, has always lived in an atmosphere of low morality, and has a very irritable heart, whilst the former has had a very different training, and has a good circulation.

The cataleptic state is common in women who are epileptic, or who have been indulging in sexual excess, as also it is seen, but more rarely, in men under the same conditions. What is known as the condition of anergic stupor has this cataleptic symptom for its chief feature, and the vaso-motor affection that is intimately associated with the condition is shown by the readiness with which red streaks appear on the skin in the tracks of lines drawn there by any blunt object. Now the suicidal impulse is very strong in persons who exhibit this symptom, and as long as the condition lasts, I consider the patients very untrustworthy. The heart may not be actually diseased in these persons, but, at any rate, its power is much affected, and the impairment of the circulation is shown by the cold and blue extremities, greasy skin, and congested capillary appearance, all symptoms pointing to an anæmic state of the brain. There is now a female patient here who is markedly cataleptic and insensible to the prick of a needle or to the touch of the finger placed on the cornea, yet she is very suicidal, and has to be most carefully watched, and will have to be so whilst the attack continues; indeed, her vaso-motor system has become so affected that I doubt if it will ever regain its normal condition, and so her destructive state will be always a source of anxiety. Another female patient here is in much the same state as the one just described, but though she has not as yet made a destructive attempt, I am prepared for its demonstration at any moment, and have given instructions accordingly.

However great our experience may then be, we are occasionally deceived by the exhibition of dangerous and destructive acts where they were not expected ; but if we keep prominently before us the condition of the heart and the vaso-motor system, with especial reference to their causation of a sudden anæmic state of the brain, we have, in my opinion, a trustworthy warning which will justify us in taking steps which we shall find afterwards no reason to regret.

CASES RESEMBLING GENERAL PARALYSIS OF THE INSANE.

BY

J. A. ORMEROD, M.D.

It is scarcely necessary to insist upon the interest possessed by general paralysis of the insane, as the most striking instance of a disease which affects both the mental and material functions of the nervous system, and in which mental symptoms are associated with definite pathological changes post-mortem; nor is it necessary to describe an affection which figures in every text-book of lunacy, and in some text-books of general medicine. Most of the cases, brief notes of which I append, belong, I believe, to that subordinate type of the disease in which the paralytic symptoms predominate throughout over the mental. This type has been recognised and described both by alienists and general physicians.¹ But so impressive are the extravagant ideas and conduct of a typical general paralytic, that it is difficult in one's imagination to make room beside him for less obtrusive cases. For instance, Dr. Claye Shaw lately showed us at the Banstead Asylum, as a typical case of the disease, a man who declared he was the Duke of S——, the husband of the Virgin Mary, willing to draw us cheques for thousands, able to cure all the other inmates, only they were not worth his attention, and who, so far from being paralysed in the ordinary sense of the term, was violent and had to be kept by himself. By the side of such a patient I should hardly like to classify such tame cases as my own, were it not for the recognition by good authorities of the non-delusional variety, and the fact that in both classes the ultimate progress towards bodily and mental decay appears to be the same. But assuming the existence of such a variety, it is perhaps safest to say only of the present cases that they resemble

¹ See, amongst others, Gower's "Diseases of the Brain," p. 233; Clouston, "Mental Disease," p. 365; Savage, "Insanity and Allied Neuroses," p. 277.

general paralysis, since the sphere of observation was limited to the out-patient room, and since even typical general paralysis may be simulated by other conditions.

CASE I.

Affection of speech; tottering gait; extravagant ideas; exaggeration of tendon-reactions.

William R., æt. 50, railway porter. In this case there was a history of extravagant ideas; the patient thought he had money, plenty of good clothes, &c.; he was also irritable and spiteful to his wife. His speech had become indistinct gradually during the last twelve months; his gait had become tottering for the last nine months; and for nine months he had been forgetful. He had had a kind of fit nine days before coming to the hospital; he clutched the mantelpiece near which he was standing, and could not move, nor could his friends move him; he did not lose consciousness.

His speech is now slurring and indistinct, his gait unsteady (ataxic); he sways about when his eyes are shut; yet the patellar tendon-reactions are exaggerated, and the pupils act to light. The tongue and lips were quite steady when I first saw him; later a very slight tremor of the tongue was noticed. There was no history of excess of any kind, nor of overwork or anxiety. In a few weeks more he had another fit, and got so feeble that he could come no more.

CASE II.

Attacks of faintness; severe pain in the head; deafness; affection of speech; tremor of tongue, lips, and limbs; progressive weakness; some delusions.

Thomas B., æt. 36, gasfitter (August 1881 to December 1882). In November 1880 had an attack in which he felt suddenly faint, though without actual loss of consciousness. Has been subject to these attacks since. Had been noticed to stutter even before the first attack. During the last three months has been losing power in the limbs. He now complains chiefly of sudden violent pain in the head, lasting about a quarter of an hour.

He is very deaf: with the right (the best) ear, he can only just hear a loud tuning-fork, whether held at the meatus or on the bone. Speech thick; tremor of lips and tongue when he begins to speak. Tendon-reactions much exaggerated in all the limbs; ankle-clonus on both sides. Pupils act normally; optic discs

normal. The patient could not be questioned on account of his deafness; his wife said he had no delusions, though he had been discharged from one hospital as unmanageable; she had had by him one healthy child, and had miscarried three times.

He became weaker and more tremulous, anxious-looking, and excitable, and in April 1882 could only walk by holding on to the furniture.

In August 1882 he reappeared, seeming much better, though some difficulty of swallowing had developed. But the improvement did not last. He became spiteful to his wife; thought "there was a green monster after him." His mother said he was anxious to give guineas to various societies, though certainly he had no money to spare. He finally went to an infirmary.

CASE III.

Transient attacks of right hemiplegia; affection of speech; ataxia of legs, absence of tendon-reactions; tendency to extravagance, and, later, downright insanity.

William W., æt. 48, corndealer (April 15 to August 1884).

April 15, 1884.—He says that from October to Christmas of last year he used to have, each month, an attack in which he lost speech and the power in his right arm and leg. It would last from half-an-hour to an hour. He was not convulsed and did not lose consciousness.

The right side of his face looks rather flattened. He speaks slowly, sometimes stammers, and has difficulty in getting his words out. He walks in an uncertain fashion; the right leg looks rather stiff; the left leg sometimes gets crossed in front of it. Is unsteady when he stands with his feet together and eyes shut. Tendon-reactions quite absent. Pupils of moderate size and acting normally; optic disc (right) rather white. (Says that for seven weeks last spring he lost his sight, but recovered from this.) He seems at times vacant, and as if he did not understand what was said to him; at times his manner is rather theatrical.

His wife came next week, and said she had noticed a stammering speech and an irritability of manner three or four years ago; he had sometimes thought he was going to die, and said he must kill himself or her; there was only this much indication of extravagance, that he says he means to write a large and valuable book, for which he collects newspaper cuttings about all sorts of trivial things. The first symptoms had followed heavy business troubles, and were ascribed to them as cause.

During his attendance he had several more attacks of transient right hemiplegia and aphasia; his speech became more indistinct, hesitating, and drawling; he used to screw up his face and wrinkle his occipito-frontalis as he spoke; his tongue and lips became tremulous; he stumbled as he walked; he became childish. Finally (August 19), his wife told me he had had an attack in which he slept all day and night for a week; on waking, he was quite insane, wanted to go out naked, &c. He got better again, but had to be taken later to the Three Counties Asylum, Arlesey.

CASE IV.

Insanity requiring confinement for three months; subsequently attacks of right hemiplegia; much tremor and hesitation of speech; increased tendon-reactions; finally, paraplegia, bed-sores, &c.

Benjamin I., æt. 21. This patient was sent to the hospital by Dr. Frankish in March 1884, and I again saw him by the kind permission of Dr. Frankish in September 1885. His symptoms came on rather suddenly in July 1883. He came home in a stupid condition, saying he had been struck by lightning. In two or three weeks he became insane; bought some flowers; said he was going to leave home, &c. He was put in Hanwell Asylum for three months. So far as I could make out from his mother, he had no marked grandiose ideas. In November 1883, and several times since, he had a transient attack of right hemiplegia and aphasia. Twice in the present year (1884) he has had right-sided convulsions. Now (March 1884) his tongue, lips, and limbs are remarkably tremulous; his speech is slurring and hesitating; he can stand steadily with his eyes shut; the tendon-reactions at the knees are exaggerated; the pupils are of medium size and equal, do not act to light, and act very little to accommodation.

September 19, 1885.—He is now completely paraplegic, and unable to sit up in bed; he still retains some power in arms and hands, though not enough to feed himself. (The loss of power in the legs appears to have come on rather suddenly five months ago, after some kind of fit.) There has been incontinence of urine for two weeks, and lately of feces also. A bed-sore has developed on each buttock. There is contracture of the lower limbs,¹ and the patellar tendon-reactions are marked. Face expressionless; still some tremor about lips; appears unable at present to protrude tongue or to speak. His mother says he

¹ Contracture of the arms has since set in, as Dr. Frankish tells me (Nov. 19, 1885).

recognises his friends. He can only swallow fluids. At one time his appetite was very large.

The youth of the patient in this case is remarkable. As no one witnessed the lightning stroke, it is quite possible that it may have been an apoplectic attack. He had always lived at home, and been exceedingly steady and well-behaved. His father died of heart-disease; his mother was healthy; he had five healthy brothers and sisters.

CASE V.

Tremor of hands and tongue; absence of tendon-reactions; inability to stand with eyes shut.

Henry F., æt. 29, bootmaker (February to October 1884). Had been ill eighteen months; no sufficient cause could be assigned for his illness. His family, though none of them were insane, seem to have been excitable people. His tongue and hands were very tremulous. His pupils reacted slightly and sluggishly to light. The patellar tendon-reactions were absent, and he could not stand with his eyes shut. His articulation was slow and confused. He once had the delusion that the room was a ship, and that he could make it sail wherever he liked.

During his attendance he once complained of shooting pains in the back and in the head. He appeared to improve on the whole, and finally went away to Leicester.

CASE VI.

Paresis of left side; tremor of tongue and of limbs (+ L.); affection of speech; attack of left hemianopia.

Thomas Frederic B., æt. 45 (January 8, 1884). Complains of some loss of power in the left side, and of pain in the head and chest. Onset gradual during the last four or five years; worse during last fortnight. His manner is excitable, but his statements seem coherent. Speech is thick and somewhat stammering, tongue shaky; there is a general tremulousness, worst on the left side, and startings and tremor, even as he sits quietly in a chair. Tendon-reactions normal; no unsteadiness on standing with eyes shut. Fundus of eyes normal; right pupil acts little, if at all, to light; left acts readily to light; both act during accommodation. No physical signs in chest.

January 15.—As he came to the hospital to-day "something took him in the head," and he became unable to see things to the left of him; he kept hitting people with his left hand as he

passed them; finally, got among the vehicles, and had to be brought here. There appears to be some left hemianopia now.

He became an in-patient at St. Bartholomew's under Dr. Gee¹ on January 19 till February 1884, and afterwards at various infirmaries.

He came once more to me in April 1884; he walked into the room as if he did not know where he was going or what he was doing; yet he answered questions, &c., rationally. A woman who brings him says he has had another attack on the way here like the last one. She also says he once had delusions that men were in the room with him, pulling his bed about, &c.

Three cases of hemianopia occurring in the course of general paralysis are given by Zacher, "*Archiv. für Psychiatrie*," &c., vol. xiv. Charcot relates a case ("*Leçons*," vol. iii. p. 78) where "ophthalmic migraine" occurred in an early stage of general paralysis.

CASE VII.

Deafness; hesitation of speech; tongue tremor; general tremor and weakness (especially left side), following an attack of partial left hemiplegia; absence of tendon-reactions; mental depression.

Matthew P., æt. 34, bootfinisher (March to June 1885). This man was very deaf; he could scarcely be got to hear conversation at all; but he could hear a tuning-fork placed on his head. His speech is hesitating; his tongue and lips very shaky; his limbs shaky, especially the left hand. He stated that in December 1884 he had a sudden attack of weakness in the left side. Before that he had felt nervous, and used to fall down sometimes. His wife stated (on the occasion of his next visit) that as regards the above-mentioned fit he came back one morning from the yard saying he had lost power down his left side; he then seemed to become insane, and attacked her, but did not use his left hand; in three-quarters of an hour he became quiet and went to sleep. Ever since this the left hand has been weak. Before the fit he was irritable and used to cry, but she noticed no tremor nor affection of speech till afterwards. He will wander about as if looking for something, and says he will hang himself if he does not improve. Has headache at times; coughs much. Pupils

¹ On referring to the Ward Books, I find that the history given by him and his physical condition were the same as in my notes, with the addition that some deafness was noted. With regard to mental symptoms, a note of January 25 says, "He sees things rushing by him at night, and people outside the ward windows." January 28—"Manner strange; forgets his bed; walks out of ward door," &c.

equal; very slight action to light; normal action to accommodation. Patellar tendon-reactions absent; yet he stands steadily with his eyes shut. He got no better, and in July 1885 went into the Poplar and Stepney Sick Asylum.

CASE VIII.

History of hemiplegia eleven years ago; epileptiform attack; progressive weakness of limbs and mental enfeeblement; hesitation of speech; tremor of tongue and lips; lively tendon-reactions.

Ellen D., æt. 32 (October to July 1884). Eleven years ago she had an attack of left hemiplegia, affecting chiefly the face and arm; from this she recovered. Six or seven months ago had an attack, in which she fell, and lost the use of all her limbs and power of speech for an hour. Since that she has frequently fallen, but apparently more through stumbling than through any loss of consciousness. She also drops things from her hands.

She complains now of pain in the head and eyes, and of pain all over her. Speech hesitating; tongue and lips slightly shaky. Tendon-reactions lively in all the limbs. Pupils act normally to light. As regards her mind, the friend in attendance told me that two or three years ago she used to be very jealous. Sometimes she would write her letters outside the envelopes.

In six weeks' time she became worse; speech worse; heavy stupid look; memory very bad; constantly falling about. She was then given iodide of potassium grs.x. to grs.xx. three times a day. She seemed to improve both in mind and body till April 1884, but about this date the headache and pains in the limbs began again; the tongue and lips got more and more unsteady, and she became childish.

In September 1884 she was taken to the Surrey County Asylum, Wandsworth; the diagnosis (her husband told me) was general paralysis, and the prognosis altogether unfavourable.

General paralysis, like *tabes dorsalis*, is rarer in women than in men. Dr. Clouston says that the disease when it occurs in women is likely to be of the non-expansive form so far as the mental symptoms are concerned.¹ Dr. Savage, speaking of the spinal symptoms, says he has never seen a female general paralytic who was also markedly ataxic.² This case illustrates both these remarks; the mental condition was simply childish; the motor

¹ Mental Disease, p. 366.

² Insanity and Allied Neuroses, p. 319.

affection was paretic in character; the tendon-reactions lively, and the action of the pupils normal.

CASE IX.

Weakness, affecting first and principally the right side; wasting of left half of tongue; drawling speech; increase of tendon-reactions; inactive pupils. Later, increase of weakness; tongue-tremor; epileptiform attacks; progressive weakness of mind, with some delusions. Death in statu epileptico.

Alexander M'K., æt. 50 (February to April 1883, and April 1884 to January 1885).

February 28, 1883.—Weakness of right leg began four or five years ago, followed in a year's time by weakness of right hand. On one occasion patient had had a difficulty in speaking, but this was slight and transient. Now the loss of power in the right hand seems to be chiefly in the way of extension of the fingers; the muscles of that thumb and fore-arm are smaller than on the left side, but not distinctly atrophical, and they act to faradism. He seems nervous and tremulous while being examined in this way. The tendon-reactions are exaggerated everywhere, but remarkably so on the right side, and on this side there is a short ankle-clonus. Pupils unequal, left the largest; neither of them contract at all to light, and they contract very little during accommodation. Ophthalmoscopic examination negative. His speech is drawling, but not more than might be due to his native Scotch. Tongue steady, but there is distinct wasting of the left side of it. His manner in the out-patient room was a little odd, and he laughed occasionally in a meaningless way. He had no pain nor headache; nor, according to his wife, any mental symptoms, except that his memory was not good, and she thought him "rather dull." He had always been sober. There was a history of syphilis many years ago.

The diagnosis evidently lay between some diffuse affection, such as general paralysis, or a localised lesion affecting principally the right motor tract and the left hypoglossal.

He was ordered Ol. morrh. syr. ferri iod. a.a ʒj. bis. and Pot. iod. gr.v. ter.

He seemed to improve very much, though he had one attack in which he could not speak, because "he could not get the word." After two months I lost sight of him.

In April 1884 he again came under my care, my colleague, Dr. Ferrier (under whom he had renewed his letter), having kindly handed him over to me. In the preceding year he had

left home to take a post as time-keeper under the Thames Conservancy, but this he had to give up, and came home much worse. The speech is now nasal, and much more indistinct, being indeed almost unintelligible; the tongue is tremulous (wasted on left side, as before); the limbs weaker than before, the right side still the weakest. There is some deafness, not noticeable for conversation, but for the watch the hearing distance = $\frac{8}{15}$ R. side, $\frac{6}{8}$ L. He laughs uncontrollably for no reason. Tendon-reactions, pupils, &c., as before. His wife says he has no delusion, but is childish; he once stole an egg; he thinks chance people in the street take much interest in him. He was given iron and iodide of potassium, the latter in considerable doses.

During the summer he had slight convulsive attacks; and sometimes while asleep the respiration became embarrassed.

In September he had (by day) fits of "helplessness," with tremors affecting specially the right hand. He lay awake at night, because he thought "men were coming for him."

In October he had very severe ophthalmia of the right eye, with extensive chemosis, and discharge partly purulent, partly sanious. For this he was an in-patient at Moorfields under the care of Mr. Hulke; the eye was completely cured there. No cause could be assigned for the attack, and whether or not it was neuro-paralytic in origin I could not determine.

At the end of December he was admitted to Queen Square under the care of Dr. Buzzard. Dr. Buzzard had no doubt that he was suffering from general paralysis. The man had now a half-frightened, half-wild look; he mistook the ward attendant for a policeman, and finally assaulted him, and tried to get out of window. Examination of his chest showed that the action of the heart was irregular, and there was a loud blowing systolic apex murmur.

He had to be discharged, and his wife, who could not be persuaded to take him to an asylum, kept him at home. On January 21, 1885, he had a fit in the night. From this he partially recovered, but a series of fresh fits followed, in which he died. She told me this a week afterwards.

The hemi-atrophy of the tongue may be compared (as Dr. Buzzard pointed out to me) to that which is sometimes found in *tabes dorsalis*. It is said by good authorities to occur as an early symptom of *tabes*. Ballet says it occurs in no other disease; but this is going too far. In most of the cases given by him¹ there was irregularly distributed muscular atrophy elsewhere. Ray-

¹ Archives de Neurologie, vol. vii. p. 191.

mond and Artand¹ have shown that in such cases it is due (as we might expect) to atrophy of the hypoglossal nucleus of one side. Dr. Dudley² gives a case of general paralysis where there were symptoms of posterior sclerosis, and also hemi-atrophy of the tongue. In my case the symptoms (if we except the fixed pupils) pointed to lateral rather than posterior sclerosis.

CASE X.

Attacks of pain in right side of head, with noises in head and right-sided convulsions; right hemi-paresis; some deafness; transient paraplegia; symptoms of general paralysis three years later.

William R., æt. 43 (August 1880 to May 1882).

August 18, 1880.—Ten weeks ago he was brought home from his work; his right arm and leg were shaking, and he could not speak. The attack began suddenly; he did not fall nor lose consciousness (at least at the beginning of it). Previously he had been quite well, except for sleepless nights.

He now complains chiefly of a "booming" noise in the head, and of severe burning pain in the head, coming on every half-hour. There is twitching of the facial muscles, especially on the right side; but this seems to be caused by the pain. A severe momentary attack of pain occurred in the consulting-room; it was followed by twitching of the right arm. With this exception, there is no twitching of the right limbs, but they are still weak. He is said scarcely to have recovered his speech yet, and he seems barely to understand when spoken to. The headache seems to preoccupy and confuse him. Pupils very small, reaction unfortunately not noticed; fundus oculi (right side examined under atropine) normal. Some deafness on right side; thus hearing distance of left ear (for watch) = $\frac{4}{8}$ s., for right ear $\frac{2}{4}$ s.; tuning-fork, whether through air or bone, heard best with left ear. Doubtful exaggeration of tendon-reactions in right limbs.

He improved much under the free use of iodide of potassium (grs.x. to grs.xx. three times a day); his powers of speech improved; he seemed perfectly intelligent; and between August and September 1880 he had only two attacks of noises and pain in the head. On December 28 he had a more severe fit, loss of consciousness, shaking of right arm and leg, and afterwards sensation of pins

¹ Archives de Physiologie, April 1, 1885.

² Brain, No. 30. In the same number abstracts of the two French papers just quoted will be found.

and needles in right arm and leg. Bromide of potassium was given in addition to the iodide; yet he continued to have slight fits.

On March 9, 1881, he was wheeled into the consulting-room; he had a sallow earthy look about his face, was unable to walk, and suffered severe pain whenever the legs were moved. This paraplegic attack had come on suddenly nine days before. He again improved, and in a fortnight could walk; and he now seemed to have got rid of the fits and of the pain in the head. The patellar tendon-reactions after the attack got gradually weaker, till the right is noted as "slight," the left "almost absent."

In September 1881 he said he was quite well, and ceased to attend.

In November 1881 a recurrence of the fits brought him back to me again. Once more the iodide treatment seemed to stop them; but during the spring of 1882 increasing weakness of the right side was noted. I then lost sight of him.

Looking to the headache, the attacks of right-sided convulsions followed by right-sided paresis, the transitory paraplegia, the seeming improvement under iodide of potassium, I thought that the patient had some localised intracranial lesion, and also some spinal meningitis, probably syphilitic in nature, although I could obtain no direct syphilitic history.

However, in May 1885 I heard by chance that he was in the Caterham Lunatic Asylum; and the superintendent, Dr. Elliott, in reply to my inquiries, very kindly wrote me an account of him, stating, that although the patient had no grandiose delusions, he was doubtless in the first stage of general paralysis.

The general similarity of these cases is obvious enough. Their connection with the delusional type of general paralysis may be put thus:—In Case I. there had been distinct grandiose ideas; in Cases II., III., IV., V. (?) there was just enough history of extravagance to indicate their clinical affinity that way; in the rest there was no extravagance, but only (in those watched long enough) progressive mental decay. The mental symptoms were, to say the least, unobtrusive; and inquiries made as to the existence of typical grand delusions were usually received by the patient's friends with unfeigned surprise.

With respect to bodily symptoms, the well-known affection of speech, the tremor of the tongue and lips, the tremulousness and weakness of the limbs, may be passed over without remark, except to say that the diagnosis mainly rested on them. Certain other

points may be noticed which have attracted the attention of recent authors.¹ First the state of the tendon-reactions. These were almost always abnormal, and that in the opposite directions of excess and of absence. It is tempting to conclude at once that we have to do in such cases with lateral and posterior sclerosis, respectively. And though clinical evidence alone may be insufficient to warrant this conclusion,—for we know that tendon-phenomena may be affected by cerebral conditions apart from organic spinal disease (thus they may be exaggerated in hysteria temporarily exaggerated or diminished after epileptic fits, or even permanently annulled in cases of cerebellar tumour),—yet anatomical proof has been afforded² both of the existence of spinal sclerosis in general paralysis, and of its relation to variations in the tendon-reactions.

What connection exists between the spinal and the cerebral disease is still a matter of discussion. As to the lateral sclerosis, the suggestion is obvious that it is a secondary degeneration propagated downwards from the diseased cortex cerebri. This, however, is by no means certain, and eminent authorities deny that it is so. For the posterior sclerosis such a relation cannot hold; but that some connection exists here also between the spinal and the cerebral disease is probable, both from the frequency of their coincidence in general paralysis, and from the fact that cases of long-established tabes dorsalis sometimes terminate in general paralysis. It seems not unlikely that in general paralysis with spinal disease the degeneration may attack the nervous system simultaneously at more points than one, a fact that may be seen sometimes in cases of pure and simple spinal disease.³

Certain ocular symptoms form another bond of union between this disease and tabes.⁴ One of these is optic atrophy. This was not noted in any of the above cases, though a patient at present under observation exhibits it. The second consists of abnormality in the contraction of the pupils. Either the pupils do not contract under light, yet contract during accommodation (reflex irido-plegia, Argyll-Robertson phenomenon, as in Case VII.), or there is failure to contract under either condition

¹ Mickle: "The Knee-Jerk in General Paralysis," *Journal of Mental Science*, xxviii. 342. Bentley: "A Study of the Deep Reflexes in General Paralysis," *Brain*, No. 29.

² Savage: "Cases of General Paralysis, with Lateral Sclerosis of the Spinal Cord," *Journal of Mental Science*, xxx. 57. Zacher: "Ueber den sogenannten spastischen Symptomen complex bei der progressiven Paralyse," *Arch. für Psychiatrie, &c.*, xv. 359.

³ See *Brain*, No. 29, "Combined Lateral and Posterior Sclerosis."

⁴ *Brain*, Nos. 25 and 26, "The Condition of the Fundus Oculi in Insane Individuals," by Drs. Wilesworth and Bickerton; and *Transactions of Ophthalmological Society*, 1883, Papers by Drs. Gowers, Bevan Lewis, and Lawford.

(Cases IV. and IX.) In Case VI. there was reflex irido-plegia in one eye only. In only one instance (Case IX.) were the pupils unequal.

Turning from the eye to the ear,¹ there was extreme deafness twice (Cases II. and VII.), and less marked deafness twice (Cases IX. and X.) Sometimes it was due probably to middle ear disease (Case VII.); once at least it was probably of central origin (Case X.); for the patient had epileptiform fits associated with noise in the head on the side of the deafness, and the hearing power through the bone as well as through the meatus was diminished. In this, as in one of the extremely deaf cases (Case II.), there was severe pain in the head.

It is important to notice the occurrence of certain transient cerebral disorders. Thus one patient (Case III.) came complaining that regularly every month he had a mild attack of right hemiplegia with aphasia. Another (Case X.) had epileptiform fits several years before he had to go to an asylum. In almost all the cases there were attacks of some kind, paralytic or epileptiform. Such incidents are well known to occur, both in general paralysis (of which, indeed, a "congestive form" has been described), and in other chronic nervous diseases, such as insular sclerosis. To the importance of these, and of other early symptoms, Dr. Sutherland has recently drawn attention,² and he aptly compares them, from the prognostic point of view, to the rigor of an acute disease; we know thereby that mischief is afloat, but for positive diagnosis we must wait upon events. Only in the case of the disease we are considering, the interval of waiting may be long, and may possibly be precious for preventive treatment. For while the hesitation of speech and the tremor of the lips and tongue are usually the first diagnostic sign of general paralysis, they are also said to be a sign of fatal omen. Might we not discover, among earlier and less definite symptoms, something which may yet be sufficient to give us more timely warning?

¹ Dr. Clouston mentions (*Mental Diseases*, p. 365) a case in which he thinks the disease was propagated upwards from the internal ear.

² *Lancet*, August 22, 1885, "On the True First Stage of General Paralysis."

N O T E

ON

TUBERCULOUS TUMOURS OF THE LARYNX.

BY

PERCY KIDD, M.D.

In vol. xvii. of the Clinical Society's Transactions I gave an account of a case of tuberculous tumours of the larynx.

I then stated my belief that only one other case of this disease had been recorded, viz., by Professor Schnitzler in the Wiener medicinische Presse, 8th April 1883.

Since my paper was written, Dr. John N. Mackenzie of Baltimore has conclusively proved, to my mind at least, that he was the first to describe tuberculous tumours of the air-passages. It is true, as Professor Schnitzler says, that Dr. Mackenzie made his diagnosis on the dead subject only, but that does not alter the fact that Dr. Mackenzie was the first to draw attention to this rare form of laryngeal tuberculosis.

Professor Schnitzler may justly claim priority in the diagnosis of these tumours during life.

I may remark in passing, that when my first case came before me, I was quite unaware of the existence of such a form of tumour, and I failed to make a correct diagnosis during the life of the patient. Before I proceed to give a description of three more instances of this disease that I have met with, it may be well, considering the rarity of the affection, to give a brief abstract of the cases that have been hitherto published.

- I.—By Dr. John N. Mackenzie, *Archives of Medicine*, vol. viii. p. 109. *Post-mortem examination by Dr. Hans Chiari, Rudolf Hospital, Vienna, on a male who died of carcinoma of the stomach, with secondary nodules in liver, kidneys, spleen, and other organs.*

Lungs contained tubercular cavities. Pharynx, larynx, and trachea free from inflammation or ulceration. Bronchial glands caseous.

In the trachea, $1\frac{1}{2}$ cm. above the bifurcation, a circumscribed, smooth, hard tumour, of the size of a bean, was seen springing from the membranous or posterior wall.

The tumour was covered by mucous membrane. A similar nodule in the pericardium.

The specimens were handed over to Dr. Mackenzie for microscopical examination.

All the growths were carcinomatous with the exception of those in the trachea and pericardium. These proved to be composed of aggregations of miliary tubercles in various stages.

- II.—By Dr. John N. Mackenzie, *Archives of Medicine*, vol. viii. p. 110. *Post-mortem examination by Dr. Hans Chiari, Rudolf Hospital, Vienna, on a patient who died outside the hospital, of pulmonary phthisis.*

The whole upper compartment of the larynx, including the epiglottis, aryepiglottic folds, and ventricular bands, presented a remarkable granular appearance, due to the presence of small, uniformly smooth, firm, nodular growths, which lay beneath the mucous membrane.

The nodules were about the size of a split pea, each merging into its neighbours, so as to form one continuous growth.

This process ceased abruptly at the free border of the ventricular band. No trace of ulceration in pharynx, larynx, or trachea. There was also pulmonary phthisis, tubercular ulceration of the intestine, and tubercular meningitis. The laryngeal growth was examined microscopically, and found to consist of closely aggregated miliary tubercles, resembling the growth on the trachea of the previous case.

- III.—By Professor Schnitzler, *Wiener medicinische Presse*, 8th April 1883 (preliminary account), and *ibid.*, Nos. 44 and 46.

A young man consulted him suffering from cough, hoarseness, and urgent dyspnoea.

The patient, who was the subject of pulmonary phthisis, presented the following condition of larynx:—Multiple tumours, in size from a bean to a hazel-nut, were seen projecting into the cavity of the larynx, and springing from the ventricles of Morgagni. After a preliminary tracheotomy, Schnitzler removed all the growths with the guillotine. The tumours proved to be conglomerations of miliary tubercles, which confirmed Schnitzler's original diagnosis of the tuberculous nature of the growths.

The patient was greatly relieved by the operation, but the tracheotomy tube was not removed for three months.

Recurrence of the growth took place three months later. Again tracheotomy was performed, and the larynx was catheterised.

The canula was removed a year later. When last seen, the patient had greatly improved; he could breathe freely, and spoke in a thick but audible voice.

IV.—*By the Writer, Clinical Society's Transactions,*
vol. xvii. p. 154.

A male, aged 50, with this history:—Winter cough for two years. The last eight months, increase of cough, hoarseness, and shortness of breath.

Physical signs of consolidation of the upper lobe of the left lung. In the larynx a pea-sized, smooth, rounded tumour in the position of the left "processus vocalis," but no ulceration or other disease. Gradual appearance of a symmetrical tumour on the right side, and development of marked signs of pulmonary phthisis. The tumours persisted without undergoing any ulceration till death, which occurred about eight months after the patient was first seen.

Post-mortem examination revealed pulmonary phthisis, tubercular ulceration of larynx, trachea, and intestine; arterio-sclerosis; granular kidney; fatty liver.

Larynx.—Epiglottis and aryepiglottic folds pale and swollen, but not ulcerated.

Extensive ulceration of posterior wall, extending into subglottic region. Vocal cords not ulcerated, but in the position of the "processus vocalis," on either side, a firm spherical tumour the size of a pea; surface not ulcerated.

The tumours were apparently attached to the cords, but really only lay upon them, their point of origin being the angles between the arytenoid cartilages and the interarytenoid fold. Microscopical examination showed that the tumours consisted

of aggregations of miliary tubercles, covered by laminated epithelium.

Tubercle bacilli were present in great abundance in the tubercles.

V.—*By Professor Schnitzler, Wiener medicinische Presse,*
Nos. 44 and 46.

A medical man, aged 40, suffering from pulmonary phthisis. Schnitzler found the larynx healthy, but in the upper part of the trachea there was a greyish-white tumour the size of a hazel-nut springing from the posterior wall. Tracheotomy was performed, but the patient sank. No autopsy mentioned.

VI.—*By Professor Schnitzler, Wiener medicinische Presse,*
Nos. 44 and 46.

An out-patient suffering from advanced pulmonary phthisis. In the larynx there were several tumours, varying in size from a bean to a hazel-nut, springing from the ventricles of Morgagni, with numerous miliary nodules around, but no ulceration. No further details given.

I wish now to describe three other cases of this rare affection which have come under my observation. I beg to thank Dr. Symes Thompson and Dr. Reginald Thompson for their permission to make use of their cases.

CASE I.

John E., æt. 37, a groom, admitted into the Brompton Hospital under Dr. Symes Thompson, 12th December 1883. Family history unimportant. At the age of 17 the patient had gonorrhœa and a venereal sore, but never suffered from any secondary symptoms of syphilis. Nine years ago he had stricture of the urethra, for which he was treated with bougies. The present illness began rather more than a year ago with cough and expectoration.

A few months later hoarseness and dysphagia developed, and these symptoms have persisted ever since.

On admission he was completely aphonic, and complained of severe dysphagia (worse for solids than liquids), cough, and expectoration.

There were physical signs of phthisis in both lungs, most marked at the right apex, where there was evidence of excava-

tion. I was asked by Dr. Thompson to examine his throat, and found the following condition:—On the posterior wall of the pharynx, just to the right of the middle line, there was a circular ulcer as big as a sixpenny-piece, with slightly raised edges and yellowish base, and also a small lenticular ulcer on the right posterior pillar of the fauces.

On laryngoscopic examination, I found partial destruction of the tip of the epiglottis, with ulceration of its edges. Both glosso-epiglottic folds were superficially ulcerated, and there was swelling and ulceration of the left ventricular band and interarytenoid fold. The aryepiglottic folds were slightly swollen, and, like the rest of the larynx, were rather pale.

On the upper surface of the middle of the right aryepiglottic fold there was a distinct tumour, of the size and shape of a small cherry. The tumour was sessile, its surface was smooth, of a yellowish-white colour, and was studded with numerous bright red points.

The vocal cords were not ulcerated.

From my previous experience, I had no doubt that this tumour was tuberculous, and that the ulceration of the larynx and pharynx was of a similar nature.

In sufflations of morphia and iodoform were ordered, and greatly relieved the patient's dysphagia.

A fortnight after my first examination, I found that the laryngeal tumour had undergone slight crumbling ulceration at various points, and presented a worm-eaten appearance. Unfortunately the patient now left the hospital, and I was unable to watch the course of events any farther. I heard, however, that he died at his home in the country soon afterwards. I think there can be little doubt as to the tuberculous nature of the tumour, from the general character of the laryngeal and pharyngeal disease, the appearance of the tumour itself, and the slow ulcerative changes which it underwent.

CASE II.

Frederick J., æt. 32, clerk, admitted under the care of Dr. Reginald Thompson into the Brompton Hospital, 5th November 1883.

No family history of any special disease. The patient had a venereal sore and a urethral discharge five years ago, and about the same time he had a slight sore throat. No other secondary symptoms.

Present illness began fourteen months ago with cough, expectoration, and hoarseness. A month before admission he lost his

voice. Physical examination revealed signs of phthisis on both sides, with excavation at both apices.

Liver much enlarged.

Pharynx.—A large, circular, rather shallow ulcer, with only slightly raised edges on the posterior wall, and a small patch of irregular ulceration at the base of the tongue.

Larynx.—Ulceration at the posterior extremities of both vocal cords.

It was thought that the pharyngeal ulceration might be of a syphilitic character, and he was treated accordingly, but with no good result. Dr. Reginald Thompson asked me to examine the patient, which I did some weeks after he was admitted. I found the pharynx and larynx in the condition described above, which seemed to me to be tuberculous in both instances. I examined the patient on several occasions subsequently. The ulceration of the pharynx made scarcely any progress, but the laryngeal disease slowly advanced, and ultimately invaded the greater part of the larynx.

The last time I examined him laryngoscopically, about four or five weeks before death, there was no appearance of anything like a tumour. Troublesome diarrhoea set in, and he gradually sank and died, 1st March 1884.

For some time he did not appear to suffer as much pain in swallowing as might have been expected, but during the latter part of his days the pain became so severe that he took very little food. Applications of morphia and iodoform to the pharynx relieved him a little.

At the autopsy the pharynx presented a large circular ulcer as big as a florin on its posterior wall. The edges of the ulcer were slightly thickened, and in its base was some scar-tissue. Near it were two other smaller ulcers of a similar character, one of them on the left tonsil. There were also numerous small nodules in the mucous membrane, many of which showed a minute central point of ulceration. There was also some slight superficial ulceration of the root of the tongue.

The epiglottis was unaffected.

Both aryepiglottic folds were extensively ulcerated. The interarytenoid fold was much thickened and ulcerated, the cricoid cartilage being exposed and bare in one spot.

The ulceration had destroyed both vocal cords and ventricular bands, and no trace of the arytenoid cartilages remained.

At the outer aspect of the posterior wall, on the left side, there was a small greyish-pink rounded tumour, as big as a small pea, springing from the interarytenoid fold.

Trachea and bronchi reddened, but free from ulceration.

Both lungs contained small puckered apex-cavities, and in places were emphysematous and studded with miliary tubercles.

The liver, spleen, and kidneys were amyloid, and there was tubercular ulceration of the intestine.

Microscopical examination of the pharyngeal ulcers and of the tumour of the larynx.—The ulcers proved to be of a well-marked tuberculous nature, with miliary tubercles in their edges and base. Most of the tubercles were rather old and fibro-caseous. The earlier ones contained a fair number of "tubercle bacilli." In the older ones no bacilli were found.

The laryngeal tumour consisted of groups of miliary tubercles, in which were numerous tubercle bacilli. The tumour was covered by laminated epithelium in some places, while other parts of the surface presented a finely granular necrotic appearance.

This tumour would seem to have developed during the last few weeks of the patient's life.

CASE III.

Richard L., æt. 23, a clerk, with a strong family history of phthisis, had suffered from pulmonary phthisis for two years. No details as to the condition of his throat were obtained beyond the fact that he had complained of aphonia and dysphagia for some months before his death.

Autopsy.—Pulmonary phthisis with cavities in both lungs. Tubercular ulceration of the intestine. Fatty liver.

The larynx presented the following appearance:—There was considerable destruction of the epiglottis, its edges and base being ulcerated, and the cartilage exposed in places.

The lateral and posterior walls were also ulcerated. The vocal cords were replaced by reddish ridges running forwards and downwards from the arytenoid cartilages to a point in the anterior angle of the thyroid cartilage situated below the normal insertion of the cords.

The ventricles, which in consequence appeared abnormally large, presented a granular ulcerated surface with traces of scar-formation.

The ventricular bands were comparatively little ulcerated.

In the anterior extremity of the ventricles on either side there was a tumour of the size and shape of a small bean, springing from the under surface of the ventricular band and lying with its long axis parallel to it. The surface of the tumours was smooth.

Trachea and bronchi infected, but free from ulceration.

One of the tumours was examined microscopically, and found to consist of a tuberculous growth in the mucous membrane, extending from the surface down to the mucous glands.

The main features of the growth were a small-celled infiltration, through which were scattered numerous microscopical tubercles containing giant cells, and irregular tracts of large epithelioid cells.

In most places the surface presented a granular necrotic appearance, but towards its edges the tumour was covered by normal laminated epithelium.

Tubercle bacilli were found in considerable numbers in the giant cells and among the epithelioid cells.

A review of the nine cases of tuberculous tumours of the air-passages that have now been recorded yields these facts:—

In three cases there was a single tumour; in two cases there were two tumours; in the remaining three cases they were described as numerous. In every case their surface was smooth and their shape rounded. Their size varied from a pea to a hazel-nut or a small cherry. In five cases they were unaccompanied by ulceration; in one case the development of the tumours was followed by ulceration after some time, and in three instances they were associated with ulceration when first observed.

Their situation was as follows:—Ventricles in three cases; whole upper part of larynx in one case; interarytenoid fold in two cases; aryepiglottic fold in one case; membranous part of trachea in two cases. Probably they may originate in any part of the larynx or trachea.

As to the advisability of removing such tumours, if the growths are large, or their situation is such as to interfere with respiration, an attempt should be made to remove them, either wholly or in part; otherwise it would probably be well to leave them alone.

ON THE
PRESENCE OF THE TUBERCLE BACILLUS IN
OLD SPECIMENS OF DISEASED LUNG.

BY

VINCENT D. HARRIS, M.D.

The very close relationship which exists between the tubercle bacillus of Koch and the production of lung-disease is becoming day by day more apparent. The influence which Koch's researches have already had upon the pathology of lung-diseases has been undeniably very great. Not a few believe that the influence will be farther exerted at some future time, not only upon the pathology, but also upon the treatment of the various tubercular processes in the lungs. The question as to whether the presence of a specific micro-organism in the lesions of phthisis, as well as in the sputum and breath of phthisical patients, gives any support to the belief so generally held by the laity of the contagiousness of consumption is at present open; but I cannot help thinking that the possibility of propagating phthisis by contagion is admitted by a larger number of physicians than was formerly the case. In the discussion at one of the Societies last winter,¹ it appeared to be the opinion of nearly all the speakers that Koch's bacillus was to be found in the lesions of tuberculosis as a general rule. This discussion represented fairly well the views upon the matter held in this country at that time. I have myself examined microscopically specimens from a considerable number of cases of various kinds of lung-disease, and have almost invariably found the bacilli; but to this,

¹ Royal Medical and Chirurgical, on Dr. Percy Kidd's paper. British Medical Journal, vol. ii. (1884), p. 193.

as it is unnecessary to bring forward any further proof¹ of the general presence of the bacilli in phthisical sputum, pathological secretions, pus from cavities, and in the phthisical organs examined within a few weeks or days after death, I will turn to the object of this memorandum, which I think supplies some definite information upon a point not hitherto touched upon, viz., the presence of the bacilli in specimens of diseased lung which have been put up in spirit for many years.

I was induced to direct my attention to this point from the fact that one day coming across a specimen of tubercular disease of the lung which I had put up some time before at the Victoria Park Hospital, it struck me that it would be an interesting point to ascertain whether the diseased tissue exhibited the bacillus of Koch. Having discovered in the specimen examined large numbers of bacilli, I determined to examine, if possible, museum specimens with the same object in view. Permission to go over all the specimens of diseased lung in the Museum of St. Bartholomew's Hospital was courteously given me by the curator, Mr. D'Arcy Power, with all the more willingness because many of them required remounting, and I proceeded to examine about a dozen of the oldest and most typical specimens. The exact date at which these specimens were added to our Museum cannot be accurately given; nearly all of those I examined were contributed to the Museum previous to the year 1846, and several of them were presented by Dr. Farre, sen., who was, I am told, engaged in the work of putting them up about the year 1812. Nearly all the specimens examined, therefore, were about forty years old, several in all probability no less than seventy. My search for the bacilli in these specimens was in almost all cases successful; but I will give a short description of each specimen, and will add any remarks about it as I go on. (The description of the specimens is partly derived from the last edition of the Catalogue.)

SPECIMEN I.—A case in which the lung was generally indurated, cutting with a cartilaginous section, with thick streaks of fibrous tissue interlacing, visible to the naked eye, and very plain with a low power of the microscope. On section, the tissue showed small masses of caseous material, more or less rounded, surrounded by excessive fibrous tissue (about fourteen or fifteen to the twelve mm. square). The lung-tissue was nowhere to be seen unaffected in the part examined. This must have been an

¹ References to the numerous researches in proof will be found in MM. Cornil and Babes' work, "*Les Bacteries*," Paris, 1885; also in Drs. Woodhead and Hare's "*Practical Mycology*," vol. i. p. 161 *et seq.*, p. 577 *et seq.*

excessively chronic and fibroid phthisis, but with little pigmentation. In all of these sections there were a very large number of bacilli, which appeared generally in clumps or clusters, arranged much like the bacilli of bovine tuberculosis (*Perlsucht*), which seem to be, as Klein¹ has pointed out, smaller and with a most definite relation to the cells (especially to the giant cells) than is the case with human tuberculosis. The bacilli in this specimen were nearly all small.

SPECIMEN II.—This was a section of lung in which there were large irregular masses of tubercular matter infiltrated in its tissue. The whole specimen was solid, and the pleura very thick throughout. The lung substance remained only here and there, the alveoli being quite filled with debris. The tubercular masses, caseous. The whole tissue was very extensively infiltrated with bacilli, which here were in long zooglear masses in many places. This might be taken as an example of lobulated tubercular caseation.

SPECIMEN III.—From a section of lung the tissue of which was quite solid, heavy, and of a pale yellowish-white colour from uniform infiltration of tubercular matter. The pleural surface was covered by a thin layer of tough false membrane with small tubercles scattered in it. On microscopical examination the sections taken showed a very large number of bacilli everywhere, both in clumps here and there, and also distributed throughout its tissue. Very little of the lung substance remaining. The caseous masses were surrounded, *i.e.*, encapsuled, by fibrous tissue. The thickened pleura presented a considerable number of bacilli. This was another case of lobulated tubercular caseation. No isolated tubercles in the tissue or giant cells.

SPECIMEN IV.—From a more recent specimen. It was from a case of acute tuberculosis. The very small tubercles were as a rule isolated. The bacilli occurred here and there in clumps in the breaking down caseous debris of some of the tubercles.

SPECIMEN V.—From a portion of a lung exhibiting an extensive destruction of its substance consequent on the formation and progress of tubercle. The walls of the large cavity, which occupied more than half the lung, were composed of pulmonary tissue, indurated and infiltrated with tubercular matter, and rendered very irregular by the projection of numerous large branches of the blood-vessels, which were not involved in the destruction of the adjacent parts. The pleura was thickened, and

¹ Micro-Organisms and Disease, p. 125.

has a soft false membrane on its surface. The tissue was rotten and very difficult to cut, but in the pieces of sections a very large number of bacilli were discovered. The lung-tissue in places was but little affected, but even in the alveoli epithelial debris and many bacilli were found. Evidently a very chronic case, and fibroid.

SPECIMEN VI.—Lung in the upper part of which are numerous miliary tubercles, arranged for the most part in groups, and in the lower part are several irregular cavities surrounded by similar tubercles and by tubercular matter. On section the material proved to be exceedingly rotten and difficult to cut, especially in the neighbourhood of the cavities. In spite of this, in carefully stained specimens bacilli were copiously found, chiefly in the fibrous tissue surrounding the cavities.

SPECIMEN VII.—From a portion of lung with small tubercles scattered through its substance. The lung had been minutely injected, but the injection had not penetrated the tubercles. A small but distinct number of bacilli; but the specimens were necessarily much spoiled in consequence of the opaque injection used.

SPECIMEN VIII.—A specimen of acute tuberculosis, very similar to Specimen IV., but the bacilli much less numerous. This was a more recent addition to the Museum.

SPECIMEN IX.—A very old specimen of Dr. J. R. Farre's. The lungs injected. Their tissues and subpleural surfaces covered with tubercles, and the bronchial gland enlarged and indurated. I could not satisfy myself that there were any bacilli present in the lungs which were affected with isolated tubercles, but in the corresponding enlarged bronchial glands in the superficial lymph path were a number of bacilli closely resembling the tubercle bacilli of Koch.

SPECIMEN X.—From a portion of lung with small masses of tubercular matter very thickly deposited in its substance. They have an opaque yellowish colour, and many of them showing minute cavities at their centre. On examination, the specimen showed a considerable number of bacilli, but in addition to the large bacilli are zooglear masses of much smaller bacilli or micrococci.

The above description applies to ten of the specimens examined. In two others, also derived from the same source, I

have not yet been able to find satisfactory proof of the presence of any micro-organisms, but further examination may yet afford it. In several cases it was only after repeated attempts that it was possible to stain the bacilli and so render them evident; many methods had therefore to be tried before success was attained. In these specimens there is no doubt but that the bacilli resisted the ordinary methods of staining, probably from their long-continued immersion in spirit; and not only was this the case, but also the staining was much less permanent than in recent sections of diseased lung.

The staining which was found to be most successful was the Ehrlich-Wergert method. Thin sections were placed, about half-a-dozen at a time, in a slightly diluted solution of fuchsine, made according to a slight modification of Ehrlich's formula, and kept in small glass jars protected from the air by greased covers for from two to three days. They were afterwards washed for about a minute in diluted nitric acid (1 in 3) and then in water. After this they were ready for the contrast stain of methylen blue (or vesuvine), dehydrated quickly, transferred to cedarwood oil to clear, and mounted in Canada balsam dissolved in cedar oil. (This answers quite as well as turpentine.) In the examination of the tissues, I have found Leitz one-twelfth oil immersion of great service, and quite sufficient for the purpose.

It will be seen that the bacilli were observed in three of the chief forms of wasting lung-disease, viz.:—(1.) In isolated or miliary tubercles. (2.) In caseous masses. (3.) In fibroid thickenings as well as in thickened pleuræ. The finding of the bacilli in a single case of sufficiently old diseased lung would be enough, one would suppose, to render it very probable that the relationship between the bacilli and the diseased processes of tubercle is no new one, or, in other words, that bacillar phthisis is no new disease.

The foregoing account must be considered only as a preliminary communication upon the subject, and as concerning chiefly our Museum specimens. I have, however, in hand other specimens, some of which, by the great courtesy of Professor Stewart and Mr. Eve, I have obtained from the Hunterian Museum. Of these I propose to publish a further account.

PROFUSE NON-FATAL PULMONARY HÆMOPTYSIS.

BY

SAMUEL WEST, M.D.

Hæmoptysis may be due to lesions in the trachea, bronchi, or lung tissue, and may be accordingly spoken of as tracheal, bronchial, and pulmonary. Profuse hæmorrhage from the trachea or larger bronchi is, with but few exceptions, the result of disease external to them, such as aneurysm of one of the main arteries. Pulmonary hæmoptysis is the result of pathological change in the lung tissue and the pulmonary vessels. The rare cases in which an aneurysm of some vessel other than the pulmonary bursts through the lung is, by ordinary usage, not included under this term. The pathology of fatal pulmonary hæmoptysis is, I think, now well established. The lesion is found to be a ruptured aneurysm or ulceration of a branch of the pulmonary artery. I propose to consider in this paper whether there be not good ground for believing that profuse non-fatal pulmonary hæmoptysis has the same pathology.¹

The facts established about fatal pulmonary hæmoptysis are briefly these:—

1. It may occur at any age. There is no period of life which is specially liable, nor any which is exempt.

¹ The analogy of the stomach renders it conceivable that hæmorrhage severe enough to be called profuse might take place from the bronchi without any lesion in them gross enough to be detected post-mortem; for there are cases of fatal hæmatemesis in which the source of the hæmorrhage is not to be discovered. But if this ever occurs, it must be very rare, and need hardly be more than mentioned.

2. Men suffer more frequently than women, in the proportion of about 3 to 1. Possibly the greater frequency of chronic phthisis in men may account in part for this.

3. Chronic phthisis is the predisposing condition of the lung.

4. Rupture of an aneurysm or ulcerated vessel is the immediate cause.

5. There is, I believe, no case of fatal hæmoptysis recorded in which the post-mortem examination disclosed the lesions of acute phthisis.

6. Diligent search will rarely fail to discover the source of the hæmorrhage, and, considering the difficulties, occasional failure is hardly matter for surprise.

7. In the great majority of cases the hæmorrhage is due to the rupture of the sac of an aneurysm of the pulmonary artery. In the small minority it is traced to ulceration of a branch of the pulmonary artery, or possibly, in some very rare cases, of the pulmonary vein.

8. Of *pulmonary aneurysms* the facts known are these:—

a. They are of small size, rarely larger than a Morella cherry, often much smaller.

b. They always occur in chronic cavities, which they may sometimes completely, but more often only partially fill.

c. They spring either from a prominent trabecula situated upon the walls of the cavity or as it crosses it, or else directly from the walls of the cavity itself.

d. They are, as a rule, globular in shape, but not unfrequently irregularly punched and attached to the vessel by a broad base.

A distinction has been made between aneurysms and ectasias or partial dilatations, but the difference is only one of degree.

e. They are often surrounded by laminated clot, so that their size becomes deceptive.

f. Frequently also they contain laminated clot, though this has been denied.

g. The vessel from which they arise is generally of moderate size, 2 to 3 lines in diameter. They are, however, often situated close to the origin of this vessel from one of the main branches of the artery.

h. The rupture varies much in size; sometimes it is a linear slit, more often an irregular rent, and sometimes nearly the whole sac of the aneurysm is torn off; so that the difficulties of diagnosis from an ulcerated vessel become very great.

i. They are frequently single, but many cases are recorded in which more than one existed, and in a few cases they have been numerous.

j. The cause of aneurysm is to be referred in the first place

to chronic changes set up in the walls of the vessel by extension from the walls of the cavity, and secondarily to want of support on the side towards the cavity, as well as to partial obliteration of the distal portion of the vessel.

k. The cavities in which aneurysms are found are always chronic, with fibroid and usually trabeculated walls.

They may be of any size and occupy any position in the lung, but they are more frequently small, and their favourite position is in the mid-lateral region peripherally.

They are sometimes completely, but more commonly only partially, filled with the aneurysmal sac; and frequently contain clot, which may be decolourised and laminated.

They may sometimes be so small, and the pulmonary disease so limited, that diagnosis of the lesion during life may be from physical signs alone almost impossible.

9. *Ulceration or erosion of vessels* is a much less common cause of fatal hæmoptysis than aneurysm.

It occurs, however, under similar conditions. Usually it is the pulmonary artery which is affected, but on one occasion I have found the rupture in a branch of the pulmonary vein.

It is conceivable that ulceration might lead to fatal hæmorrhage in acute phthisis, but I do not know of any post-mortem of this kind recorded; for the vessels, though of course early and considerably involved in the disease, become quickly plugged and impervious.

In order to establish the identity of pathology in the fatal and non-fatal forms it will be necessary to show:—

1. That, except in respect of the result, there is no clinical difference between the two sets of cases; and

2. That aneurysm and ulceration of the pulmonary vessels, whether after rupture or not, may heal.

Of the fatal cases there are two groups. In the first, death is sudden, and to this the name of *Suffocative Hæmoptysis* has been well given, for the patients die after a few minutes, suffocated by the blood poured into their air-tubes. In the second, the hæmorrhage occurs again and again, and death is the result of exhaustion from loss of blood; but even in this group death may be sudden at the last, though it is then due not so often to suffocation as to cardiac syncope. To this second group the name of *Remittent Hæmoptysis* has been given—an appropriate name if used, in the sense in which it is applied to fevers, to mean a hæmorrhage which recurs before the previous one has completely ceased. But all remittent hæmoptysis is not fatal, and from this group of non-fatal remittent hæmoptysis we pass to another class, which may on the same analogy receive

the name of *Intermittent Hæmoptysis*, but which differs from the previous group only in the longer intervals between the attacks and in the complete recovery meanwhile, so that we may trace clinically every gradation, from a single non-fatal profuse attack through a non-fatal intermittent and a non-fatal remittent to the fatal remittent, and finally to the single suffocative hæmoptysis.

I omit entirely for the present the consideration of hæmoptysis which does not deserve the name of profuse. For here we have to deal with a more obscure and difficult pathology, though I cannot help thinking that the process and the lesions are in all probability the same.

I now proceed to bring forward the clinical series of cases, which will, I think, establish the first of my propositions, viz., that the cases of profuse hæmoptysis, whether fatal or not, all belong to the same clinical family.

CASE I.

Remittent hæmoptysis—Short duration—Death from suffocation—Ruptured aneurysm.

John R., aged 38, ill two years, admitted with very extensive excavation of the left lung. After he had been in the hospital for five weeks, he was seized with profuse hæmoptysis, and spat daily for six days about a pint of blood. On the seventh day he died suddenly in a more profuse attack than usual.

The post-mortem showed that the left lung was completely excavated, a few coarse ridges only remaining at the root over the course of the great vessels and bronchi. Upon one of them was a ruptured aneurysm as large as a cherry.¹

CASE II.

Remittent hæmoptysis—Long duration—Death from suffocation—Large ruptured aneurysm.

George G., aged 21, a labourer, was admitted for hæmoptysis.² He had had a cough for about fifteen months, and had occasionally spat up a little blood, but never much. A few days before admission, hæmoptysis began again, and rapidly became severe. The patient was in the hospital forty-five days, and spat up on the average half a pint of blood daily, at first regularly every day, but towards the last, two or three days at a time passed without

¹ Pathological Society's Transactions, vol. iii. p. 25.

² Ibid., vol. xxxv. p. 94.

hæmoptysis. In the last attack he brought up 37 ounces, and died of suffocation.

The post-mortem examination disclosed but little change in the left lung, but the right was adherent, except the lower part, where there was a localised empyema, containing about one pint of pus. The upper wall of this cavity was formed by the collapsed lower lobe of the lung, in the mid-lateral region of which was an irregular cavity about two inches in diameter, filled for the most part with laminated clot. Occupying the upper part of the cavity was an aneurysm, oval in shape, and measuring $1\frac{1}{4}$ " by $\frac{3}{4}$ ". The rupture was a small linear slit, one eighth of an inch long.

CASE III.

Remittent hæmoptysis—Death from exhaustion—Aneurysm—Limited lung lesion.

A man aged 45, had been in good health and in active work until fourteen days before admission, when, after running some distance, he was seized with hæmoptysis, which since that time had returned on the slightest exertion. In the hospital he had several attacks of profuse and obstinate hæmoptysis, and finally died of exhaustion.

Both the lungs were emphysematous, and in other respects healthy, except that in the left, in the upper part of the lower lobe, two small old cavities with fibroid walls were found, and in one of these a ruptured aneurysm the size of a cherry.

This case is important, as showing how very limited the disease may be, and how difficult, and perhaps impossible, it may sometimes be to diagnose it.

The next case illustrates these facts again.

CASE IV.

Remittent hæmoptysis—Death from suffocation—Limited lung lesion.

A woman aged 46 was brought in dead, having been found lying in a pool of blood.¹ She had been, it transpired, an out-patient for a few days for slight hæmoptysis, but until this attack she had been, though never strong, in her usual health. She was the mother of twelve children.

Both lungs were healthy except in two places. At the apex of the right lung was a small wedge-shaped patch of fibroid induration, containing several small bronchi-ectatic cavities with

¹ Pathological Society's Transactions, 1878, p. 41.

dense fibroid pigmented walls. In the base of the lung was a second patch of similar induration with similar cavities, and in the largest of these, the size of a walnut, was the aneurysm which had ruptured.

I desire to draw especial attention to these cases, as showing how limited the lung-disease may be.

The last case especially suffered from only slight hæmoptysis, such as would ordinarily give no anxiety, until the sudden fatal hæmorrhage occurred. This is very suggestive as to the pathology even of slight hæmoptysis.

The cases which belong to the third group, that of remittent hæmoptysis with recovery, are common, and I need only select one or two as illustrations.

CASE V.

Remittent hæmoptysis—Long duration—Recovery.

Maurence N., aged 32, with no family history of phthisis, had slight pleurisy at 20, and since then had suffered occasionally from cough. He spat blood for the first time four years before admission, in slight amount only. In the second attack, one and a half years later, he brought up a pint of blood on one day, and small quantities for about a week. The third attack came on three months before admission. It was very profuse, and he was laid up for a month. On December 21 he had another attack, and expectorated a pint of blood. On the 24th and 25th he drank a good deal, and spat blood every day since in varying amount. After his admission the bleeding rapidly subsided, and after a fortnight he was discharged. A week later he was readmitted with hæmoptysis. On the 14th of January he spat about 6 ounces; on the 15th about 10 ounces; on the 16th, 6 ounces; on the 17th, 13 ounces. A little only on each succeeding day until the 21st, when he again brought up 10 ounces. The bleeding then gradually subsided, and he was free until February 4, when a few ounces more were brought up, and a little spat for a few days longer. On February 14 the patient had another slight attack, lasting also a few days, and on March 20 he was discharged.

The physical signs were very indefinite, but there was some crepitation in the region of the right nipple.

The fourth and last group consists of cases of intermittent hæmoptysis.

It is quite unnecessary to bring forward cases of intermittent

hæmoptysis which did not die of hæmorrhage. All the cases last referred to would serve as illustrations prior to the last fatal attack.

The series of cases of profuse hæmoptysis is as follows :—

1. Cases of single suffocative hæmoptysis.
2. Cases of remittent hæmoptysis which were fatal—
 - (a) From suffocation.
 - (β) From exhaustion.
3. Cases of remittent hæmoptysis which recovered.
4. Cases of intermittent hæmoptysis which, after several attacks, ended at last fatally from hæmoptysis.
5. Similar cases to the last, which recovered.

In all the fatal cases above referred to the same pathological lesion was discovered post-mortem.

I turn now to the second proposition.

If the pathology of the fatal and non-fatal forms of hæmoptysis be the same, we require evidence that aneurysm and ulcerated vessels, to the rupture of which the hæmorrhage is in both cases attributed, may heal.

I will take the question of aneurysms first. Several of the cases described show the presence in the aneurysm of laminated clot, and disprove therefore the assertion of Rasmussen that laminated clot is never found in pulmonary aneurysms.

In two cases the aneurysm was embedded in laminated clot.

Partial adhesions also often form between the sac of the aneurysm and the walls of the cavity. When the cavity is small and the aneurysm completely fills it, as it often does, complete adhesion may take place, and in this way the sac may obtain adventitious strength. In one case of this kind rupture took place in the only unprotected part, viz., at the mouth of a bronchus.

It may be objected, however, that if pulmonary aneurysms did heal in this way, they ought to be frequently found post-mortem. It is quite true that not many cases of this kind are described, but the explanation is, I think, simple; for, in the first place, they are hardly ever looked for, except when hæmoptysis has been a leading recent symptom, and the difficulties of finding them are much increased when there is no blood-clot to guide the search.

Dr. Percy Kidd has recently published a remarkable case in which many aneurysms were found in each lung, each in a little cavity of its own, and each lined with tough laminated clot. Death was due to hæmorrhage from one of them.

Many of the "fibroid masses," so frequently described in phthisis as existing on or in the walls of cavities, and of which

no satisfactory pathological explanation is often given, will, I believe, prove to be, on careful examination, obliterated aneurysms. On this point further evidence may be confidently awaited.

The cure of ulcerated vessels admits of clearer proof. Though rarely a cause of fatal hæmoptysis, ulceration is, I believe, a very common cause of profuse hæmoptysis. From the very earliest commencement of excavation in the lung there is an active destruction of vessels. That hæmoptysis is not constant in every case alike, and that profuse hæmoptysis is not more common, depends upon the obliteration of vessels, which is almost part of the disease.

As with vessels in other parts of the body, the more acute the disease in their neighbourhood, the more certain, if they become involved in the process, is their rapid obliteration. It is only in connection with the more chronic processes that they are likely to remain pervious, and so lead to hæmorrhage. The most cursory examination of phthisical cavities establishes the applicability of these facts to the pathology of the lungs.

Though possible, it is extremely improbable that profuse hæmorrhage should occur in acute phthisis. Many of the cases of phthisis ab hæmoptœ, if not of all, where profuse hæmoptysis is the first symptom of a disease which afterwards runs an acute course, are, I believe, not cases of new disease, but of old disease starting afresh. Instances of severe bleeding into the lungs is so common from various causes with complete recovery as to prove beyond question that it is not the blood which produces the disease, but something, it may be, which the blood brings with it. This something will be, according to modern views, the infective tubercle bacillus, and the present germ theory of phthisis is in some degree evidence against the existence of such a variety of the disease as the classical hæmoptoic phthisis.

From these considerations we should *a priori* expect that profuse hæmorrhage, in tubercular phthisis at any rate, could only occur in chronic disease; for aneurysms take some time to grow, and ulceration, if acute, leads at once to thrombosis; and further, that aneurysm will be a far commoner lesion than erosion. Each of these expectations is abundantly confirmed by post-mortem examination.

The evidence brought forward is sufficient, I think, to establish the required proposition, viz., that the causes of profuse hæmoptysis are the same, whether the case be fatal or not, viz., aneurysm or erosion of a vessel; and further, that in both cases alike cure is possible, and of not uncommon occurrence. The bearing of these conclusions upon the treatment of hæmoptysis is obvious, but this subject I propose to discuss on another occasion.

FIVE CASES OF FUNCTIONAL NERVOUS DISORDER.

BY

SAMUEL WEST, M.D.

1. *Hysterical stupor with external strabismus.*
 2. *Hysterical tremors.*
 - 3, 4. *Paraplegia after shock, with "jumping movements" of body, in two boys of 10 and 12 years.*
 5. *Somnambulism after shock in girl of 13.*
-

1. *Stupor almost amounting to coma, with inequality of pupils and external strabismus.*

Alice B. was brought into the hospital on January 31st in a condition of semi-coma, with the history that she had been in her usual health until January 29th, when she complained of pains in her back and head. The catamenia were due, but did not appear. On the 30th she was worse and went to bed, and the next day she was in the condition described. Headaches and pains in the back she had suffered from from time to time previously, especially for the last few months, during which period she had become paler.

On admission she appeared unconscious, but could be roused and made to answer her name with difficulty. Other questions she answered incorrectly. She was irritable when disturbed, and relapsed at once into the same condition of stupor. There was no paralysis of extremities, nor any rigidity, though it was stated that the legs had been stiff when she was first attacked.

The sole-reflexes were feeble and the patellar tendon-reflexes absent. Ordinary sensibility was retained and the response to the prick of a pin was ready. The patient lay as if deeply asleep. The corneæ were sensitive, but the right pupil was

persistently larger than the left, and there was marked external strabismus, which varied considerably in amount from time to time. It was difficult to decide which muscle was at fault, but the squint appeared to be due to over-action (spasm) of the right external rectus.

The motions were passed in bed, apparently unconsciously, on the night after admission.

During the night she lay in the same condition, never rousing up, but taking food when offered her. The next day (February 1st), the catamenia commenced, one week behind their time. On February 2d she was less heavy, and answered questions more readily, at first inarticulately, and then by an effort articulately and correctly. In the middle of the night she suddenly sat up, asked the time, drank a large draught of milk, said she felt no pain, and then immediately afterwards sank down into her previous condition.

On February 3d there was steady and gradual improvement. On the 4th she took notice of all that was going on round her, but when observed, relapsed into her previous condition. The pupils were equal and the squint had disappeared, but now and then the right pupil became larger than the left for a time. The fundus oculi was frequently examined and no change found.

The improvement continued, and in a week's time the patient was well and was discharged.

During this time she was difficult to manage, refusing food when it was offered her by the nurse, and taking it herself directly the nurse's back was turned. Once or twice she relapsed into a state of apparent stupor, but finding no notice was taken of it, came to herself and behaved rationally.

She states herself that a year or two ago she had a similar but less severe attack, also at the catamenial period; but there is no confirmation given of this by her mother.

The pulse, respiration, urine, and temperature were normal throughout.

The case was, I think, clearly one of hysteria. It presented great clinical difficulties at first, on account of the deepness of the stupor, and especially on account of the condition of the eyes, viz., the difference in the pupils and the strabismus; but the rapid disappearance of all these symptoms and the absence of evidence of other nerve disease established the nature of the case. The attack could be attributed to no cause, unless it is correct to refer it to the delay in the appearance of the catamenia. The patient was not, so far as could be learnt, at other times especially emotional.

2. *Tremors of legs and arms, like those of paralysis agitans, with so-called fits.*

Jane F., aged 26, a cook, was admitted with tremblings of the legs and arms, resembling most the movements of paralysis agitans. It appeared that she had been subject to fits of some kind, possibly of an epileptic character, since childhood. The last fit occurred two years ago; and during this period she has at times had pain and numbness in both arms. Her health has been good and her functions regular.

In November she felt pain on the inner side of the left knee, and the thigh is stated to have swelled. She was treated for rheumatism, and kept her legs up at rest until the commencement of January, when the left leg began to take on the peculiar movements observed now. They gradually became worse until January 28th, when she fainted, and on regaining consciousness the movements affected both arms as well as the right leg. With the exception of frontal headache she has not felt pain.

The patient is fat and well nourished; expression weak and emotional.

The peculiar movements resembled those of paralysis agitans; they were rhythmic, constant while awake, ceasing on sleep; not large in extent, and not interfering with the action of the limbs; walking stopped the tremors in the legs at once, though they returned on standing still. They varied in intensity a great deal at various times, being always most marked when the patient was under observation. The electrical reaction was normal.

There was considerable bilateral anæsthesia, which varied greatly in extent and amount from time to time, and was often patchy. The legs were ischæmic; the skin bleeding but little on puncture with needles. The reflexes were diminished. Once on approaching the patient when asleep, she was found to be quite still; then a blush suffused her cheek, the movement at once recommenced, and she woke up.

The patient gradually improved, so that the movements were absent sometimes for hours together while she was up; but even then they were easily produced by observation and excitement.

She had frequent complaint of vague pains in different parts of her body; but their existence was doubtful. On February 18th marked ankle-clonus was observed, which had not been present before, and did not last for more than a day or two. On February 25th she had what was called a fainting fit, and fell out of bed, but she did herself no injury. After this she had frequent fits; on one day as many as nine in the twenty-four hours. The nurse was told to touch the cornea, to see if

it was sensitive during the fits; and on doing so, on the first opportunity, the fit at once ceased and the patient came round; and afterwards this was a certain way of checking them when they commenced. These attacks also subsided, and for a week before her discharge, on April 3d, she had had neither fits nor movements, and she left apparently recovered.

No cause to which these attacks could be referred was ascertained.

3, 4. *Two brothers affected with loss of power in legs, and peculiar jumping spasms, attributed to the shock of their mother's death.*

John Brown, aged 10, was admitted on March 3d for spasmodic movements and loss of power in his legs. The following history was given by the friends:—

This was the youngest living child, and he had been fairly strong until the death of his mother, five weeks previously. It was to this shock that his present illness is attributed.

On February 22d the child was struck, it is said, by his teacher upon the back with a ruler. On February 25th, he complained of "pins and needles" in his feet and pains in his back, and the next day the movements appeared, and have continued since. The child is stated to have been "light headed" for the last week.

The patient was a poorly nourished pale child. The expression was somewhat vacant. He was generally found sitting up in bed with his back held unusually straight. When the patient is under observation, frequently repeated rapid spasmodic jerking movements, chiefly of the extremities, are marked. They are more violent on the right side, but are well marked on both. They appear to be due to contraction of the muscle connecting the trunk with the legs rather than to contraction of the leg muscles themselves. The effect is to make the body jump, as it were. If the attention be diverted, the movements do not occur, and they are absent during sleep. The reflexes are fairly good. There is no ankle-clonus, no impairment of sensation, and no loss of power. There is a tender spot over one of the lower dorsal vertebræ, where the child says he was struck, and here there is a slight bruise.

When placed upon his feet, his legs double up under him, and he falls down in a heap; and he falls similarly if placed upon his knees. He complains of pain in the soles of his feet, but there is nothing there to be seen. The eyes were normal, and the other organs healthy.

The patient made a rapid recovery. On March 8th he could stand steadily without assistance. On the 11th the movements occurred rarely, and then only when under observation. By the 15th he was well.

The brother, Fred, aged 12, was admitted two days later, and suffering in the same way. One week after his mother's death, he too felt "pins and needles" in his feet and pains in his back, and was attacked with movements like those described in the first case, and he was quite unable to walk from the commencement. The attack commenced one week before that of the first case described here.

He too was a weakly pale child. He too doubled up when set upon his feet, and complained of pain in the soles of his feet; but no movements similar to those described were observed in his brother after admission, though they had been present up to that time.

Three days after admission he too was able to walk a little, and by the 11th had regained his power completely, and the two brothers left the hospital at the same time perfectly well.

5. Condition of somnambulism after fright.

The patient, a girl of 13, was brought to the Royal Free Hospital. She was a general servant, and had been in her usual health until two days before admission, when she was greatly frightened by some clothes catching fire in the kitchen. She seems to have given no assistance towards putting out the fire, and when it was over was found in her present condition. As she did not improve, the next day she was brought to the hospital. She was a slightly-built but fairly well-nourished girl, with no evidence of disease of any kind. When first seen, she was in bed, lying with her eyes wide open, apparently taking little or no notice of what was going on around her. She sat up slowly in bed when told to do so, and performed certain simple acts as directed. She was able to walk about without stumbling over objects in her way, but did everything in a listless way, without any apparent understanding of what she was about. Her functions were all normally performed, and food was taken when given to her without any expression of desire for it. She seemed as if she was dreaming with the eyes open or in a condition of somnambulism. At night she slept, but occasionally would rise and wander objectless through the ward, and frightened some of the patients by standing without a sound at their bedside looking at them. She suffered herself placidly to

be led back to her bed, and she never at any time had any fits of violence.

For about a week she remained in the same condition, and then began gradually to pay attention a little to what was going on around her. In another week she was able to be interested in little occupations for a short period of time, and to make herself a little useful in the ward, and then began rapidly to improve, and in three weeks' time left the hospital well.

Though a biddable child, she seemed never to have been either lively or intelligent. The fire had, as it seemed, literally frightened her out of her wits, and nothing more.

CASES FROM MR. WILLETT'S WARDS.

BY

W. T. H. SPICER AND OWEN LANKESTER.

OSTEOTOMY OF THE FEMUR.

BY

W. T. H. SPICER.

Osteotomy of the Femur for Mal-union of the Femur after Fracture.

William S., æt. 26, admitted to Pitcairn Ward, St. Bartholomew's Hospital, on January 21, 1885, suffering from the results of an old fracture of the femur, with union in bad position.

The patient is a cachectic, half-starved man, a bricklayer's labourer and militiaman. He states that while with his regiment at Aldershot on June 29, 1884, trying in a hurdle-race to take one of the flights of hurdles, he got his right leg twisted under his left, and fell, breaking his right thigh-bone. He was taken to the South Camp Hospital, and lay there ten weeks; he states that there he was treated with a long iron side splint for six weeks, then by starched bandages for four weeks. After this he was sent to the Fulham Infirmary, and remained seven or eight weeks; he has only been able to use the limb without support for a month.

On examination, the right femur is found to be curved, with the convexity outwards; nearly the whole of the antero-external

aspect of the middle third of the bone is occupied by a hard globular mass, presumably callus; the ends of the bones appear to have overlapped. Measured along the whole length of the limb there is a shortening, as compared with the other side, of three inches; measured directly from the anterior superior spine of the ilium to the internal malleolus, the shortening amounts to nearly four inches; the extensor muscle is much wasted. The patient says it gives him pain to stand much upon the limb; he walks with much limping; when he stands upright there is considerable obliquity of the pelvis and lateral curvature of the spine in consequence of the unequal length of the two limbs. He is unable to obtain work on account of his condition; he states that he has been to several London hospitals, but has always been told that nothing can be done.

Pulse 72; respiration quiet; thoracic organs healthy. Urine acid, sp. gr. 1025; abundance of urates; no albumin nor sugar. At a consultation it was decided to attempt re-fracture of the femur, and that failing, to perform osteotomy.

February 17.—The patient was taken to the theatre and placed under the influence of ether. Several powerful and determined attempts were made to fracture the femur at the mass of callus by bending it across the knee of the operator; these were unavailing. Mr. Willett then made an incision at the outer border of the rectus femoris muscle about two inches in length, dividing all the tissues down to the bone; the two ends of the bone were found to be overlapping and ensheathed in a great amount of callus. A chisel was introduced into the groove between the fragments where they overlapped, and with some difficulty the greater part of the very hard callus was cut through; the undivided portion was then broken easily.

The operation was done under the spray. Lister's dressings were applied and the limb was put up on a Liston's long side splint, a weight of 10 lbs. being attached to it.

Feb. 18.—Was kept awake last night by slight pain in limb; there was some oozing through the dressings; more of the gauze was applied with a firm bandage.

Feb. 21.—No more discharge through the dressings. Measurement on right side from anterior superior spine of the ilium to the internal malleolus is $29\frac{2}{3}$ inches; on left side between same points, $31\frac{1}{2}$ inches; $2\frac{1}{3}$ inches difference.

Feb. 23.—General condition satisfactory; the weight was increased to 14 lbs. this morning.

Feb. 24.—18 lbs. weight applied to-day; measurement of limb shows $1\frac{1}{2}$ inches of shortening.

Feb. 26.—Weight increased to 22 lbs.; complains of its dragging on the skin of the leg.

March 4.—No pain; eats and sleeps well. Measurement shows $\frac{1}{2}$ inch difference between the lengths of the two limbs. Weight increased to 26 lbs.

March 12.—The splint was taken off and the dressings changed under the spray; the wound was quite superficial and had almost healed; the gauze dressings were discontinued and salicylic cream applied. A Thomas's hip-joint splint was put on with a weight of 15 lbs.; while the weight is on there is no difference in length between the limbs. There was some excoriation of the skin of the leg from the pressure of the strapping to which the weight was attached.

March 18.—The splint is comfortable; the weight fell off last night; there is only about $\frac{1}{4}$ inch of difference in the length of the two limbs.

March 21.—Splint and dressings removed; wound healed. The splint was reapplied and kept in position by plaster of Paris bandages, the weight being left off.

March 25.—As the shortening had increased, the plaster of Paris was reapplied and a weight of 15 lbs. put on again.

April 8.—The right leg is about $\frac{3}{4}$ inch shorter than the left; the weight was removed entirely.

April 15.—Plaster of Paris removed. The right leg measured 30 inches, the left $31\frac{1}{4}$ inches, about $1\frac{1}{4}$ inches of shortening being present. Much of the callus has been absorbed; the limb is quite straight, and in excellent position.

March 24.—Patient sent to Swanley Convalescent Home.

On his return from Swanley he was ordered a thick sole to his right boot; with this he could walk without any difficulty or lameness. He had been examined by the Militia authorities and declared fit for duty.

RE-FRACTURE OF THE FEMUR,

FOR THE RELIEF OF SHORTENING AND DEFORMITY,
THE RESULT OF A FRACTURE.

BY

OWEN LANKESTER.

William H., seaman, aged 46, admitted to Pitcairn Ward on June 29, 1885, under the charge of Mr. Willett, suffering from deformity of the right femur and shortening of the right lower extremity, due to a fracture sustained on board ship in March 1885.

History of accident.—During a storm off Cape Horn on March 15, 1885, the patient, whilst engaged in his work as an ordinary seaman, was washed heavily against the pump, striking his right thigh just above the knee. He was immediately unable to rise or to move his leg. There being no medical man on board, he was seen by the captain of the vessel, who did not think that the thigh was fractured; consequently no active treatment was employed, and no splints were applied, but he simply lay in his berth resting; there was a good deal of bruising and swelling about the leg, which gradually subsided. For six weeks he lay in bed unable to move his leg; at the end of this time he got about on crutches, and has since walked with a marked limp, and only with crutches; he has no pain in the affected leg, except occasional aching at night, and he cannot lie comfortably on his right side.

Condition on admission.—*Right leg*, from ant. sup. spine of ilium to int. malleolus, measures 30 inches. Same measurement on *left leg* = $32\frac{1}{2}$ inches, thus making $2\frac{1}{2}$ inches shortening of right leg, which is inverted to a slight extent. The knee-joint is quite sound, and its movements quite free. There is marked outward bowing of the thigh. Two inches above the knee-joint a considerable mass of callus can be felt; on the

outer side there is a prominence which appears to correspond with the upper end of the lower fragment, and on the posterior surface there is another, which is probably the lower end of the upper fragment. No movement of the fragments on one another can be obtained. The girth of the right thigh at the seat of fracture is two inches greater than the girth of the left thigh at a corresponding point. Sixteen weeks have intervened since the accident.

There is some œdema of the right foot and leg, which has been considerably worse than at present.

General health is good at present, although he has had syphilis.

July 6th.—Patient being put under the influence of ether, the right thigh was re-fractured in the following manner:—

The patient being laid on his left side, with his left leg well drawn up and out of the way, the right leg was brought straight down so as to rest on the bed; the operator, standing by the side, placed one knee over the site of the fracture, and then proceeded to draw the leg, kept in an extended position, up from the bed towards himself, using it as a lever; the union of the fracture was so firm that the manœuvre had to be repeated several times before re-fracture was accomplished. The fragments being satisfactorily separated, an extension apparatus, with a weight of 12 lbs., was applied, and the leg put up on a Liston's long outside splint. The inversion of the leg and the prominences on the outer and posterior surfaces of the thigh were corrected in the new position of the limb.

July 7th.—Complains only of inconvenience of lying on his back. Leg quite comfortable.

July 8th.—Weight increased to 15 lbs.

Right leg only $1\frac{1}{2}$ inches shorter than left.

July 10th.—Difference in measurement $1\frac{1}{4}$ inches.

July 12th.—Weight increased to 17 lbs.

July 15th.—Right leg shortening $\frac{3}{4}$ inch.

July 23d.—Liston's splint discontinued. Thomas's hip-joint splint applied.

Weight 17 lbs. continued.

July 29th.—Owing to tendency of the leg to become everted, it has been put up in a plaster of Paris case over the splint.

Weight continued as before.

Leg remains in excellent position.

A considerable amount of new callus is thrown out.

August 14th.—A patten having been fitted to the boot of left foot, the patient now gets about on crutches, the extension apparatus having been removed.

August 19th.—Splint and plaster removed.

Right leg just $\frac{1}{2}$ inch shorter than left.

Right leg is in good position; deformity quite corrected.

August 26th.—Has lain in bed for one week with no apparatus on leg; can lift right leg; knee rather stiff.

September 2d.—Gets up with crutches and patten on left foot.

September 17th.—Patten discontinued. Gets about well with a stick; expresses himself much pleased with result.

Leg quite straight. Shortening of right leg still $\frac{1}{2}$ inch.

September 30th.—To go to Convalescent Home.

On his return he will have a boot for right foot with a high sole, when, it is hoped, he will walk quite satisfactorily.

REMARKS ON THE PREVIOUS CASES.

BY

MR. WILLETT.

These two cases illustrate the good results that are obtainable by re-fracturing, either by manipulation or by osteotomy, bones that have united in bad position with great deformity and serious impairment in the utility of the limbs.

In the first case, as seven months had elapsed since the accident, there could be but little hope of re-fracturing the femur simply; yet it seems strange that this man should, as he says, have wandered from hospital to hospital, and until he applied at St. Bartholomew's have been told at each that nothing could be done for him. It is the more remarkable that this could occur in the present day, when osteotomy has achieved a recognised position as a safe and effectual means of correcting most of the bony deformities of the extremities.

In planning the operation, it was necessary to take into account the fact that a simple transverse division of the bone, or even a haphazard section at the site of the old fracture, would not help materially in restoring the length of the limb, but that to effect this object it was essential to chisel almost longitudinally through the callus ensheathing the overlapping fractured ends, and of course between them, in this manner restoring the conditions of the original fracture.

Careful examination had assured me exactly of the altered relations of the parts, and had disclosed the fact that the lower fragment was in front of the upper; that this was so was borne out when the femur was reached in the course of the operation. No attempt was made to perform the operation subcutaneously. No difficulty was experienced in its performance greater than was due to the density of the callus.

His after progress was most satisfactory; not the slightest unfavourable symptom followed the operation. It is noteworthy how well the patient, who was a very plucky fellow, and took the keenest interest in his case and was most sanguine of the result, bore the great strain of 26 lbs. extension weight. He has been seen lately, and is as active and strong on his leg as ever he was, with scarcely any perceptible lameness.

The second case, where re-fracture was effected after sixteen weeks, does not call for much comment. It taxed the strength of a very powerful man, the House Surgeon (Mr. Owen Lankester), to effect it, although very effectual leverage was obtained. The result in this case promises to be as satisfactory as in the other.

NOTES

OF

THREE CASES OF COAL-GAS POISONING.

WITH REMARKS ON THE SYMPTOMS AS ILLUSTRATED
BY THESE AND OTHER CASES.

BY
CHARLES A. MORTON.

Three persons were brought to St. Bartholomew's Hospital on November 1, 1883, suffering from coal-gas poisoning.

The escape of gas was due to a leak in the main pipe under the house. The gas ascended into the house, reaching as high as the first floor, where the three persons who were poisoned by it were sleeping. The room contained a fireplace; the fire was not lighted, but as it was laid ready for lighting in the morning, no doubt the chimney was open. The gas was not burning when they went to bed. The grandmother and grandfather slept on a bed, and the grand-daughter on a sofa-mattress on the floor at the foot of the bed, so that she would be the first affected by the gas in its ascent. They all went to bed at the same time. There were no means of finding out the exact hour when the gas began to enter the room. At 3 A.M. the grandfather was awakened by hearing the girl vomiting and groaning. He got some of his clothes on, lighted the gas in the room, and then fell down insensible. He smelt something peculiar but did not recognise it as coal-gas. The gas-jet came down in the centre of the room so low that a man of moderate height could not pass under. No explosion followed the lighting of the gas.

At 8 A.M. they were all found insensible. The grandfather was brought to the hospital at 11 A.M. He was heavy and stupid, with congested conjunctivæ. The pupils were natural.

There was no smell of coal-gas in his breath. He gradually recovered, and in the evening was able to go home. The grandmother, seen an hour later, was quite unconscious, but not livid. The breathing was quiet and not distressed, and her pulse was fairly good. The pupils were natural. There was no marked smell of coal-gas about her. She gradually regained consciousness, and in the afternoon swallowed food, but remained drowsy all the evening. She had no relapse. Next morning she was very weak, but otherwise well. The grandfather and grandmother were quite old people.

The girl, aged about 18, when admitted with the grandmother at noon, was also quite unconscious, and was somewhat livid, with very feeble pulse. There was no smell of coal-gas in her breath. The pupils were natural in size. She very quickly became worse, got very livid, and the pulse became very feeble indeed. The conjunctivæ were not congested. There were no convulsive movements of the eyeballs. The respirations were rapid and shallow, and the temperature 97°.

Artificial respiration was performed at short intervals, and the temperature kept up with artificial warmth. She slowly inhaled a large quantity of oxygen gas, not unmixed with air, but through a tube passed into the mouth, the gas passing along the tube under pressure from the gasometer. She was placed in a current of fresh air between the open window and fireplace.

A few hours after beginning the treatment she had not improved at all, but seemed rather to get worse, and the trachea was obstructed by mucus. At times she seemed to improve a little and then became very livid again. At 2.30 P.M. she seemed in a hopeless condition; the pulse was almost imperceptible, and she could not retain enemata of brandy. Artificial respiration was still performed to supplement the natural respiratory movements, but the failure of respiration was not so marked as the cardiac depression. Later in the afternoon she began to revive again, and at 4 P.M. retained an enema of brandy. The pulse then improved and the lividity diminished, but she remained quite unconscious. About 10 P.M. the lividity again increased. Ten ounces of blood were removed from the back by cupping, as it did not flow readily from the arm. It was very dark in colour, and the red corpuscles were markedly crenated. During the evening she was fed twice through a soft catheter passed down the œsophagus from the nose, with brandy, egg, and essence of beef (a hospital preparation). Her temperature went up as high as 104° in the axilla. The urine was 1018, natural in colour, and did not contain albumin. Whether she was any

better for the inhalation of oxygen or the removal of blood, there does not seem to be sufficient evidence to show; she varied much without alteration in treatment.

During the night she remained in the same state, quite unconscious, and became rather livid at times. The pulse remained feeble and rapid, and the respiration quick and shallow. Artificial respiration was not continued. Her pupils varied much; sometimes they were natural, at other times dilated, and occasionally almost as contracted as those of opium-poisoning. At 5.30 A.M. she had another slight relapse. The respirations became more laboured, but she quickly recovered with artificial respiration and the sudden application of cold to the chest.

Next day, November 2, she was still unconscious, but her colour was fairly good. Pulse 160, very weak; respiration 40, rather shallow. In the evening the face was very much flushed, and on examination of the chest small râles were discovered at both bases behind with some dulness at the right, and larger râles over the front of the chest. She could move, and evidently felt the passage of the catheter through which she was fed, but was not fully conscious. During the night she remained much in same condition.

November 3.—She was more conscious, taking notice of those about her, able to swallow and do what she was asked, but did not speak. Her colour was good and pulse stronger. The pulmonary catarrh continued.

November 4.—She could talk, but did not understand where she was. The breathing was rather distressed from the bronchitis; otherwise she was doing well.

November 5.—Quite rational. Bronchitis better. After the 5th she rapidly improved, and soon left the hospital.

The proportion of coal-gas in the air of the room must have been below 10 per cent., for in this proportion the mixture is explosive, and had there been 10 per cent. an explosion would have occurred when the grandfather lighted the gas. That less than 10 per cent. is most poisonous is further shown by a case recorded by Dr. Chaumont (in the *Lancet* for October 25, 1873), in which two women were poisoned by coal-gas in a room where a benzoline lamp was burning. But Dr. Taylor's investigations show that much less than 10 per cent. may be fatal. In a case recorded by him, death occurred after sleeping in a room with 3 per cent. only.

These three cases well illustrate the fact that persons exposed to the gas are poisoned by it without awakening from sleep, or becoming conscious of its presence if awake. When the gas

entered the room, they must either have been asleep or have failed to recognise the smell, and so been slowly narcotised by the gas; for had any of them smelt it they would certainly have taken means to discover where it came from, and to stop the escape. That at least one out of the three did wake and smell the gas, and fail to recognise it as coal-gas, we know.

Dr. von Pettenkofer has lately recorded cases showing that persons may be very seriously affected by coal-gas, and yet quite fail to recognise its presence. In these cases the gas has passed through the ground in its ascent. In the *Lancet* for May 24, 1884, is the following account of one case related by him:—

“At Roveredo two sisters who slept in the basement of a house awoke on three successive mornings suffering from violent headache and a general feeling of illness. This circumstance was attributed to the effects of an iron stove with which the apartment was heated, which was removed before the fourth night, when the mother shared the room. The night was extremely cold and the roadway frozen. On the following morning, none of the inmates making their appearance, the door was broken open, and the three women were found motionless, the daughters being dead, and the mother so affected by gas-poisoning that she only survived a few days.” He also relates the case of a man who died from coal-gas poisoning, in which the cause of death was not discovered until his sons were affected by the gas after sleeping in the same room. In these cases the gas had entered the houses from an escape in an underground pipe. From Dr. von Pettenkofer’s experiments with coal-gas he has been led to believe that it loses its smell to a considerable extent in passing through a layer of earth.

That the girl was so much more affected by the gas than the grandfather or grandmother may be explained by the fact that she slept on the floor, and so would be the first to breathe the gas in its ascent; but it could not have taken long to reach the bed where her grandparents were sleeping. In the case already referred to, recorded by Dr. Chaumont, the younger members of the family were the least affected, and there seems to be no reason why the young should suffer more severely than the old. It may be that there was some slight current of air passing over the bed situated between two windows, diluting the poisoned air in the room, which did not pass along the floor. The bed was not directly between two windows, but only a little out of the direct line between them.

The length of coma was remarkable in the case of the girl. She was unconscious for forty-eight hours, only showing signs of feeling the passage of the catheter through which she was fed

after the first twenty-four hours; but she could not speak on the third day, and on the fourth, although she could speak very well, her understanding was still very deficient. In some cases recorded as poisoning from coal-gas, one person remained unconscious for eight days, and died on the twelfth day, and another was comatose for twenty-four hours, but recovered. They were due to sleeping in a room heated by a stove burning Dantzic coal. Dr. Wyn Williams, at the Medico-Chirurgical Society in 1862, related a case in which an old woman, after sleeping in a room into which coal-gas was escaping, was comatose for forty-eight hours, and then partially sensible, but in three or four days again comatose. The case ended fatally.

Another point of interest in the case of the girl is that she so often relapsed after improving. In Dr. Williams's case the relapse was into a state of coma after an interval of several days, but in this case she got less livid, and the heart and lungs began to work better, and then cardiac and respiratory failure with lividity returned, although there was no change in the condition of deep coma.

The pupils were natural in all these cases on admission, but in the case of the girl there was considerable variation in their size after admission, and at one time very marked contraction. The condition of the pupils seems to vary in coal-gas poisoning. In the few recorded cases of coal-gas poisoning in which there is a note as to the condition of the pupils that I can find, they were natural in one case, contracted in one case, and dilated in two cases.

These cases are not without interest from a medico-legal aspect. In a case where a person was found dead in a room into which coal-gas was found escaping (the Chantrelle case), it was important to decide whether death was due to the gas or to a narcotic poison, the idea being that after a narcotic poison had been given the gas had been allowed to enter the room, to lead to the supposition that she had been poisoned by it. It was considered in favour of poisoning from a narcotic that there was no smell of coal-gas in the breath. But in two of these three cases, the breath certainly did not smell of coal-gas, and my note about the third is, "there was no marked smell of coal-gas about her."

The absence of all convulsive movements in this case is of interest. In a case recorded by Mr. Jessop of Leeds, after exposure to gas undiluted with air in a main pipe for twenty minutes, a man was found completely comatose, and in half an hour violent convulsions came on. These convulsions were especially marked in the muscles of the face, neck, and body.

The man recovered in less than twenty-four hours. In two other recorded cases convulsions were present: they were fatal. These convulsions may be very violent indeed. In Mr. Jessop's case the patient required chloroform to stop them. In a case recorded by Dr. Gilbert-Smith, a young man aged 17, poisoned by coal-gas, suffered from marked muscular rigidity, with slight convulsive movements.

Only in two cases of coal-gas poisoning can I find a note as to the temperature. In Mr. Jessop's case (above alluded to) it was 99° ; in Dr. Gilbert-Smith's case it reached 103° , and this was at the time the patient began to improve. In the case of the girl, the temperature was 104° at one time, but there was no marked improvement at the time it was taken. The temperature of the grandparents was not taken.

The condition of the blood taken from the girl is of interest, the colour differing so much from the bright red blood of pure carbonic-oxide poisoning. Mr. Bloxam records a case in which post-mortem the blood was everywhere black. The inhalation of pure oxygen is sometimes extremely beneficial in carbonic-oxide poisoning. In a case in which pure carbonic oxide was inhaled as an experiment, leading to coma and cardiac failure, the inhalation of oxygen had a very rapidly beneficial effect, after other methods of treatment had failed. In this case of coal-gas poisoning, however, other poisonous gases as well as carbonic oxide were doubtless present, and so the inhalation of oxygen had no very marked effect. The condition of the blood shows us that carbonic oxide had not produced its usual effects on the blood; therefore probably *it alone* was not the cause of such prolonged coma with cardiac and respiratory failure. In a case recorded by Dr. Barnes at the Medico-Chirurgical Society, the patient was of a "dark, livid, leaden colour."

THE AFTER-TREATMENT OF TRACHEOTOMY.

BY

S. HERBERT HABERSHON, M.B.

My object in discussing this subject is not to encroach on the domain of the surgeon, but to illustrate by a few successful cases in Dr. Andrew's wards (which he kindly allows me to make known) a form of treatment initiated by a previous House Physician (Dr. Bullar), the value of which is fully borne out by the cases I shall relate, as well as by the cases referred to in a pamphlet recently published by him on the subject.

Seven cases of membranous laryngitis have occurred in Dr. Andrew's wards during the past nine months, in which the laryngeal symptoms were sufficiently urgent to necessitate tracheotomy.

Of these, five have recovered. Of the two that ended fatally, one was a case of slow malignant diphtheria in a child aged three and a half. The child died on the eighth day of the disease, and the second day after the operation was performed. The symptoms were severe. There was extreme fœtor of the discharge from the nose and larynx, a large amount of albumen in the urine, great anæmia, protracted and uncontrollable vomiting, and a temperature high throughout, and rising to 106° before death.

The second fatal case was that of an infant aged seven months. The lungs were affected on admission, but the urgency and predominance of laryngeal symptoms rendered tracheotomy advisable. The child died from asphyxia twenty-six hours after the operation from extension of the disease in the lungs.

The other five cases present a brighter record. Before relating them, I shall mention the form of treatment adopted, and afterwards illustrate it by reference to the cases.

In all cases of diphtheria, provided the disease is not of a sufficiently malignant type to kill by the virulence of the poison, the

great difficulty in treatment seems to be to persuade the patient to take sufficient nourishment.

If the strength can be maintained for a period long enough to allow the disease to be tided over, and the extension of the membranous process stayed, it appears to be possible to combat the anæmia and the debility, which form such prominent features of the disease, by proper and sufficient nourishing food.

In the earlier days of tracheotomy it seems not to have been thought remarkable that milk or other liquid food given by the mouth should find its way out through the tracheotomy tube. To this passage of food into the trachea the occurrence of local pneumonias is probably due, to which the term *deglutition pneumonia* has been applied.

Undoubtedly the presence of a tube in the trachea favours the passage of food into the windpipe, probably by diminishing the sensibility of the epiglottis and by removing the safeguard against such an occurrence during health, or from the fact that too little air passes into the larynx above the tube to enable fluid to be expelled. A third and not unimportant factor is also present. In the action of deglutition the closure of the aperture of the larynx by the cushion at the base of the epiglottis is assisted by the raising of the thyroid cartilage behind the hyoid bone by means of the laryngeal muscles. This movement of the thyroid is in some measure prevented by the presence of a tube in the trachea.

Again, the difficulty is great of giving nourishment in sufficient quantity (especially in the case of a child) without disturbing the patient's rest. A child will not take a large amount of fluid at once on account of the pain caused by the act of swallowing, and the consequence is that it has to be fed at frequent intervals, night and day, either with a teaspoon or in small sips. Thus the natural physiological functions of the stomach are interfered with, and in addition the sleep of the patient is disturbed. The child has to be awaked every quarter or half an hour, and if this is not done, enough food cannot be given.

The plan Dr. Bullar suggested, which Dr. Andrew has allowed to be adopted in all his cases since March, is to feed the patient by a soft catheter or elastic tube passed directly into the stomach through the nose. In a child a No. 4 to No. 6 soft rubber catheter is used. A small piece of glass tubing is fixed in the outer end of the tube, or an ordinary glass pipette, and the fluid food is placed warm in a brass syringe of 4 to 6 ounces capacity, and slowly forced into the stomach. The end of the brass syringe is kept wedged in the glass tube by placing a short piece of gutta-percha tubing round the conical nozzle of the syringe, of calibre sufficient to

enable it to pass into the end of the glass pipette. The first time or two that the tube is passed the child struggles a little, but it is usually easy after the first attempt, and I have occasionally seen the child close its eyes, and even sleep during the process. On one occasion a patient was fed during sleep without being awaked, so free is it from discomfort.

It will be found to simplify the passage of the tube if it be held as a pen with the finger and thumb of the right hand, whilst the tip of the nose is pressed upwards with the thumb of the left hand, the fingers of the same being placed on the bridge of the nose or on the forehead of the patient; in short, exactly as in the passage of the Eustachian catheter.

It is almost impossible to get the tube into the larynx. If so, only a few inches will pass, and the irritation produced is certain to afford a sure index of the mistake.

A difficulty that sometimes occurs is that the retching and the efforts at regurgitation bring back the end of the tube into the mouth, where it can be seen coiled up. This can usually be overcome by a second or several trials. If there is any doubt whether the tube be in the stomach from gurgling of clear fluid in the glass pipette, the reaction of the fluid will often serve to distinguish gastric secretion from laryngeal mucus. The reaction is of course acid if it be gastric juice, provided that lime-water has not been previously given. Food should be given at least every four hours, the quantity varying from two to six ounces or more, according to the age. Not more than four ounces should be given at the first feeding, and if this be kept down without regurgitation or vomiting, the child should be fed every four hours. In one of the cases reported, a child two and a half years old, it was observed that just before the feeding time the patient was subject to fits of dyspnoea and coughing, apparently from exhaustion. When food was given at shorter intervals (every three hours), it was remarked that these attacks did not occur. In the same patient the food was gradually increased to six ounces every four hours. The indication that too much food has been given is usually that regurgitation or vomiting occurs after feeding, or the patient becomes dyspeptic.

The following cases are of interest as illustrating the success of the above treatment, for I believe their recovery has been in great measure due to it.

CASE I.¹

J. A. C., aged $2\frac{1}{4}$, admitted to Mark Ward, February 18, 1885.

¹ Extracted from Dr. Bullar's notes.

The child had been apparently well on the previous day, but in the evening its breathing became difficult, and it was brought to the surgery at 8 A.M. in a state of urgent dyspnoea with great recession at the lower end of the sternum. Tracheotomy was performed at once by Mr. Lewis with great relief; no membrane was seen.

The child took food well until the 22d. It then began to take badly, and nutritive enemata were given and retained. On the 26th the food was noticed to come back through the tracheotomy tube. All feeding by the mouth was given up at once, and the child was fed entirely by a soft catheter passed through the nose. Half a pint of milk, half an egg, and two teaspoonfuls of brandy were given every six hours. There was no difficulty in passing a No. 4 india-rubber catheter, and the Sister was able to feed the child so easily that he scarcely awoke, and always fell asleep as soon as his stomach was full.

On March 10th the tracheotomy tube was removed and the wound was closed; but it was found on trial that liquids still passed into the trachea when he was allowed to drink. The nasal feeding was therefore continued until March 12th, when he was able to eat and drink properly. He left the hospital well, but has since been admitted with pulmonary tuberculosis, and died in the hospital of tubercular meningitis.

CASE II.

S. H., aged 15 months, was admitted by Dr. Bullar on March 15th with symptoms of croup, which commenced on the previous day. Two other children were ill in the same house with sore throat.

On admission, patches of membrane were visible on both tonsils. The increasing dyspnoea, evidenced by the lividity and extreme recession, rendered tracheotomy necessary a few hours after admission. Mr. Lewis performed the operation, and a small piece of membrane was coughed up after the trachea was opened.

The child went on well for some days, and was fed at first entirely by a tube through the nose, and at the end of a week partly by the tube and *partly by the mouth*. On the 29th the tracheotomy tube was left out for twenty-four hours, and on this day impairment of resonance, with bronchial breathing and bronchophony, was observed at the base of the left lung behind. The wound rapidly closed, and food was again given by the mouth only, the child improving rapidly. On the 9th of April some difficulty in swallowing occurred, and on the 12th fresh physical signs of consolidation appeared, this time at the right base and

in the right axilla anteriorly. Feeding by the tube was again resorted to. The pneumonia ran a typical course, the temperature, which had risen on the 12th, falling at the crisis on the 20th inst. Since no difficulty in swallowing remained, food was again given by the mouth, and the child continued to improve uninterruptedly until its discharge on May 5th.

There is very little doubt that the pneumonia on each occasion was due to the passage of a small quantity of liquid food into the trachea and thence into the lungs. Food was given partly by the mouth during the time that efforts were being made to remove the tracheotomy tube, and the signs of consolidation were easy to explain on the supposition that some food had gone the wrong way. On the second occasion, when a similar accident occurred, it is possible that there was slight diphtheritic paralysis.

CASE III.

C. L., aged $6\frac{1}{2}$ years, admitted on June 9th with a history of cough since June 6th, becoming brassy and with stridulous breathing on the 7th.

On admission, a large patch of greyish membrane covered the fauces, uvula and pharynx. There was great bilateral recession of the lower ribs and infraclavicular regions, with a frequent pulse, intermitting with inspiration. The patient was anæmic and slightly livid. Occasional paroxysms of dyspnoea with increased lividity and recession occurred. A severe spasm on the morning of the 10th caused him to cease breathing after a few gasps. The child was moribund, and I had to perform a hasty operation. The trachea was opened, and a hair-pin used as a dilator to keep the edges of the wound apart. On cutting into the trachea, a long membranous cast about 2 inches in length, and forming a perfect tube, was coughed through the opening, and a few more pieces of membrane were subsequently coughed up. He was fed by a tube through the nose shortly after the operation, and at intervals of six hours, with eight ounces of milk, two of lime-water, two teaspoonfuls of brandy, and one egg in the twenty-four hours. Large pieces of membrane were coughed up until the evening of the day after the operation. The tracheotomy tube was removed for six hours on the fourth day, the wound having healed by first intention everywhere but at the opening for the tube. It was replaced for the night, but on the fifth day the child was able to do without it, and could breathe freely through the mouth. The feeding by the tube was continued until the 17th, two days after the closure of the wound. By this time the child could drink water without coughing, and

the wound had completely healed. On the 26th he had recovered his voice completely, and was discharged on the 31st.

The two last cases I shall mention illustrate not only the success of the above form of treatment, but a method of meeting an emergency that sometimes occurs in cases where membrane extends below the tracheotomy tube.

Cases of diphtheria will be familiar to all, in which, either immediately after, or at a variable period after the operation for tracheotomy has been performed, a sudden obstruction occurs below the tube in the trachea or large bronchi. Violent expiratory efforts are made to cough up the obstruction, but in vain, and in spite of attempts to clear the trachea and to excite still further expiratory efforts by passing a feather down, the child rapidly becomes asphyxiated, and if relief is not afforded ceases breathing.

Sometimes the obstruction is caused by the loosening of a large piece of membrane, frequently a complete cast of the trachea or large bronchi. Partly loosened and partly adherent, it cannot be coughed up by the most violent efforts the child can make. At other times, when the raw surface of the trachea denuded of membrane is healing, it is a hard dried pellet of mucus that forms the obstruction, and in all cases recovering from diphtheria these mucous pellets cause more or less frequent attacks of dyspnoea and no little anxiety to the attendant.

It is certain that means to excite expiratory efforts, such as passing a feather through the tracheotomy tube or irritation with ammonia, are of no avail in some cases. I am convinced that the best means of meeting the emergency is by suction applied in one form or another. The more sudden and powerful the suction the better, provided it can be applied locally. General suction at the end of the tracheotomy tube is more likely to produce collapse of the lung than to remove an obstruction. Applied by the mouth, it is not as sudden or as powerful as applied by other methods, and is scarcely justifiable.

I have used a simple means, always at hand in a hospital ward, previously in use by one or two House Physicians, but discarded because it has been said only to act like the feather in producing expiratory efforts. I have found it otherwise.

A small soft rubber catheter, Nos. 2 to 6 in a child, the largest that will pass easily down the trachea, is fitted to the end of a small brass syringe. The end containing the eye is snipped off. It is passed rapidly through the tracheotomy tube down the trachea as far as possible, regardless of the patient's increased dyspnoea, and firmly nipped with the finger and thumb just

outside the opening into the trachea. The nurse holding the brass syringe is then requested to rapidly exhaust it by drawing up the handle sharply. When this is done the finger and thumb are suddenly let go, and the whole force of suction is transferred at once from the nipped portion to the end of the catheter in the trachea. Pieces of membrane are not unfrequently drawn thus into the tube, and, as it is slowly removed, mucus or membrane usually enters the tube with a loud sucking noise. On one occasion I was fortunate enough to draw up a piece of membrane forming a cast of part of a large bronchus, too large to be sucked into the tube, but kept adherent to the open end by the suction force in the catheter. This operation may be repeated any number of times without exhausting the child as much as its own violent and fruitless attempts at expiration.

CASE IV.

G. B., aged 3, admitted to Hope Ward on June 25, 1885. Three weeks previously he had contracted measles, and for the last few days had been attending the ophthalmic department with purulent ophthalmia. Shortly after leaving the hospital on June 24th his breathing became difficult, and towards night the voice and cough were croupy. On the 25th he was admitted suffering from urgent dyspnœa with hurried stridulous breathing and a metallic cough. The face and lips were livid, and the recession of the sternum so great that at each inspiration a concave funnel-like depression was produced. The pulse was 120, and was slightly quickened during expiration and retarded during inspiration.

The fauces were congested. No sign of membrane was visible. Some relief was afforded by a hot bath and the use of the steam-kettle, but it proved only temporary. The breathing became more embarrassed, and at 6.30 P.M. Mr. Hind performed tracheotomy. The patient was faint after the operation, but rallied quickly after food and brandy had been given. He was fed by a tube through the nose with three ounces of milk, one of lime-water, and two teaspoonfuls of brandy at intervals of four hours.

The child improved slowly; a few pieces of membrane were coughed up and the dyspnœa decreased. The wound, however, was unhealthy, and on the 29th became covered with a diphtheritic slough. The child continued to hold its ground, and took its food by the tube without vomiting. On the 30th several attacks of dyspnœa occurred, chiefly on account of the difficulty in coughing up mucus, which continually clogged the tube. On July 2d the wound presented the appearance of a large ragged

ulcer with unhealthy granulations covered with a slough. The ulcer was deep, almost laying bare the cricoid cartilage.

The child breathed for several hours without the tube, but was unable to do so through the mouth when the opening in the trachea was closed. With the tube out all went on well until evening, but at 5.30 p.m. a sudden attack of dyspnœa occurred, the wound appearing to close up suddenly and spasmodically. The tube (Baker's) was put back, and the dyspnœa increasing, a silver one was substituted. A feather passed into the trachea did not clear it of mucus, and the child ceased breathing. Artificial respiration was resorted to, and meanwhile a soft elastic tube with a brass syringe attached was prepared and introduced into the trachea. Powerful suction was applied by exhausting the syringe with the tube pinched between the thumb and forefinger, and then suddenly let go and drawn out slowly. By this means a large amount of mucus was extracted from the trachea. The child gave one gasp after the tube was removed, and artificial respiration was continued. A second application of suction by similar means was more successful, and the child gave another breath and soon rallied. The exhaustion consequent on this attack passed off by the following day. The wound improved and gradually closed in. On the 5th a similar attack of dyspnœa occurred suddenly while the tube was out, but it was replaced before breathing ceased, and the child recovered more rapidly.

On the 10th the urine for the first time yielded a cloud of albumen. The wound externally looked more healthy, but granulations could be distinctly seen, almost closing the opening into the larynx from below. These granulations were cauterised every few days with chromic acid fused on the end of a probe, but still the child was unable to breathe for more than a short time without the tracheotomy tube. The health of the patient improved greatly; its eyes became completely well, and by the beginning of August the only difficulty that remained was the inability to remove the tracheotomy tube. The patient having been nearly six weeks without food given by the mouth, and being able to swallow without difficulty, was now fed partially with semi-solid food, and gradually the feeding by the tube was discontinued. After the 18th inst. he took food, both solid and liquid, naturally by the mouth, and was allowed to run about the ward.

The removal of the tube is still impossible (November). There is some obstruction due to granulations which partially close the opening into the larynx from below, but since the beginning of September there has been some voice and a noisy cough when the tube is withdrawn and the opening closed. The child, how-

ever, is so frightened that it does not try to breathe without the tube, and the edges of the opening are at once spasmodically closed a few seconds after its removal. This has been overcome during November by gradually shortening the soft india-rubber tracheotomy tube (Baker's).

The child can now breathe better without the tube, but not for any length of time. More voice has been heard during the last few days when the opening is closed. He has been in good health and has taken food well since the early part of August, but cannot be discharged on account of the difficulty with the tracheotomy tube.

CASE V.

C. M., aged 2 years 7 months, was brought to the surgery on October 29th with a croupy cough and very slight dyspnoea. There was no membrane visible, and no congestion of the fauces or pharynx, nor was there any enlargement of the cervical glands. The temperature was slightly raised, being somewhat above 99°. The lower ribs were slightly drawn in during inspiration. Over the whole chest were abundant moist sounds and rhonchus, but there was no dulness on percussion, and no bronchial breathing. The patient living close to the hospital, the mother was told to bring it back if it became worse.

The child was admitted on the evening of October 30th with great dyspnoea, accompanied by extreme bilateral recession of the chest, with "pulsus paradoxus," a complete intermission of one or two beats occurring with each recession. The voice and cough were croupy, the breathing stridulous, and the face livid. The dyspnoea and recession increasing, tracheotomy was performed at 9 P.M. The child ceased breathing before the trachea was opened, but when the tube was put in it recovered after artificial respiration. Feeding by a tube through the nose was commenced shortly after the operation, and continued every four hours subsequently. Five ounces were given at a time with a teaspoonful of brandy and its medicine (five minims of the tincture of perchloride of iron).

The child was fairly comfortable during the night and the whole of the following day except for occasional attacks of coughing. On November 1st a cast of a small bronchus was coughed up. No difficulty occurred with feeding, the child almost sleeping during the process.

On the evening of November 1st a fit of dyspnoea came on, the patient becoming livid, with much recession of the chest. Feathering the trachea gave no relief, but by means of a soft rubber catheter at the end of a brass syringe suction was ap-

plied. Several large pieces of membrane and a good deal of mucus were drawn up, and one cast of a large bronchial tube about an inch and a half in length. The patient improved after this, but the pulse was very feeble and the respirations still hurried (sixty-four to the minute). A few hours later the dyspnœa returned, and the same process was again successfully repeated. Some obstruction, however, remained, and a larger silver tracheotomy tube was therefore inserted. After another application of the soft catheter the child was left breathing quietly and easily. At 5 A.M. on the following morning, November 2d, the same alarming symptoms returned, but were relieved by suction with the tube in the same fashion.

On the 3d and 4th occasional slighter attacks occurred every few hours. Small lumps of mucus were expelled, and no membrane. On the 5th it was noticed that the dyspnœa was greatest immediately before the hour for feeding. Food was therefore given by the tube at intervals of three instead of four hours, with distinct improvement. On the same day the urine contained a trace of albumen. The child now improved rapidly, the wound, which had previously looked unhealthy and inclined to slough, began to contract. The granulations were, however, exuberant, and protruded into the trachea. On the 11th inst. some voice was heard, but the child was unable to breathe without the tracheotomy tube altogether. Since the attacks of dyspnœa on the 5th a Baker's tube was substituted for the silver one. By November 17th the wound had healed, except at the opening for the tracheotomy tube. The child can now cry loudly if the opening is closed with the finger after removing the tube, but cannot breathe through the mouth for more than a few minutes.

On the 20th the tracheal opening was closed with a pad for several hours at intervals, the tracheotomy tube having to be put back occasionally for a few minutes. The Baker's tube has now been shortened to about half an inch in length, and is put in during the night, and when necessary during the day. It is still not safe to allow the opening in the trachea to close, but it is hoped that the difficulty will be overcome in the course of a few days.

Feeding by the catheter is still employed. The child has taken no food by the mouth since the operation was performed.

The cases that I have thus detailed will, I think, demonstrate, firstly, the value of the nasal feeding, especially in young subjects, not as a substitute for other modes of treatment, but as an important addition; and, secondly, the superiority of the use of an exhausting syringe over other methods for the removal of obstruction below the opening in the trachea when simpler means fail.

TWO CASES OF PARASITIC HÆMATURIA.

BY

NORMAN MOORE, M.D.

On July 18, 1885, Denis M., aged 61 years, a teacher of music, came to the casualty department of St. Bartholomew's Hospital suffering from hæmaturia. He related that he had had hæmaturia for eighteen months, and that it had been absolutely continuous, except for three days in the middle of this period. He had never had hæmaturia before, but eight years ago had passed three small calculi, which he brought with him. He looked pale, and said that he was exhausted, but had no pain. He also complained of indigestion. During the period of his hæmaturia he had never passed a calculus, and when he passed the three calculi he brought he had no hæmaturia. He had never suffered from renal colic. The quantity of blood in the urine was large. He stated that he had been bandmaster in the 90th regiment, and that he had served in Canada from 1852 to 1858, in the West Indies in 1861, and in South Africa, including Natal, from 1864 to 1868. In 1868 he was at Pietermaritzburg, thence came home, and had never been abroad since. He had never had ague, and never dysentery, and had generally enjoyed good health. I examined his urine, and found many red blood corpuscles and some blood casts, but nothing more, and on July 20 admitted him into John Ward. On examining him in bed, his chest and abdomen were found to give none but normal physical signs. The calculi consisted chiefly of uric acid. Mr. S. K. Alcock was so good as to prepare a microscopic section of one for me, but in rubbing it down, the nucleus, whatever it was, dropped out. In the ward the urine invariably presented the characters at first observed. It was of a bright red colour, and contained great numbers of red blood corpuscles, with many blood casts and some granular casts. Now and then it was

slightly paler, but was always red. It also contained almost every time it was examined numerous ova and embryo cases of *Billharzia*. These presented all the usual forms, but were for the most part embryo-shells, though many active embryos were at times also to be seen. After a dose of ten grains of *santonin* night and morning, two days later reduced to five grains, the urine became much paler, but on continuing the *santonin* the change for the better did not continue; and as it caused dimness of vision, vomiting, and general disturbance of digestion, I did not continue to administer it. During the thirty-five days that he was in the hospital, his evening temperature was on twenty-eight days from one-third of a degree to a degree above the normal temperature. He had no diarrhoea. His daily quantity of urine was on an average a little over three pints. When he left, on August 24, 1885, his urine was still bright red, and contained abundant embryos. His digestion had improved slightly, but otherwise he was in the same condition as on admission.

The second case was also that of an old soldier, Richard H., aged 55 years, who since he had left the army had been a labourer. When he came to the casualty department on August 27, 1885, he was suffering from hæmaturia, which he had had for seven months. He said that at first the blood only came on at the end of micturition, but that after a short time it persisted throughout micturition. He had had no renal colic, no rigors, and no vomiting, and had never had hæmaturia before. He had been in the Royal Artillery, and in 1854 was sent to Bengal, and served in the Indian mutiny with the Malwa field-force. While in India he had ague. In 1860 he served at Gibraltar, and had remittent fever there. From 1864 to 1869 he was in Mauritius, and there had ten attacks of fever. In 1869 he was at the Cape, and came home thence in 1872, and had had good health from 1872 till seven months before coming to St. Bartholomew's. He was sure that he had never had hæmaturia while abroad. He said that in India he had drank freely, but had never been so drunk during the mutiny as to be unable to go into action. I admitted him to John Ward, August 28, 1885. He had well-marked aortic obstruction, but except the systolic basic murmur, physical examination showed nothing abnormal in his chest or abdomen. His urine was of a dark-red colour, and at the time of passing contained numerous blood-clots. Microscopic examination showed abundant red corpuscles and a few separate, apparently epithelial, cells. On September 2d one hyaline cast was found. On the

next day I found several granular casts and a single body shaped like *Paramecium bursaria*, but with a small terminal process and granular contents. When first passed, the urine was of a very bright red colour. On September 4th I found three well-marked ova of *Bilharzia hæmatobia* in the urine. The quantity of urine was usually about 1 to 1½ pints a day, and his temperature was not raised. A dose of five grains of *santonin* given three times a day was followed by a slight increase in the quantity of urine, but by no other change, and no diminution of blood. On September 10th ova of *Bilharzia* were very abundant, and were again so on the 12th. On the 16th he went out of the hospital, still passing a large quantity of blood daily.

Since the discovery of the parasite which causes the endemic hæmaturia of several hot countries by Bilharz in 1851 (published in "*Zeitschrift für Wissenschaftliche Zoologie*," 1853), gradual additions have been made to our knowledge of the clinical features of the disease, and these two cases seem to add one important fact to those already known. They show that the parasite may live in the patient's body for a longer time than has hitherto been supposed. Dr. Harley and Dr. Roberts mention several months as elapsing between infection and the first attack of hæmaturia. Dr. Guillemard speaks of nine months; while in the interesting case described by Dr. Arthur Davies in the *St. Bartholomew's Hospital Reports* for 1884, it is possible, though not certain, that the first attack of hæmaturia took place three years after infection.

In the two cases described in this paper the interval between infection and the first attack of hæmaturia was much longer. Denis M. could not have acquired the parasite later than 1868, while his first attack of hæmaturia was in 1884. Richard H. may have received the parasite in 1869 in Mauritius, or before leaving the Cape in 1872, while his first attack of hæmaturia was in 1885. Thus in the first case the interval between the infection by *Bilharzia* and the onset of hæmaturia was at least fifteen years, while in the second case it was at least twelve years. Both patients were men of good intelligence, whose accounts might fairly be trusted.

Dr. Zancarol of Alexandria states that it is common to find vesical calculi in Egyptians who have died with parasitic hæmaturia, and in whose bladder walls the ova of *Bilharzia* are to be found post-mortem. The case of Denis M. illustrates the fact that these calculi may be formed before any hæmaturia has taken place. I consider their occurrence as strong confirmatory evidence of the supposition that the patient had abundance of

ova in his body many years before the onset of hæmaturia. There seems every reason to believe, with Dr. Cobbold, that the parasite finds its way into the body through the alimentary canal. That its ova live very well in almost any tissue, I feel sure from an examination of more than a hundred microscopic sections of some pieces of abdominal tissues kindly sent to me by Dr. Zancarol. These were pieces of small intestine, mesentery, bladder, ureters, and kidney. In all the ova were abundant. The walls of the bladder in some sections showed abundant ova close to the peritoneal surface, and actually in the peritoneum. The same was the case with the ureters. In the small intestine the ova were often abundant in all parts of the intestinal wall except the epithelium of the mucous membrane. They were often to be seen in the substance of the villi and between Lieberkühn's crypts. They seemed sometimes to have pushed up the epithelial cells from the crypt wall. In a very few instances I saw them in or between epithelial cells. These specimens illustrated the fact that the ova of *Bilharzia* may stay for a long time in other tissues before reaching the kidney, and this is, I believe, the explanation of the long interval between the time of infection and the onset of hæmaturia in my two cases. The bearing of this fact on treatment is obvious. No one who had looked at many such microscopic sections would think of treating parasitic hæmaturia by injections into the bladder. How can the injection reach the peritoneal surface of the bladder, the mesentery, or the muscular coat of the small intestine? Yet these parts are quite as likely to be studded with ova as the mucous membrane of the bladder.

Santonin has such a general effect on the system that there seemed some hope that it might act as a paraciticide on the *Bilharzia*, in whatever tissue living, but the result in these two cases was not encouraging. In October 1885 I asked Dr. Guille-mard the event of the case so clearly described by him in his admirable thesis "*On the Endemic Hæmaturia of Hot Climates*," and he informed me that the patient, who had acquired the parasite in 1878, is still living in fair health, and that he occasionally passes embryos of *Bilharzia* in his urine. This case has therefore lasted seven years, while the two described in this paper have lasted respectively fifteen and thirteen years, thus proving that while the specific treatment of endemic hæmaturia has yet to be discovered, the prognosis of the disease for patients who come to live in a temperate climate is not bad as regards the continuance of life, and that while the presence of the parasite certainly impairs the patient's strength, he may with moderate care be able to work for his living.

SOME CASES
OF
SCLEROSIS OF THE SPINAL CORD.

BY
ARCHIBALD E. GARROD, M.B.

I am indebted to Dr. Duckworth and Dr. Norman Moore for permission to publish the following cases.

During the present year a considerable number of interesting cases of diseases dependent upon sclerotic changes in the spinal cord have been treated in John Ward, and amongst them no less than four of disseminated cerebro-spinal sclerosis. These have all a common point of interest, viz., that the tremors were either entirely confined to one side of the body, or affected one side much more than the other. In no one of the cases was there any nystagmus, a symptom which appears to be absent in a much greater number of cases of this disease than is usually supposed.

The first case is that of T. P., a stone-mason, who was admitted to John Ward, under the care of Dr. Norman Moore, in June 1885.

The earliest symptom which he had noticed was pain in the left arm and leg, from which he began to suffer some twelve months before admission. A month later he noticed that he could not chisel so well as before on account of a tremulousness of his left arm, and when in bed he suffered from spastic contractions of the corresponding leg. Three months later he had a sudden attack of twitching in the limbs of the left side, with spasm of the fingers, which grasped the stone upon which he was working so forcibly that he was obliged to release it with his right hand; moreover, on attempting to walk he staggered. The attack lasted some ten minutes, and then passed off.

Since then he has had several such attacks, always preceded by a kind of aura, a sensation of "pins and needles," beginning in the

left foot and extending upwards as far as the left side of the face. After the first attack he noticed that his speech was affected, and it has remained so ever since. His mental faculties were somewhat impaired, and he was very irritable.

On admission the knee-jerks were found to be greatly exaggerated, and ankle-clonus was elicited on the left side.

The tremors affected all the limbs, but were far more marked in those of the left side. Any attempt at use of the limbs increased the tremors enormously. The left side of the face twitched constantly, and the tongue was very tremulous when protruded. Both eyelids were similarly affected, and action of the orbicularis greatly increased the movements.

There was no nystagmus, the ophthalmoscope showed nothing abnormal, and the pupils reacted naturally.

His gait was tremulous and uncertain, but improved after the first few steps.

The speech had the peculiar scanning character characteristic of his disease.

His irritable temper made him very difficult to manage, and in a few days he discharged himself from the hospital.

At the end of September he was again admitted under the care of Dr. Duckworth, when the tremors were found to have increased in severity and range, so that he was no longer able to feed himself. Ankle-clonus was then obtained on both sides, being still more marked on the left.

Nystagmus was still absent, and the optic discs were natural. He remained in hospital about a fortnight, and was then discharged at his own request. During his stay the temperature was usually slightly raised, 100.2° being the highest record. His urine contained a trace of albumen.

As there was a history of syphilis, he was at first treated with potassium iodide. On readmission he was given hyoscyamus, taking nine grains of the extract daily, but his stay was too short to give a fair trial to the drug.

In the three following cases the tremors were entirely confined to the right side of the body:—

G. R.,¹ a groom, aged 21, was admitted to John Ward under the care of Dr. Duckworth in February 1885. Nine months previously tremors had commenced in the right arm, and three months later the leg had been similarly affected.

He was a healthy-looking well-nourished man. The speech was natural, and the face and tongue were free from all tremor. The right arm and leg remained quite still when at rest, but on

¹ This case was the subject of a clinical lecture by Dr. Duckworth, which may be found in the *Lancet* (May 1885).

any attempt to use them they performed a variety of irregular and incoördinate movements. The gait was rigid, the right leg moving in an ataxic manner, and dragging as he walked. The knee-jerks were increased, especially on the right, but there was no ankle-clonus. There was no history of syphilis nor of injury to the head. Here again there was no trace of nystagmus, nor were there any ophthalmoscopic changes.

An electrical examination made by Dr. Steavenson showed that the muscles of the right arm and leg reacted naturally both to the continuous and interrupted currents, and that electric sensibility was unimpaired.

Any attempt to write with the right hand resulted in a confused meshwork of erratic scratches, but he had trained himself to write legibly with his left. He remained in the hospital three months, and was treated with faradisation, with conium in large doses, and with physostigma (taking at one time as much as a grain of the extract daily). The pupils responded very slightly to these drugs, even when he was taking the largest doses, and he left with very little alteration in his condition.

J. R., a quarryman, aged 25, who, like the last patient, came from a rural district of Wiltshire, was admitted to John Ward, under the care of Dr. Duckworth, in October 1885. Like the last patient, he had tremors of the right arm and leg only.

The tremors began in December 1882, after he had been pulling at a crane, and he was treated at that time in the Bath Hospital with considerable benefit. In the following June the tremors became aggravated, and he was a second time obliged to give up work for a time, but in ten days the attack had subsided, only to return again in June 1885 after some heavy lifting.

The right eye was constantly opened and closed by a twitching movement, and there were slight uncertain movements of the eyeballs, which did not, however, amount to nystagmus. The speech was unaffected, and the tongue was quiet when protruded. The ophthalmoscope showed nothing abnormal. The tremors of the right arm and leg were much exaggerated on exertion; sensation in the limbs was unimpaired, and there was no muscular wasting. The urine deposited crystals of calcium oxalate. By resting upon his right elbow the movements of the right arm were so much controlled that the patient was able to write a fairly good hand.

During his stay of one month in the hospital this patient was treated with belladonna in gradually increasing doses, which reached at the time of his discharge a grain of the extract three times a day. His condition had greatly improved, for whilst the dynamometer showed increased power in his hands, the

exaggeration of the knee-jerks had disappeared, and the tremors were much reduced.

The last case resembles closely the last two, but is that of a considerably older man.

E. H., a shipwright, aged 49, was admitted to John Ward, under the care of Dr. Norman Moore, in August 1885.

Three months before admission the patient noticed tremors in the right hand on exertion, and two months later they began to affect the right leg also, the left side of the body remaining unaffected, with the exception of slight tremulousness of the left arm. The pupils reacted naturally; there was no nystagmus, and the ophthalmoscope showed nothing abnormal.

The tendon-reflexes were not increased, and there was no ankle-clonus; nor was there any change in the electrical reactions, nor muscular wasting.

The speech was natural, and, with the exception of slight tremor of the tongue, the head and neck were unaffected.

The temperature remained normal and subnormal.

This patient remained in the Hospital about a month without any improvement, and at the present time there is very little alteration in his condition to be observed.

In July 1885, a patient was admitted, under Dr. Duckworth, suffering from lateral spinal sclerosis, who had the characteristic symptoms of this disease developed in a remarkable degree. He was a labourer, aged 29, who had suffered from occasional dorsal and lumbar pains for three or four years. Latterly he had been free from pain, but for five months previous to his admission had noticed failure of power in his legs, and for a week he had noticed tremors in the hands on making an effort.

There was no nystagmus, and the discs were natural.

There was some tremor of the tongue.

Fibrillary twitchings of the muscles were observed; all his tendon-reflexes were much exaggerated, and on tapping the patellar tendon, violent knee-clonus, which lasted for a considerable time, was induced. A similar result was obtained with the triceps muscles of both arms.

Ankle-clonus was well marked.

The gait was in the highest degree spastic, the legs being separated only to a minimum extent, whilst the patient could only get up on a chair with the greatest effort.

An electrical examination of the muscles was made by Dr. Steavenson, who reported that all the limbs reacted normally to the continuous current, and that there was no increase of irritability.

Strong currents produced violent tremors in one or other

of the limbs, not necessarily that which was being tested at the time. Faradic contractility and electro-sensibility were natural.

Although no history of syphilis was obtained, some scars on the legs led to the adoption of anti-syphilitic treatment, and during his stay in the hospital he improved considerably upon the iodides of potassium and sodium.

Two cases of locomotor ataxia which presented abnormal features will form a fitting appendix to the above cases. Of these, one is remarkable from the supervention of paraplegia shortly before the death of the patient, whilst in the second we had an opportunity of witnessing a series of attacks which may be described as ataxic storms of a transient character, during which all the symptoms were greatly exaggerated.

A. T., a cabinetmaker, aged 30, had been in Rahere Ward, under Mr. Marrant Baker, in February 1885, for a perforating ulcer of the left great toe. At that time the knee-jerks were abolished, and he suffered from lightning pains.

On April 20th he had an attack of vomiting, with lightning pains in the legs, and girdle pain. On the 22d he lost power in both legs, but there was no loss of sensation. On the 24th the paralysed limbs "jumped" a good deal, and three days later bedsores began to form.

On May 1st he was admitted to John Ward with complete loss of power in both lower limbs, with no loss of sensation, and exaggeration, if anything, of the superficial reflexes.

The knee-jerks were entirely absent. The pupils reacted to accommodation, but not to light. There was a præ systolic apex murmur and a thrill. A large bed sore covered the sacral region and extended to the buttocks, and there was a second, smaller, on the right hip.

The sphincters were paralysed.

The temperature was 104.2° on admission, and the pulse 118 to the minute, small, soft, and regular.

The bedsores were carefully treated, and began to improve slightly soon after admission.

On May 5th he had a rigor, during which his temperature, which had been raised since admission, rose to 103° , and these rigors recurred frequently during the remainder of his life.

A few days later there was some hæmorrhage from a vessel laid open by the detachment of slough from the large bed sore, but it was soon checked with ice.

On the 17th vomiting commenced, and as this continued, he was fed with nutrient suppositories.

On the 23d there was some more hæmorrhage from the bed-sore, which was discharging freely.

From this time he rapidly sank, and eventually died on June 14th. Unfortunately there was no post-mortem examination.

W. H., bookkeeper, aged 42, was brought to the surgery by a policeman on the evening of July 1, 1885. He had not been feeling well during the afternoon, and whilst making his way to the office-door on leaving work had had two or three fits, in which he fell down and lost consciousness. He eventually succeeded in reaching the door, and locked it behind him, but fell in the passage in another fit. On admission, he seemed to be in an exhausted condition, and on attempting to walk with help, was seized with a sort of exaggerated "petit mal," losing consciousness for a time and falling. He gave no cry, but the fit was preceded by an ill-defined aura, and during the period of unconsciousness the arms made a few clonic movements. The radial pulse could not be felt during the fit. On one occasion he vomited.

In the intervals his gait was markedly ataxic, and he complained much of darting pains in all his limbs, which caused violent muscular twitchings. The pupils were extremely contracted.

The patient had rheumatic fever twelve years previously, and had three fits then, and had since had five or six at long intervals, besides many attacks of vertigo which did not cause him to fall. On no occasion had he bitten his tongue.

For four or five years he had had difficulty in walking in the dark.

On admission to John Ward, under Dr. Duckworth, the pupils were found to react perfectly both to light and to accommodation. The tendon-reflexes were abolished. The right great toe was red and swollen, but not tender. It grated on movement and presented the characters of a Charcot's joint.

His gait was then not markedly ataxic, but he could not stand with his eyes shut and his feet together. The ophthalmoscopic examination showed nothing abnormal. The temperature was subnormal. The urine yielded a faint cloud of albumen.

On the night of July 2d the temperature rose to 102.6°, but returned to subnormal on the morning of the 4th. On the 6th he had some pain in the right knee, which felt cold, and on the following morning it was found to be the hotter of the two by 5° of the surface thermometer. On the 8th the Argyll Robertson phenomenon, which had been carefully looked for in vain a week earlier, was found to be well marked.

On the evening of the 10th he was allowed to sit up for 2½

hours, and felt no worse for it, but on returning to bed he had a rigor, and the lightning pains returned with great intensity, causing violent twitchings of the limbs. The pains seemed to affect the arms and legs equally.

Meanwhile the temperature, which at 8 P.M. had been 99°, rapidly rose, reaching 104.8° at eleven o'clock, and fell gradually from that time, reaching the normal again at 4 P.M. on the following day.

On the 15th he again sat up, and the temperature rose to 100.6°, but there were no lightning pains. This happened after sitting up on a series of evenings. His progress was somewhat retarded by an abscess in the cheek, but he gradually improved, and eventually left the hospital on August 28th.

When last seen, he was feeling better than he had felt for some time, and the Argyll Robertson phenomenon had disappeared. During his stay he was treated with silver nitrate, and for the last fortnight with mercury and potassium iodide.

ON THE
NATURE AND ORIGIN OF RODENT ULCER .

BY

G. B. FERGUSON, M.D.

As to the precise tissue in which rodent ulcer originates, there exists, and will probably continue for some time to come, considerable uncertainty. According to the view originally propounded in Thiersch's work "On Epithelial Cancer" (1865), rodent ulcer is a superficial or flattened epithelioma, and derives its origin from the sebaceous glands. Dr. Warren of Boston (1872) also argues for its epithelial nature, though he considers its origin to be primarily leucocytal. Dr. Thin would pronounce it to be an adenoma of the sweat glands; while Drs. Tilbury and Colcott Fox considered that it originated in the outer sheath of the hair follicles.

Rather more than a year ago, a woman, aged 50, applied to me with a rodent ulcer involving the outer fourth of either lid of the right eye. I freely excised the affected parts, and she made a good recovery, retaining at the same time a useful degree of vision, notwithstanding the narrowed resulting chink of the eyelids. The microscopic examination of the growth was decisive and characteristic, though it threw no light on the question of its origin.

But this same patient presenting herself again after the lapse of a year, I noted the caruncula of the affected side to be slightly indurated, as also, though hardly perceptibly, the contiguous portion of the lower lid. There was no ulceration, or anything approaching to it, and the entire change of tissue had originated at about half an inch of distance from the operation scar. She gladly assented to my anticipating a return of the ulceration by excision of the suspected site, and the specimen thus secured

was found to present the somewhat unusual character of a rodent growth in its earliest incipency. Very numerous sections were cut, and twenty-three of the thinnest mounted. These were stained by the iron process of the Drs. Hoggan, in my experience the best of all the histological processes for many departments of pathological work; certainly no other one known to me so clearly evidences the finest granules and fibrillæ.

The microscopic characters of rodent growth are highly distinctive, and equally so whether the powers employed be low or high. With the low ones there is a peculiar streakiness (like the veins of some marbles), produced by the deeply-stained interlacing circles and cylinders of the cellular growth, permeating, as they do, a special variety of fibrous tissue. With the higher powers this streakiness is seen to depend on a very special arrangement—one obscured in the older, but very evident in the more incipient specimens—an arrangement of wedges, hollow circles, and hollow cylinders of fairly uniform multi-nucleated cells (possibly more truly described as granuled nuclei). Such represents the highest degree of simplicity. The same, with more massing of cells and more entanglement, will represent the most complex; whilst the oldest parts present a medium degree of complexity, and are arranged in massive alternating veins of cells and fibres. I would, in fact, pronounce this latter appearance to be the one most usually characteristic of rodent growth. The cells are of very uniform size (that of the nuclei of the mucous layer of the epidermis, *i.e.*, about the $\frac{1}{4000}$ th of an inch in their long diameter), and the angular and irregular nuclei of the fibrous part are of not far different size. These irregular and comparatively faintly-stained nuclei, and the fibres to which they can be seen to give origin, make up the entirety of the peculiar fibrous tissue above referred to.

Then as to the origination of the growth. At first I quite thought, with Thiersch, that this must be from the sebaceous glands, and I possess specimens which would apparently favour this view. Such present the aspect of a group of normal glands on one side of a hair and rodent tissue on the other side, as though a direct metamorphosis had there occurred. In fact, the appearance is highly suggestive of the actual production of the growth from the nuclei of the sebaceous glands. Attentive examination, however, more especially with a $\frac{1}{16}$ th inch immersion objective, negatives this view, and discloses the case as one, not of nuclear proliferation, but of actual invasion of the glands and their destruction by the neoplasm. There are, besides, two good reasons for taking this view: firstly, that the rodent cells are decidedly smaller than the sebaceous nuclei (the former

about $\frac{1}{4000}$ th, the latter $\frac{1}{3000}$ th of an inch in diameter), and, secondly, that they are much more deeply stained. The latter facts would, indeed, seem to remove all question of genetic affinity between the sebaceous glands and rodent growth.

In respect, next, to Dr. Thin's suggestion of the genesis of rodent growth from the sweat glands, I can only state that my specimens showed no sweat glands at all, even in the healthy marginal portions of the skin; from which the inference that the growth could not have originated from a tissue non-occurrent at its site or in its proximity.

Whilst writing thus, I would add that it is with much hesitation that I venture to differ from so competent an observer and so close a reasoner as Dr. Thin (and undoubtedly the resemblance, one extending to micrometric measurements, between a cylinder of sweat gland and one of early rodent growth is very striking), but, commenting on the specimens before me, my conclusions should be from them alone.

In regard to the view of Drs. Tilbury and Colcott Fox, that the origin is from the outer root sheath of the hair follicles, we are here, I believe, approaching closely to the truth. In fact, in one specimen I find a small isolated rodent growth distinctly sprouting from the outer coating of an imperfect hair; one unattended, and not even bordered by sebaceous glands. Still, whilst feeling sure that rodent growth has this origin sometimes, such did not appear to me to be its usual mode of commencement. But what, in truth, is the outer root sheath other than an extension of the Malpighian layer of the epidermis? And it is from this latter that I most decidedly consider the rodent growth (in my specimen, at any rate) to have originated.

This, I believe for many reasons: because of the similarity in size between the rodent cells and the Malpighian nuclei; because the growth can be here and there seen actually originating at the distal extremity of the Malpighian fingers; because the gradual passage of these fingers into rodent-growth masses can be traced in places; because the proximal and younger portions of the growth are liker to nothing else than to ramified Malpighian processes; because the incipient nodules can be seen in fortunate sections to be covered with the corneous cuticular layer alone, and to occupy the exact position of the Malpighian layer.

Whence the conclusion, which I again submit to be the true one, that the growth in question originates simply in a metamorphosis of the stratum Malpighii; in a nuclear as distinguished from a cellular proliferation.

Rodent ulcer is, therefore (as Thiersch suggested), distinctly

an epithelioma; and my study of many cases of epithelioma would lead me to conclude that we may recognise three varieties—(1.) where the growth is mainly of the corneous layer (common nest-forming epitheliomata); (2.) mainly from the mucous layer (less common columnar epitheliomata); and (3.) from the nuclei of the mucous layer (rodent ulcer).

CLINICAL CONTRIBUTIONS TO PRACTICAL MEDICINE.

BY

DYCE DUCKWORTH, M.D.

PART III.¹

I propose to make brief commentaries on the following subjects:—

1. Enteric fever with hæmaturia.
2. Enteric fever with loss of speech for more than a month.
3. Periostitis following enteric fever.
4. Enteric fever fatal by hæmorrhage — Passage of many lumbrici.
5. On the occurrence of green stools in enteric fever.
6. On a case of enteric fever with spinal symptoms.
7. Enteric fever with parotid bubo.
8. Enteric fever followed by bacillary pulmonary phthisis.
9. On the use of alum-whey and malt-extract in enteric fever.
10. Free fat in the urine.
11. Symmetrical herpes zoster.
12. Boro-glyceride as a remedy in pruritus, &c.
13. On the necessity of urging expectoration in certain cases of lung-disease.

I. *Hæmaturia in Enteric Fever.*

I have twice known cases to die where hæmaturia occurred during enteric fever. In both it was apparently of renal origin, and was present at the end of the illness. In one case of a man, æt. 25 to 30, in which death occurred from perforation, beyond

¹ For Part II. *vide* vol. xv. p. 16, 1879.

redness of the cortex of the kidneys nothing was found to explain the hæmorrhage, no ulceration being met with on the urinary tract. In the other there was a prostatic abscess, and embolic masses probably reached the kidneys before death and led to the hæmorrhage.

I have seen several other cases in which the symptom has passed away and led to no subsequent trouble. One of the severest cases was the following:—

F. D., a nurse, æt. 20, admitted May 4, 1885, to Elizabeth Ward. She had never had serious illness till about six weeks before, when she had nausea and anorexia, felt ill, left her situation, and had to keep her bed after the 29th of April.

The temperature fell the first night, but rose the next to 103° , and on the 6th May reached 103.4° , its highest point. From that time gradual fall to normal. Pulse about 130. The bowels were confined. The urine was bloody; sp. gr. 1010, in agreement with pulse; albumin $\frac{1}{10}$; crystals of uric acid. The patient was very weak and pallid on admission. She said the urine had been red at the beginning of her illness, and black the first few days. No history of scarlet fever. Thinks she caught cold since she began to be ill from sleeping near an open window. There was a good deal of hectic flush on the cheeks and sweating during the last days of the pyrexia. On May 8th, during defervescence, sudamina appeared in large numbers. Granular tube-casts were also found in the urine on this day. The history of the case and the temperature chart led me to believe that the illness had been enteric fever. The family history was very bad in respect of tuberculosis, and I was at first fearful lest I had to deal with acute tuberculosis in this case. The urine was no longer red on the 20th May, and was free from albumin on the 25th. The quantity passed was from three to four pints on admission, gradually falling to two and one and a half. There was never any œdema of the feet or face. There was an excellent recovery, and the patient was discharged to the Convalescent Hospital, where she further improved.

Quinine and digitalis were used while the hæmaturia lasted, and quinine and iron given subsequently.

2. A Severe Case of Enteric Fever in which Speech was Lost for more than a Month.

L. W., girl, æt. 10 years, admitted February 12. Ailing since 2d, laid up on 5th, delirious since 7th. Two or three loose stools daily. Mother died of enteric fever two weeks previously, and

an elder brother had same disease and recovered six weeks ago. Very ill on admission; complexion dusky, tongue crusted, dicrotic pulse; temperature 104° , and 105° on following day (highest point reached). Spleen large; much papular rash; bronchitis. Diarrhoea and high temperature maintained. Pulse irregular on 15th day, and urine half albumin. No œdema of legs. On 17th day albumin gone. Had to be fed by nares with soft tube and syringe. Temperature fell to 99° on morning of 18th day, but rose to 103.6° the same evening. Had seven minims of laudanum each night with marked benefit. On the 21st day the temperature rose at night to 101.2° , having fallen to 96.4° the same morning. No more pyrexia. The girl was very dull, and noticed nothing for many days. Though quite conscious when admitted, she did not speak, and had not uttered a word for two days. When the stupor of her feverish state had passed away, recognition of her family and those about her being obviously perfect, she could not be made to speak. On the 12th of March she spoke a little for the first time, *having been absolutely silent for thirty-five days*.¹ There was extreme muscular wasting in this case. On March 1st the arms could not be placed under the bed-clothes if they were left uncovered. Faradisation was employed, and perfect recovery took place. Discharged April 7th. Mellin's food was used at one period, and four ounces of brandy were taken daily during the first week. The child was a very bright and lively one, and her sisters seemed healthy and vigorous. Faradisation was of marked benefit during the convalescence of another patient from a severe attack of enteric fever. It had distinct tonic and bracing action, and roused the patient from a very languid condition.

3. *Periostitis following Enteric Fever.*

The occasional occurrence of periostitis as a sequel of enteric fever is now well-recognised.² Sometimes this trouble is slight and unimportant. In some cases it is very tedious and intractable. I have had four or five examples within two or three years under observation in the wards. A case seen privately was one of periostitis and perichondritis affecting one of the left ribs. The man was aged thirty-six, and had always been healthy

¹ *Vide* case of boy, æt. 9, recorded by Dr. Church in "Observations on Typhoid Fever," St. Bartholomew's Hospital Reports, vol. xvii. p. 103 (1881), in which speech was absent for fifty-four days.

² *Vide* Sir J. Paget's paper on this subject. St. Bartholomew's Hospital Reports, vol. xii. p. 2, 1876.

till an attack of enteric fever occurred three months previously. A swelling came over the sternum and broke, and it continued to discharge matter for twelve months before healing. The health was impaired by so much discharge, but perfect recovery was made, and is maintained up to the present time.

In another case, that of a young woman, periostitis appeared over one of the tibiae before convalescence was complete. The pain was relieved by lead and opium lotion, and in a short time complete recovery occurred. The two following cases were more severe and obstinate:—

CASE I.—C. B., æt. 27, married eight years, has three healthy children. No miscarriages. No history of syphilis. A pale woman with dark hair. On 16th August 1884 was confined of her fourth child, which died in convulsions on the second day. Puerperal fever and mania were said to have supervened. Two children in the house had enteric fever, and this patient developed the disease, and was laid up for five weeks. Dr. Slater wrote to me about the case, and assured me of his diagnosis, reporting the occurrence of rose spots.

On October 21st there was pain in the right instep and shin. In a few days the left shin became painful, and several nodes appeared on both shins.

Patient soon afterwards admitted to hospital. She was obviously in poor health. There was evidence of mitral stenosis. The urine was natural. No febrile movement. In November another node appeared on left tibia, and all these swellings grew slowly larger. They were never very painful, and never ached more at night. Very little change took place in them.

Iodide of potassium was given in small and in very large doses—up to three drachms daily—without any benefit whatever. Iron was of some value. Some of the nodes softened in parts, leaving the integument over them soft and allowing fluctuation, but there was no threatening of rupture. In January this patient returned home. In a few weeks she was readmitted, the nodes having grown larger and become more painful. Rest in bed was useful, and syrup of phosphate of iron was given. Good diet and wine were taken with appetite. The patient again went out. August 1885.—Much in the same condition. Lately had a miscarriage with much flooding. Iodine liniment relieves the pain to some extent. Lead and opium lotions were also soothing at one time. At the end of August, the skin broke in two places over a large node on the right tibia. A little glairy discharge came from these. They were dried and painted over with collodion. In October there was marked improvement in

both shins, and the general health was also better. Iron and cod-liver oil were continued regularly.

CASE II.—A. J., æt. 16, a rather frail-looking girl, came into Elizabeth Ward in September 1884 with enteric fever. Had a rather severe attack. During her convalescence she had nodes on both tibiæ, larger on the right leg. This case very closely resembled the one previously described. The nodes were painful, but not to the same extent commonly experienced in syphilitic cases. They were not worse at night. Similar treatment to that practised in the former case was employed. In June 1885 there was little change for the better. The general health was very fair. The legs ached a good deal at times. In August hardly any improvement. In one or two places slight softening and fluctuation felt. However tempting such cases might be for surgical interference, I took care to have the fluctuant spots protected and let alone. I imagine if the skin was to break there would be a troublesome sore, and exfoliation of a lamina of bone might occur. These cases are very tedious, and seem little influenced by any line of treatment, at any rate in patients in a humble sphere of life, who cannot secure rest or bracing climate. Tonics, iron, and good food, with all the rest possible, seem to be best for them. The condition possibly depends upon some special predisposition to periosteal disease, some inherited weakness which manifests itself during the exhaustion and low state of health induced by the fever.

4. *Fatal Case of Enteric Fever—Hæmorrhage from the Bowels—Passage of many Lumbrici.*

This case was under Dr. Andrew's care, and he kindly allows me to record the main features of it here.

G. M., a young Italian, æt. 18, not long resident in London, was admitted to Mark Ward on December 26, 1882. He had been ill for a fortnight. Had good health previously. He had marked symptoms of enteric fever, with tender and enlarged spleen. On the 30th vomited six times. On the 31st he passed four round worms with his motions. Occasional vomiting. On January 2d vomited one worm, and in the evening passed another by the bowel, some blood being also present. Pulse soft and running. Objected to take nourishment, and very wakeful. Opium was freely employed in various forms. The urine was free from albumin. On the 3d January had pain in abdomen, and passed three worms with some more blood. Refused nourishment, and died on following day. The temperature rose to

104.6° on January 1st, and gradually fell from the morning of January 2d to the time of death. Santonine was prescribed on January 4th. Death occurred the same day.

Murchison quotes the opinion of Louis to the effect that lumbrici are often passed in enteric fever, and that he had on many occasions found them in the small intestine after death. In Murchison's experience their presence was exceptional, and I should be quite disposed to agree with him. He further remarks upon the fact that enteric fever was attributed to lumbrici by Lancisi in the seventeenth century, also by many writers in the eighteenth century, and hence called worm-fever.¹

5. *On the Occurrence of Green Stools in Enteric Fever.*

I have now seen several cases of enteric fever in which the patients passed at some time green stools. Some of these occurred in Dr. Andrew's wards. Green stools were likewise passed in two remarkable cases of his in which there was severe ulceration of the large intestine, which led to hepatic abscess in each instance, the ulceration being quite peculiar and unlike that of ordinary dysentery. This autumn I have met with green shreds and particles in the ordinary (ochrey) stools of two patients suffering from enteric fever. These small masses closely resembled in one case particles of boiled green peas, and in the other shreds of mucous membrane deeply bile-stained. Microscopically their structure was evidently that of sloughs of the mucosa. Chlorophyll was not detected in one of them by the spectroscope at the hands of my house-physician, Dr. Garrod.

In another case of well-marked enteric fever with eruption and enlarged spleen, the patient, a male, æt. 24, passed soon after admission, about the end of the second week, a bright green motion. On standing, this separated into two layers. The upper one was a turbid green fluid, the lower one resembled a thin paste of vivid emerald green colour, consisting of finely granular masses like mashed pistachio nuts.

The next stool was much darker in colour, separated into two layers, the lower one being of olive-green or boiled-cabbage colour. The third stool was of the ordinary ochrey character. At the end of the third week some patches of blood were passed in the stools. These usually fall to the bottom of the vessel, and must be sought there. Opium was freely used in small enemata. This controlled the bowel-actions, and was generally of much

¹ Treatise on the Continued Fevers of Great Britain, edit. i., pp. 390, 539, 1862.

avail. In a day or two later some small clots of blood were again passed, the temperature having fallen below normal, and the pulse become dicrotous, 112-140. Dark-green stools were again passed from time to time, alternating with ochrey ones. Some of these masses sank to the top of the lower layer in the vessel, and had shreds of sloughed mucous membrane and blood mixed up with them. A relapse subsequently took place.

It is difficult to account for stools of this character. Dr. Andrew, from his experience, is disposed to connect their occurrence with the existence of ulceration as well in the large as in the small intestine. It is noteworthy that a stool presenting this peculiarity should be followed not long afterwards by one of ordinary enteric fever character, having no apparent relation to the former in respect of colouring matter. Nothing in the diet or medicinal treatment will account for this peculiarity. In the above case there was no doubt of the presence of deep ulceration.

6. On a Case of Enteric Fever with Spinal Symptoms.

This was the case of a young married woman, A. H., æt. 21, who was admitted into Elizabeth Ward on 12th November 1885. She had been suckling for four months. For several weeks before admission she had been ailing, had kept her bed for a week, and suffered from diarrhœa. The temperature was 103° and the pulse 144, small and soft. There was a good deal of bronchitis and troublesome cough. There were a few spots, and the spleen was tumid. The urine had to be drawn off soon after she came in, and contained one-eighth of albumin. The fever continued high and there was much prostration. The face was much flushed. In a few days subsultus occurred, and there was coma vigil. On the 18th the pulse was 152 and running. Stimulants were required, and by this time she was taking ten ounces of brandy in each twenty-four hours. Opium was given from the 14th, in a mv . dose at first, then in an enema with mxv . of laudanum one night. This was twice repeated to keep the diarrhœa in check and to induce sleep. On the 19th there was much stiffness of the neck and limbs, and later in the day there was an obvious degree of opisthotonos, the feet being in equino-varus positions. It had become difficult to feed her, and swallowing was imperfect. Opium was now given in pills of a grain broken up in food, and nourishment was very successfully introduced by a soft india-rubber catheter along the nares. She rallied considerably under opium and fuller support. There was now much meteorism. Three grains of opium were given as above, and the pupils became smaller, and some sleep was

secured. Next day the opisthotonos was less marked and the tympanites diminished. She was more intelligent, and swallowed a little. A grain of opium was given four times daily, and each hour she had half an ounce of brandy day and night. Decubitus generally dorsal, with all the limbs fully extended. Abundant sudamina and much sweating. On the 22d the pulse was 128, improved in character. Neck still rigid. Much moaning. The urine was passed under her plentifully, 1020, acid, and containing a cloud of albumin. Turned on her side of her own accord. 23d.—Had sleep. Restlessness and muttering delirium. Pulse 140, feebler. Arms still rather stiff, neck less so, body extended fully. Much sweating. The bowels had been unmoved for several days till to-day, when some semi-solid masses were passed with powdery matter. Tympanites still present. Was very prostrate early in the morning, and revived by a musk and ether draught. Opium still continued in half-grain doses four times daily. The spasmodic symptoms gradually passed off and improvement set in, but the temperature remained high for three weeks.

Spinal symptoms are very rarely met with in enteric fever. Dr. John W. Ogle reported some instances twenty years ago.¹ They all occurred in young women. The head was retracted, and the muscles of the neck were very rigid, interfering with swallowing. There was hyperæsthesia. In this case the latter symptom was not met with. Dr. Ogle quoted in his paper some cases reported by Fritz² where tetanic symptoms prevailed in cases of enteric fever in young women about the middle or end of the first week.

In the experience of both these writers the cases ended fatally. No autopsies were made. The complication is most grave. Feeding by the nasal catheter is a measure of great value in such cases, and may be employed in many conditions when nourishment is badly taken, as recommended in an admirable paper by Dr. Bullar.³

7. *Enteric Fever with Parotid Bulo.*

W. C. O., æt. 28, a potman, was admitted into John Ward under my care on April 3, 1885. He was a sparely-nourished

¹ Medical Times and Gazette, January 1865.

² Etude clinique sur les divers symptomes spinaux observés dans la Fievre Typhoide. Paris, 1864.

³ On the Treatment of Cases of Imperfect and Painful Swallowing, by J. F. Bullar, M.B. *Practitioner*. London, October 1885. Vide Church (loc. jam cit.), p. 102.

man. On 25th March he began to feel ill and vomited; on 26th he was at work, but had to take to bed on 27th. Was at work again for two days, and was finally laid up on 31st. Diarrhoea began on 26th. On admission he had rose spots, and his urine contained one-fourth of albumin. His temperature reached 105° on 4th April. This was reduced by sponging, a cradle placed under the bedclothes, and several five-grain doses of quinine. Pulse 88, dicrotous. Motions were characteristic. Some impaired resonance over left back, and friction heard in the axilla.

On the 7th April eruption copious; seven motions.

9th.—Diarrhoea continued; eruption abundant; pulse 96, dicrotous. Tongue thickly coated. Urine 1035; one-fourth albumin.

11th.—Four motions in last twenty-four hours; temperature under 104°. Some tenderness and swelling under left ear. Fresh spots appearing.

13th.—Swelling under the ear increasing; no fluctuation detectible.

14th.—Increase of swelling. Pulse 112, soft.

15th.—Some puffiness in the right parotid region.

18th.—Much delirium on previous night; trying to get out of bed. Abscess was opened yesterday afternoon below the ear, and two drachms of pus were evacuated. Drainage tissue inserted and a poultice applied. Is wasting rapidly. Swelling on right side is subsiding. Diarrhoea continues. Taking nitro-hydrochloric acid draught and opium each night. Quinine causes sickness.

19th.—Swelling going down; free discharge into poultices. Delirium. Pulse 100, firmer.

21st.—Sweating a great deal. Bad night, with delirium. Temperature fell to 99.2° to-day. Four motions. Tongue thickly furred in centre.

23d.—Temperature subnormal after profuse sweating. Delirious. Semi-solid motion passed. Pulse 68, firmer.

25th.—Much in same condition. Urine now free from albumin. The abscess cavity was explored under chloroform by Mr. Murray, the house-surgeon, and two fresh counter-openings made.

26th.—Very faint in the evening, and required more brandy. He took usually from six to eight pints of milk (much of this used as whey), ten ounces of beef-essence, and from four to eight ounces of brandy daily.

27th.—Temperature normal; tongue cleaner.

29th.—Becoming rational. Pulse 100, dicrotous. Motions semi-solid.

May 6th.—Abscess healing. Taking fish.

7th.—Considerable bleeding from the abscess cavity on previous evening; stopped by a compress and bandage. Some nightly rise of temperature. No motion for eight days.

9th.—Bowels relieved by an olive oil enema. Pulse 108, firmer.

14th.—Sweats freely. Wound healing well.

17th.—Sat up for an hour. Appetite very good. Discharged to Swanley Convalescent Hospital, June 5th.

The temperature fell on the twenty-eighth and thirtieth days of the fever after profuse sweatings. The abscess began on the eighteenth day.

Parotid abscess is not a common complication in enteric fever. It is more frequently met with in typhus fever. It is always associated with severe cases, and the result is very often fatal. Suppurative parotitis occurred 16 times in 1600 cases of enteric fever at Basle, 7 of these proving fatal. Hoffmann, who affords these statistics, believes that the close and tough texture of the fascia enclosing the parotid leads to greater pressure and severer inflammation in it than occurs in other salivary glands and the pancreas, which are all affected by parenchymatous changes in enteric fever.¹ Its occurrence would seem to point to a strong impregnation with the specific poison of the fever. There was clearly an abortive effort at suppuration on the right side in this case. Unwearied attention on the part of the nursing staff had much to do with saving this man's life. A case occurred last year in Faith Ward under Dr. Church's care in which double parotid bubo was present. By his permission I record the main features of it. A little girl, æt. three years, had well-marked but rather mild enteric fever with eruption. On the thirteenth day the left parotid gland began to swell, and the temperature rose from normal to 103.2°. Shortly afterwards the right gland swelled. On the sixteenth day the swelling was much increased, and the following day first the left, and a little later the right bubo burst into the adjacent external auditory meatus. The temperature fell forthwith. Counter-openings were made on each side to secure drainage of pus. The child remained very ill for three weeks, but made subsequently an excellent recovery. In 1883, in 146 cases of enteric fever in the hospital, two had parotid bubo, one ending in abscess. In 1884, in 126 cases one ended fatally with parotid bubo.

¹ Ziemssen's *Cyclopædia*, art. "Typhoid Fever."

8. *Enteric Fever followed by Bacillary Pulmonary Phthisis.*

M. W., housewife, æt. 35, living in Peabody's Buildings, Clerkenwell Road, was admitted under my care to Elizabeth Ward on March 7, 1885, suffering from well-marked enteric fever. Had never been robust, but had no serious illnesses previously. Her son, a boy of 13 years, was admitted at the same time with the same illness into John Ward, also under my care. They lived on the ground-floor, and the sanitary arrangements of the building were believed to be beyond suspicion.

M. W. had a rigor on 28th February; took to bed on 2d March, and diarrhoea began on 3d. A well-nourished woman, with much integumentary and omental fat. Some rose spots on abdomen. Spleen impalpable. Motions characteristic. The temperature reached 105° on the tenth and eleventh days; 105.4° on the twelfth day (the highest recorded), and remained high till the end of the fifth week, when the morning fall reached the normal line. The case was very severe. Copious eruption appeared, as was also the case in the son. The urine contained a trace of albumin. There was some bronchitis at the bases of the lungs. Towards the end of the third week much delirium and subsultus tendinum; œdema of the ankles. Some general œdema noticed on twenty-third day, and very feeble pulse. Cough was troublesome. Mucous râles heard at base of left lung. Respirations 48; pulse 140. Left leg more swollen than right. A high temperature was maintained, with nightly rise, till the 105th day of the illness. The albumin disappeared from the urine. There was threatening of bed-sore over right trochanter. An abscess began to form under this, and ten ounces of pus were let out on the forty-ninth day, a drainage tube being put in the cavity. At this date the motions, which had been semi-solid and formed for more than a fortnight, became again powdery. No distinct relapse of fever could be made out. The chart of temperature showed a continuous nightly rise to about 102° at this period, with a morning remission to 99° or normal. The abscess cavity was washed out with antiseptics daily, and began to contract and discharge less freely. A portion of fascia lata came away as a slough before the cavity closed. On the sixty-third day a threatening of another abscess in the right hip. Some pain in the left chest, with slight pleural friction on sixty-ninth day. This passed away in a few days. On seventy-seventh day a trace of albumin again in the urine. This had disappeared on the ninety-first day. The pyrexia was

less marked about the 100th day. There was no sweating. Some dry cough. On the 105th day examination of the chest revealed that there was impaired percussion note at both apices, extending lower on right than on left side; bronchial breathing at both apices; most marked on right side. Pulse 88. Sputa scanty. Bacilli detected. Fluctuation in swelling over left hip. A grooved needle was passed into this, and some clear tenacious yellow fluid was withdrawn, sp. gr. 1020, alkaline, containing oil globules, and becoming solid on boiling. On the 126th day physical signs in chest much the same, more mischief being detected on right side. Able to sit up in the ward, and carried down into the hospital square. After the 100th day the morning remissions of temperature were often subnormal. The cough was of very little moment. A good deal of discharge came from the abscess-cavity in the left thigh. The temperature did not become fairly natural till the 150th day of the illness. For many weeks previously the appetite was very good, and a liberal dietary with malt liquor was fully enjoyed.

The patient was sent to the Convalescent Hospital at Swanley on August 7, and left on the 7th September. Her weight was ten stones on leaving London. She gained six pounds at Swanley, and on 9th October weighed eleven stones four pounds. Can walk a mile with a stick. Lately spat about a teaspoonful of blood. Temperature normal. Pulse 110, sn all, after some exertion. Physical signs in chest indicate deposits in each apex, with softening, most advanced on the right side. Some flattening is in progress under each clavicle, and the finger-ends are becoming adnated. There was no family history of phthisis to be obtained. The boy made a good recovery in due course without any noteworthy sequelæ.

Tuberculosis was probably the cause of the prolonged pyrexia in this case. Emaciation was considerable. Murchison observed tuberculosis to arise not uncommonly as a complication or a sequel in enteric fever, and certainly with greater frequency than in the case of typhus fever. Dr. Walshe mentions that he has occasionally observed most remarkable disappearance of local and general symptoms—practically complete recovery—in cases of this kind, and thinks the deposits can hardly have been genuine tubercle.¹

Dr. Douglas Powell tells me that in his experience at the Middlesex and at Brompton Hospitals he has not observed enteric fever to be at all a common antecedent of tubercular cases. Liebermeister found phthisis “a tolerably frequent sequel” of enteric fever during six years’ observation at Basle,

¹ Diseases of the Lungs.

and quotes Mettenheimer's experience of thirteen cases of phthisis in thirty-eight fatal instances of enteric fever amongst French prisoners in Schwerin during the war 1870-71; also Hoffmann's report of 250 post-mortem examinations, in which four cases of general miliary tuberculosis were met with.¹ My experience leads me to affirm that cases of enteric fever, as commonly seen in hospital practice, very rarely develop signs of phthisis so long as they remain under observation, and the records of the dead-house indicate precisely the same thing at this hospital.

Last year one patient, a male, æt. 36, developed phthisis in the hospital after enteric fever.

9. *On the Use of Alum-Whey and Malt-Extract in Enteric Fever.*

I have found this form of nutriment of use in cases marked by troublesome diarrhœa, especially in the later stages. When it is desirable to prevent milk-curds from irritating deep ulcers and adding to the general mucous catarrh, and when hæmorrhage is at the same time threatened or actually present, alum-whey seems specially indicated.

The suggestion is due to the late Dr. Murchison.² The alum is added to hot milk in the proportion of a drachm to a pint; this is then boiled and set aside for an hour or two, and the curd separated by passing the whey through muslin. It is not unpleasant. Whey made in the ordinary manner with rennet is likewise very useful when milk becomes distasteful in a protracted case. All sick-nurses should be instructed in making it. In cases of deep ulceration in enteric fever, extract of malt is useful as an unirritating form of nourishment. It may be given with milk and lime-water, or alone with water in the form of Mellin's food, or of any of the well-prepared extracts now readily procurable.

10. *Free Fat in the Urine.*

Instances in which fat is found in the urine are so rare that I am induced to record the following case, which illustrates a mode of entry of fatty matter into the urinary tract not commonly recognised.

J. H., æt. 41, a plumber, was admitted under my care in John Ward on May 16, 1885. A pale, anxious-looking man. Parents living and family healthy. His history was of severe pain for six months past, shooting through to front of belly, across the

¹ Ziemssen's Cyclopædia, art. "Typhoid Fever."

² Treatise on Continued Fevers, edit. i. p. 574, 1862.]

loins, weakness in the back, increasing pallor and wasting. Nine weeks before admission laid up with pains in chest and right shoulder. In his chest there was found some impairment of resonance under the clavicles with harsh respiration; dulness at the base of right lung behind, with defective breath sounds, some friction, and increased vocal resonance. Heart—reduplicated second sound at base. Pulse over 100. Abdominal viscera apparently natural to palpation; some increased aortic pulsation. Urine 1020, acid; no albumin or glucose; crystals of uric acid, and large and small sized granular casts. Nothing seemingly wrong with spinal column, although percussion over the lower dorsal region increased the pain. There was a tender spot in the right lumbar region, but nothing definitely wrong could be felt there. No marked change for some days; pain persisting, and gradually progressive anæmia and weakness. Uric acid constantly present in the urine. Knee-jerk found increased on right side and ankle-clonus; later on, both knee-jerks increased.

May 20.—Some albumin in the urine and some blood-streaks in sputa. Temperature rose to 100° each night. Abdomen examined under chloroform on 26th May. No more than a fulness felt in the region of the pancreas, with undue aortic pulsation. Blood examined, and red globules found diminished to nearly one-half the normal number; leucocytes 1 to 180. Increasing pain and tenderness in left and right hypochondria.

June 1.—Some small granular casts in urine. Losing weight; is now two stones eight pounds lighter than when in health.

June 6.—Pulse 108, full and soft. Same signs at base of right lung.

June 9.—Urine 1025, acid; trace of albumin, and *large number of fat globules*, also casts large and small.

June 13.—Losing appetite. Crepitation at base of left lung. Much pain. Fat found on several occasions in the urine, great care being taken with all vessels containing the secretion.

July 1.—Increasing pallor and cachexia; agonising pain only relieved by frequent and full doses of morphia. Numerous enlarged glands felt through abdominal walls. Temperature falling. Hard masses now felt in right anterior lumbar region and over the spinal column deep down. Death on July 2.

The diagnosis here was at first very obscure. One thought of Addison's disease, of pernicious anæmia, of lymph-adenoma, of renal calculus, and latterly of malignant disease. In a clinical lecture on the case, I ventured on the diagnosis of osteosarcoma, beginning in the spinal column and involving the lumbar glands, and possibly the kidneys and bases of the lungs. I surmised that the free fat came perchance from the detritus of

masses in the kidneys, which were shed gradually into the urinary tract. The uric acid, so constantly present, was common in cases of cancer.

At the autopsy this diagnosis was partly verified. The important changes found were—Costal cartilages partly calcified. Lungs both adherent over much of surface, with many very small whitish nodules on surface and in substance. Heart—several whitish masses of new growth; same on the diaphragm on its lower surface. No general diffused new growths in peritoneum. Liver normal; intestines and pancreas likewise. Spleen enlarged. Adrenals natural. Kidneys—pelves dilated; many small masses of new growth in each, some breaking down; obviously the source of the oily matter shed into the urine. A large mass of new growth involved the deep lumbar glands and spread up the pillars of the diaphragm, attacking the pleuræ. Microscopical examination of it led Dr. Norman Moore to the opinion that it was a sarcoma.

11. *Symmetrical Herpes Zoster.*

L. L., æt. 19, a fairly well-nourished lad, came to the hospital on November 5, 1881. He stated that he noticed a rash on his body on the 3d instant. It came out without any pain. An eruption of herpes was found crossing both shoulders, with more symmetry in front than behind. It occurred in the distribution of the acromial and clavicular superficial cervical nerves. There were distinct vesicles on brilliantly red bases, many of them beginning to dry up. No local irritant appeared to have induced the attack, and there was no sign of recent catarrhal disturbance. The lad seemed to be in very fair health.¹

12. *Boro-glyceride as a Remedy in Pruritus, &c.*

I have found boro-glyceride a successful remedy in several cases of troublesome pruritus. In anal and pudendal itching, common in gouty and diabetic patients, it has afforded relief when other means have failed. It may be used diluted with water, one to three or four, or in severe cases pure.

It is not commonly known that borax preparations are much more soothing and sedative to tender and abraded mucous surfaces than chlorate of potassium, which is, locally, somewhat of an irritant. Glycerine is itself a penetrating and sometimes an

¹ *Vide* cases reported by Mr. Bryant, *Medical Times and Gazette*, 1865, vol. i. p. 335; and by Mr. B. Squire in same journal, 1873, vol. i. p. 495. (Referred to in *Medical Digest*.)

irritating application. The chemical compound boro-glyceride seems to be free from this objection, which is not the case with glycerinum boracis.

In a case of sore tongue occurring in association with severe chronic pemphigus, glycerine of borax was found temporarily the more grateful of the two, keeping the mouth more moist than did equal parts of the boro-glyceride and water, but the latter seemed to have more healing effect. Honey of borax seems less irritating than the glycerine preparation. A lotion of boro-glyceride, two per cent. strength, was found of much value in a very obstinate case of cystitis, which yielded to no kind of treatment by diet and commonly approved drugs. My colleague, Mr. Marsh, at my request, began local treatment by washing out the bladder. There was great sensitiveness, and only two drachms of fluid could at first be tolerated in the viscus. This was gradually overcome by the preliminary use of a four per cent. solution of cocaine, and thus the bladder was regularly washed out, at first every two days, then daily, and then twice daily. Great improvement resulted in about six weeks. This is probably the best method of treatment for such cases of cystitis as do not soon yield to ordinary means.

13. *On the Necessity of urging Expectoration in certain Cases of Lung-Disease.*

In many cases of pulmonary disease patients are apt to state that they have no expectoration. On examining the chest, evidence is found indicating abundant secretion into and from the bronchial tubes. There may be much cough, and yet the spittoon is regularly found empty. It is well known that children commonly swallow their sputa in lung-disease. Adults often do likewise. The habit is in every way bad, and may be pernicious. In cases where there is evidence that expectoration should be forthcoming, I am in the habit of *ordering* the patient to eject everything he coughs up, and it is surprising how much can be thus produced for inspection. Habit, false delicacy, and ignorance lead patients to swallow their expectoration. The sputa, being thus added to the contents of the alimentary canal, interfere with digestion, and in the cases of bacillary phthisis, fetid bronchitis, and empyema with bronchial fistula, may add mischievous products for inoculation or septic impregnation. And, in any case, a prominent sign of the morbid process is withheld from our view. This may seem a trivial matter, but I deem it a very important one, and commend the practice I have here inculcated for systematic adoption when necessary.

TWO CONTRIBUTIONS TO RENAL SURGERY.

BY

W. J. WALSHAM.

Although great strides have of recent years been made in renal surgery, this branch of practice may figuratively be said to be still in its infancy. The two following cases, therefore, which have been under my care during the current year, will, I trust, be considered of sufficient interest for a place in the forthcoming volume of our Reports. For the notes of the cases I am indebted to Mr. Edward Jessop, the then junior house-surgeon, to whose unremitting zeal and attention, combined with the watchful care of that most excellent of nurses, Sister Stanley, I cannot but feel that the success attending the first of these cases was in great measure due.

CASE I.

Calculous Pyelitis—Nephrectomy—Recovery.

(NOTES BY MR. EDWARD JESSOP.)

M. A. B., 41 years of age, and a married woman, was admitted into Mary Ward, under the care of Dr. Wickham Legg, on March 5, 1885, suffering from a tumour in the right flank.

The patient first noticed the tumour seven months previous to her admission; she has had no severe attacks of pain, only a constant aching in the lumbar region, intensified on sitting up or walking about. Her urine she characterises as thick and creamy, but the act of micturition has been natural. Catamenia have always been regular. Confined of fifteenth child twenty-one months ago.

The patient is well nourished. No dropsy. Heart and lungs

normal. Liver not below ribs. Spleen can be felt on deep palpation. Lying close beneath the ribs and deep in the right hypochondriac and upper part of right lumbar region is a hard and somewhat nodular tumour about the size of a large orange, dull to percussion, not movable from the right loin, and not very tender on pressure.

Urine—passes about three pints in twenty-four hours; sp. gr. 1025; acid; large amount of pus; one-third albumen (after filtering); 276.15 grains of urea in twenty-four hours (Russell and West's test). Temperature normal. Pulse natural. Mother died of phthisis. No other family history of importance.

March 20.—The patient was transferred to Stanley Ward under Mr. Walsham's care.

Her condition was carefully watched for a fortnight, when Mr. Walsham, with the concurrence of other members of the surgical staff, determined to expose the kidney, and deal with the tumour as circumstances indicated.

April 8.—The patient being under æther, Mr. Walsham, assisted by Mr. Cripps, made an incision from the tip of last rib to about an inch behind the anterior superior spine of the ilium; and having divided the several layers of muscles, exposed the tumour. The peritoneum, which had been carried forward by the tumour, was not seen during the operation. An aspirator needle was now introduced into the tumour, which felt tense and fluctuating, and about a pint of clear yellow fluid drawn off. A calculus could not be felt by the needle, but on enlarging the puncture and inserting the index-finger, a large branched calculus was found to occupy the pelvis of the kidney. Attempts were made to extract it with various-shaped forceps; and in this way several small pieces were removed. It was felt, however, by Mr. Walsham that the whole stone could not be got away without using great force, and it was decided, with the approval of those of his colleagues who were present, that the excision of the whole kidney would be attended with less risk. The capsule was therefore freely opened, and the kidney shelled out from it with the finger. The ureter was then freed and ligatured with China silk, and the kidney severed from it. Two straight ovariotomy clamps were next fixed on the pedicle, which was tied in two places with silk ligatures, the ends being left long, and the kidney with the stone was brought out of the wound. A drainage tube was inserted, and the edges of the wound were brought together with silver sutures. The carbolic spray was used throughout the operation, and carbolic gauze dressings were applied. The patient was a good deal collapsed, and late the same evening the dressings had to be changed as the discharge had come

through. She was given a draught of potass. bromidi grs.x. tr. hyoscyami 3ss., opium being thought inadvisable. She vomited repeatedly until the following evening, and consequently was fed with peptonised enemata and Slinger's suppositories. She passed 32 oz. of urine, with a specific gravity of 1026, containing a trace of albumen and 126 grains of urea, according to Russell and West's test. The quantity and condition of the urine before and after the operation is given in the accompanying chart.

April 14.—The enemata and suppositories were left off, and the patient fed entirely on slops by the mouth; 40 oz. of urine were passed, with a specific gravity of 1025, in twenty-four hours, containing 180 grains of urea, urates, but no albumen and no pus. Her temperature rose to 102° on the day after the operation, but gradually fell, and this morning was subnormal.

April 16.—Solids are now allowed to be taken. The wound has been dressed every day and looks extremely well, the spray (1 in 100) and carbolic lotion (1 in 100) being used.

April 29.—The patient progressing extremely favourably. No pain, sleeps well, appetite good; temperature never rises above 100°; the wound is almost healed, a sinus leading downwards and forwards into a cavity only remaining. Urine—40 oz., quite clear, sp. gr. 1020; acid; 174 grains of urea.

April 30.—Temperature 102°. She has been sick twice, and there is a slight redness round the wound.

As the spray and carbolic lotion were still being used, it was thought the redness might be due to carbolic irritation; the wound was consequently syringed out with a solution of iodine and the spray left off. The sickness continued, the temperature rose still higher, and the blush spread, leaving no doubt that erysipelas had set in.

May 7.—The patient has been removed to Coborn, the erysipelas having spread to the back and over the abdomen.

She seemed to derive benefit from the change of wards, for the temperature gradually fell and the blush diminished, so that within a week all signs of erysipelas had disappeared. The ligature was found loose in the wound, and was removed.

May 27.—A small stone, apparently phosphatic, came away from the wound.

May 29.—Patient got up. The external wound had closed, but a small collection of pus having formed, it had to be reopened.

Her convalescence from this time became complete, though a sinus still remained.

July 1.—The patient was sent to Swanley Convalescent Home. She was able to walk about, and her general health was perfectly

good. She was passing a normal amount of healthy urine. Her temperature was normal. On returning from Swanley she expressed herself as being quite well; but the sinus had not healed. About three weeks after her return a small stone about the size of a lentil came away from the wound, but without pain.

In the second week of October the patient brought to the hospital a silk ligature, which she said had come from the wound. After this the sinus rapidly closed, and the wound remains firmly healed. When last seen (November 18, 1885), she had gained flesh, her urine was healthy, and she expressed herself as feeling in perfect health.

The kidney removed was reduced to little more than a series of thin-walled cysts. The stone contained in it consisted chiefly of phosphates.

URINE CHART.

The amount of urea was tested by Russell and West's apparatus.

Date.	Quantity.	Sp. Gr.	Reaction.	Albumen.	Urea in grains in 24 hours.
April 6	60 oz.	1015	Acid	Large quantity.	261
" 7	40 "	...	...	Do.	174
" 8	45 "	...	...	...	200
" 9	Operation.			...	...
" 10	32 "	1026	...	Trace.	126
" 11	32 "	1026	...	...	140
" 12	36 "	1028	...	Slight trace.	80.184
" 13	34 "	1026	...	...	74.500
" 14	40 "	1025	...	None.	180.5
" 15	46 "	1016	...	...	157.6
" 16	42 "	1019	...	...	145
" 17	46 "	1020	...	...	"
" 18	66 "	...	...	...	212
" 20	60 "	...	...	...	184
" 23	40 "	...	...	...	174
" 24	25 "	...	...	...	110
" 25	45 "	...	...	...	164
" 26	30 "	...	...	...	132
" 27	30 "	...	...	...	260
" 28	31 "	...	...	...	340
" 29	40 "	...	...	...	"
May 2	36 "	1015	...	...	210
" 4	25 "	1025	...	...	175
" 9	30 "	1020	...	Trace.	...
" 11	22 "	...	...	None.	...
" 13	26 "	...	...	None.	...
June 1	50 "	1020	...	...	210
" 8	50 "	...	...	...	300
" 19	45 "	1016	...	...	200

CASE II.

*Calculus Pyelitis—Nephro-Lithotomy—Trismus—Death—
Epithelioma of Pelvis of Kidney.*

(NOTES BY MR. EDWARD JESSOP.)

C. B., aged 63, married, was admitted into President Ward, April 8, 1885, under Mr. Walsham's care, with a tumour in the left lumbar region. Patient's attention was first called to the swelling about five months ago, on account of the pain she suffered in that region. She is quite unable to say whether it has increased in size. The pain has got much worse lately, and she can now only obtain ease by lying on her back with the left leg drawn up; lying on either side increases the pain. The tumour extends an inch beyond the middle line in front, occupying the left half of the umbilical and the left lumbar region. Its margins are moderately well defined, and it is dull all over to percussion. It is tender on handling, and most so in the lumbar region, and distinct fluctuation can be felt. During the last year the patient has been troubled with frequent micturition, but the quantity of urine passed is small, not more, she says, than half a pint per diem. She has never had to get up more than once during the night to micturate, and the act is not attended with any pain. She has only noticed blood in her urine once, about four years ago, though she says the urine is always thick and dark brown in colour.

With the exception of rheumatic fever the patient has had no severe illness, and there is nothing remarkable in her family history.

Urine—passes $1\frac{1}{4}$ pints per diem; alkaline; sp. gr. 1017. Contains pus, mucus, phosphates, and blood.

April 15.—Patient has suffered continuous pain in the left side, much aggravated on movement. It has been necessary to give her morphia at night to relieve the pain. To-day Mr. Walsham aspirated the tumour in the lumbar region, and drew off 6 oz. of pus mixed with a little blood. A microscopical examination showed nothing but pus and blood.

April 21.—Since the time of the aspiration she has had no return of the pain until yesterday, but she complains of feeling weaker.

Urine—passes $1\frac{1}{2}$ pints; sp. gr. 1020; pus and blood; 157.8 grains of urea in twenty-four hours.

April 29.—The pain in the left side has rather increased than diminished. The urine presents the same characteristics, but is

free from blood. She has evidently lost flesh since being in the hospital, and complains of getting much weaker. After consultation with Drs. Duncan and Legg and several of the surgical staff, it was decided to explore the kidney for stone.

May 1.—Yesterday the patient was taken into the theatre, and Mr. Walsham, assisted by Mr. Cripps, operated. A longitudinal incision was made from the tip of the last rib to near the crest of the ilium, and the several layers of muscles having been cut through, an abscess cavity was opened, from which several ounces of blood and pus escaped. The parts were found to be much matted together by previous inflammation. Mr. Walsham made an examination of the wound with his finger, and deep down came upon a large branched calculus in the pelvis of the kidney. This was removed by means of forceps bit by bit, one piece measuring as much as $1\frac{1}{4}$ by $1\frac{1}{2}$ inches, and another $\frac{3}{4}$ inch by $\frac{1}{2}$ inch. It consisted of uric acid encrusted with phosphates. The peritoneum was not seen during the operation, it having been carried forward by the tumour. The spray was used throughout, the wound well washed with carbolic lotion, two drain tubes were inserted, the edges brought together with wire sutures, and gauze dressings applied.

May 2.—The patient slept fairly well, but complains of a sinking feeling and great thirst. She has vomited several times. Her temperature is subnormal; pulse natural. She has passed one pint of urine, sp. gr. 1020; no albumen, no blood, but still some pus; 158.14 grains of urea in the twenty-four hours. As the discharge had come through the dressings, these were changed under the carbolic spray.

May 8.—The patient does not recover her strength, though she takes her food fairly well. The wound looks healthy, but there is a smell as of decomposing urine about it. A distinct hardness can be felt in the region of the kidney. It is now syringed out with a weak iodine lotion (3ij to oj), and iodoform afterwards dusted in. The urine has a specific gravity of 1010, and is very alkaline; it contains no albumen, no blood, but some pus. About two pints are passed in the twenty-four hours, and yield 220 grains of urea.

On waking this morning and trying to eat some bread and butter, the patient found she was unable to open the mouth sufficiently wide to bite. She has been unable to eat anything solid since, and is in a highly nervous condition for fear of the jaws closing completely. The masseters are hard, and the sternomastoids somewhat harder than natural, but the abdominal muscles and the muscles of the extremities are not contracted.

May 9.—The condition of the muscles remains the same, but

the patient is getting weaker. She is still able to swallow liquids, and there is no contraction of the abdominal muscles or of the muscles of the extremities.

May 9, 11 P.M.—Patient has not passed any urine since 8 A.M., and only an ounce at that time. She has been sinking fast all day, and is unable to take liquid, as she is seized with violent coughing whenever any fluid is poured between the teeth. She was dry cupped, but without any beneficial effect. She died before midnight.

Post-mortem.—Left kidney—upper end adherent to the pancreas, its substance being converted in part into a multilocular abscess cavity. The upper half of the kidney presented the appearance of a new growth, which under the microscope proved to be an epithelioma. The ureter could not be traced to the kidney.

Right kidney—twice the normal size and fatty. The ureter was dilated and pervious, and contained urine.

No stone was found in the right kidney, but some small pieces were found in the left.

The friends would not allow a further examination of the body to be made.

URINE CHART.

Date.	Quantity.	Sp. Gr.	Reaction.	Albumen.	Blood.	Sediment.	Urea in 24 hours.
April 23.	1½ pints.	...	...	A trace.	None.	Pus.	157.9 grs.
" 24.	1 "	1020	Alkaline.	"	"	"	96.6 "
" 25.	1¾ "	1018	Slightly alkaline.	"	"	"	157.3 "
" 27.	1½ "	1022	Very do.	"	"	"	79.06 "
" 28.	2 "	1021	Very do.	"	"	"	140.56 "
" 30.	1½ "	1019	Alkaline.	...	"	"	144.96 "
May 1.	...	...	Alkaline.	Slight.	"	Not so much.	...
" 2.	1½ "	1021	Acid.	"	"	Pus.	158.14 "
" 4.	2 "	1015	Slightly alkaline.	"	"	"	210.86 "
" 7.	2 "	1018	Very do.	"	"	"	...
" 8.	1½ "	1018	Alkaline.	"	"	"	...

Remarks.—The symptoms in both these cases pointed clearly to a calculus in the kidney, and the presence of the swelling in the abdomen and the condition of the urine made the diagnosis almost certain. The first patient was admitted under the care of Dr. Legg, who, after some weeks' observation of her in the hospital, had come to the conclusion that surgical interference was not only justifiable, but imperatively called for on account of

the pain which she declared, though not excessively severe, rendered her totally unfit for her household duties. She was quite willing, moreover, to undergo the risk of a serious operation if any prospect could be held out to her of relief. After consultation with several of my colleagues on the surgical staff, it was agreed that an exploration of the kidney ought to be undertaken, and a calculus, if found, extracted, or failing to be able to do this, the whole kidney extirpated.

One of the chief points of interest in connection with the case is the incision which was adopted. Much discussion of late has arisen at the various Societies and in the Medical periodicals on the comparative advantages of the lumbar *versus* the intraperitoneal section. The one adopted, I think, combines many of the advantages of both, while it avoids what to my mind, whatever may be said to the contrary, is a proceeding increasing the danger of the operation, viz, opening the peritoneal cavity. The room that can be obtained in the lumbar incision is necessarily limited, and ere now operations undertaken in this way for the removal of the kidney have had to be abandoned. It is true that where the kidney has been found too large to be got out through the lumbar incision, this has been finally accomplished by cutting it into two or more pieces. Such a proceeding, however, greatly prolongs the operation, and is attended with considerable hæmorrhage and increased risk. Moreover, the wound is not only limited but often deep, and considerable difficulty in consequence may attend the ligature of the pedicle. In the lateral incision adopted in both these cases there was abundance of room, and more could have been obtained if required by prolonging the incision downwards. The peritoneum was not seen, and the pedicle was readily secured from the front, instead of having to be sought from behind at the bottom of a deep and limited wound. A few days before the first operation was undertaken, I had the benefit of helping Mr. Willett to remove a kidney for a similar condition, and I was impressed by the striking advantages of the lateral incision which he then made, and which, as far as I know, originated with him. He had previously suggested it to me in a conversation with reference to my own case, and I had, acting on this suggestion, practised it on the dead body, in which I found that the normal kidney could be removed in this way without opening the peritoneum. With a kidney of natural size, however, greater care is required to avoid wounding the peritoneum than in cases such as the above, where the peritoneum is carried well forward by the enlarged organ. There is something to be said both for and against shelling out of the kidney from its capsule in place

of enucleating the kidney with the capsule from the perirenal fat. The arguments in favour of it are, that all danger of injuring the peritoneum is avoided; the suppuration is limited by the capsule; and where there is much inflammatory adhesion between the capsule and the perirenal tissue, the kidney is more easily got away. On the other hand, it may be said that if the capsule is adherent, a longer time is required to shell out the kidney, and that the condensed capsule which is left behind may form a cavity apt to degenerate into a suppurating sinus. On the whole, however, I think the advantages of leaving the capsule are greater than the disadvantages. With regard to Case II., for which I was indebted to Mr. Chick-Lucas, the symptoms were very similar to those of Case I.; and after the aspiration and the removal of the purulent fluid, appeared almost identical. The epithelioma was not discovered at the operation, or I should, as in Case I., have attempted the removal of the organ. As the stone, however, came away fairly easily, I followed what would appear now to be, or likely to become, an established rule in surgery, viz., that where any of the secreting structure remains, the kidney should not be removed, as one kidney plus a piece of another is better than only one; and that should the removal of what is left of the kidney ultimately become necessary on account of the wound remaining as a suppurating sinus, there would be less risk of removing such a shrunken mass than the enlarged cystic organ. In Case I. the stone was so firmly impacted, sending branches as it did in all directions, that its forcible removal could only have been accomplished with a great deal of laceration and hæmorrhage, and hence, it was felt, with greater risk than that which would attend the extirpation of the whole organ. The two small stones which escaped from the wound during convalescence I imagine might be due to deposit from some urine which had regurgitated up the ureter from the bladder, or they might have existed at the time of the operation in the ureter below the spot where the ligature had been applied, in either case effecting their escape by causing ulceration of the walls of the ureter. I am not aware that this phenomenon has before been observed. The epitheliomatous growth which was found at the post-mortem examination was probably, as may be inferred from the history of the case and the size of the stone, the result of the irritation of the impacted calculus. A somewhat similar condition, viz., an epitheliomatous growth in the gall-bladder, apparently depending upon the irritation of biliary calculi, may be seen in a specimen recently added to the Museum.



VARIOLA AS SEEN IN THE CASUALTY DEPARTMENT.

BY

A. HAIG, M. B.

As in the nine months preceding July 1885 upwards of 100 cases of variola have been certified and sent off from the hospital, while in eighteen months before that the number of cases hardly amounted to 30,¹ I think that a few notes on some of these recent cases and the points in diagnosis they raise or illustrate may be of interest.

I propose to give a short account of two cases which led to errors in diagnosis, and then to say a few words on the general type of cases seen, as well as on some cases of other diseases which raised the question of variola.

The first case is that of S. S., æt. 45, a large and powerful man, by trade a waste-paper dealer, who came into my room on November 7, 1884, saying that he was subject to bilious attacks, but had had a much more severe attack than usual during the last five days.

He had had pain between the shoulders and been sick. This morning he noticed a rash all over him, which on examination was seen to consist of thickly scattered petechiæ, in some places, especially at the back and sides of the neck, inclined to be raised and papular; in other parts among the petechiæ were small flat circular hæmorrhages ("ink spots").

The rash was very thick between the scapulæ behind, and on the legs the "ink spots" were more numerous than elsewhere.

He said he felt better now than he had done during the last few days.

He passed some water, and it was seen to be almost pure

¹ I am indebted for this information to a record kept by Mr. Waymark of all cases certified.

blood; this was the first time he had noticed it to be so. Under the microscope it showed nothing but blood, no casts of any description. The temperature was raised a little over 100° .

My first impression was that it was a case of hæmorrhagic variola, from the symptoms and the somewhat, to my mind, papular tendencies of the rash on the neck. I was, however, rather put out by the hæmaturia; and as there were other opinions in the field, I unfortunately did not hold to my opinion very strongly.

The patient was taken into Luke Ward, where, however, he was treated with some suspicion, isolated as much as possible, and carefully watched.

While in the ward, during the afternoon and evening of the 7th and the morning of the 8th November, before being transferred to Homerton, the following notes, which Dr. Gee has kindly allowed me to see, were taken:—

Nov. 3 and 4.—Felt seedy.

Nov. 5.—Vomiting almost continuous; no shivering; general pain not more marked in loins. (He had told me that it was most marked between the scapulæ.)

Nov. 7.—Rash on right arm, then left, and very soon became general. Urine noticed bloody.

Nov. 7, evening.—Flushed, febrile. Tongue fine white fur over the whole dorsum. A few papules on face round mouth and nose. General highly-marked purpura over body, arms, and legs, chiefly in the groins and on chest and abdomen, also on wrists. A few papules on wrists and chest. No vesicles. Urine 1018; obviously contains blood.

Nov. 8.—Sore throat. Last night slept a little; no delirium. Hæmorrhage under conjunctivæ; also into soft palate and fauces. Vesicles about face, wrists, and other parts.

Temperature.—November 7, on admission, 101.8° ; later, 102° . November 8, it fell to 100° .

The diagnosis of hæmorrhagic variola having been made, he was sent to Homerton Hospital, and it was afterwards ascertained that he died within twelve hours of admission there.

I may say that when first seen on the 7th, and then only about thirty-six hours before death, he had by no means the appearance of a patient suffering from severe disease; he took his turn on the forms with the rest of the patients, walked strongly and steadily, and spoke somewhat cheerfully about his bilious attacks.

The other interesting case is that of H. C., aged 11 months, who was brought by his mother to the Casualty Department on February 2, 1885. The history she gave was that he had been

ill since the 31st January, and on the night of 1st February a rash had come out. The child had been very sick all night and could take no food. She said that about a month ago a man had had small-pox in the house in which she lives; but in different rooms.

Present condition.—The rash was confined to the arms, legs, and face; none on the body. On the face it was most round the mouth and on the cheeks; very little on the forehead.

The condition of the arms was as follows:—

There was a general erythema over the whole arm, most on the upper part; thickly scattered through this were slight circular wheal-like elevations, giving the feel of very thin discs of gelatine under the skin, and in the centre of each was a minute dark red spot; so that the whole somewhat resembled the wheals caused in some skins by the bite of a flea. Other wheals were more or less covered with pin-head petechiæ, apparently spreading from the central spot, blending, and becoming irregular. On other parts, especially on the back of the hands, were larger ecchymoses and vibices.

The child had been vaccinated at four months old, and on the upper part of the left arm were four large scars from the operation. As no satisfactory diagnosis could be arrived at, the case was isolated, and I saw it again in two hours' time, when I had seen all the other patients.

In these two hours the rash had altered considerably. The hæmorrhage had much increased, and all the wheals were now nearly completely covered with irregular groups of petechiæ. There was much increase of hæmorrhage in the spots on the face; still no spots or petechiæ on the body. There were plenty of spots and petechiæ on the legs. As the prevailing opinion was in favour of its being a case of hæmorrhagic variola, I wrote a certificate to that effect, and the child was removed to the Homerton Hospital. The mother said that the urine was natural. I regret that the temperature was not taken; but I think that, with so much illness as the child had had the night before, it would very probably have been raised, even if the disease were only purpura; while, on the other hand, the temperature may be nearly or quite normal in hæmorrhagic variola. (See Dr. Collie's article on "Small-pox" in Quain's Dictionary.)

But for the marks of recent and successful vaccination, I should have been ready to believe that it was some form of hæmorrhagic variola, of which I had only seen one case; but, on account of the vaccination, I wrote to Homerton to ascertain, if possible, the further history of the case, and received in reply an invitation from the medical officers to come and see the child, as

they considered it to be a case of purpura simplex, and he was now convalescing.

I therefore went to Homerton on February 6th, and saw the child, and was able to identify some of the spots I have described. The wheal-like ones had a pigmented line at their margin, and an irregular patch of fading pigment in their centre. The petechiæ and vibices were undergoing similar changes.

The child seemed pretty lively, slept and took well. The rash had been confined to the face, arms, and legs, with the exception of a few petechiæ on the upper part of the chest down to the level of the third rib.

There was a small patch of hæmorrhage on the upper gums, and the notes said that the motions had been black, and that one distinctly contained blood.

The fact that the child recovered is pretty strong proof that it was not variola; though Dr. Collie admitted that at first there was a good deal to be said for the diagnosis of hæmorrhagic variola. It was probably purpura, and the rash that I have attempted to describe seems to correspond pretty closely with that spoken of in text-books as purpura urticans.¹

Note.—I saw this child again in September 1885, when he came to the Casualty Department with a cough and some blepharitis, but seemed otherwise fairly healthy and well nourished.

With regard to diagnosis of the cases generally, by far the greater number were of the discrete type, and where the rash was fairly well out, and had been preceded by some of the characteristic symptoms, as pain in the back, vomiting, headache, &c., did not present much difficulty. A large number of patients remarked, or readily admitted when asked, that they felt considerably better since the rash had come out.

The condition of the tongue varied considerably, and also the temperature, being so often normal when the rash was out, that after a time I gave up taking it.

Cases with small discrete papules and a well-marked erythema may make one think of scarlatina, especially if they complain of sore throat, as in the case of a girl of 16, a patient of Dr. Herringham. She had erythema of breasts, lower chest, and upper abdomen, not elsewhere, and complained of sore throat, though there was nothing to be seen there. She had some scattered papules on the face and arms, and a temperature of 100.2°.

¹ See "A Treatise on the Theory and Practice of Medicine," by J. S. Bristowe, ed. iv., p. 298.

I went to this patient's home in the afternoon, and found her brother, aged 14, in almost precisely the same condition, except that in him the erythema was on the lower abdomen and upper part of the thighs—its most common position, according to Dr. Collie. I have since seen one case where there was apparently a universal erythema along with early papules; but if this case had been seen before there were any papules, and if there were also, as in the above cases, high temperature and sore throat, I do not see how the diagnosis from scarlatina could have been made, for of the premonitory symptoms, headache and vomiting might belong to either disease, and in either the rash might appear on the second day, while pain in the back might not be present.

With regard to pain in the back as a diagnostic symptom of the invasion of variola, the following case will show that it must be weighed with some caution, even when it is well marked and severe.

J. H., aged 22, by trade a blacksmith's assistant, and a tall and powerful man, says that yesterday afternoon he felt ill, and in the night he was awoke by a violent pain in the back, which has continued.

He looks pale and ill, and is evidently in considerable pain.

Temperature 101° . Tongue slight fur. Feels sick, and has taken nothing since last night. Says he has been shivering.

Urine clear, acid, no albumen.

No rash anywhere.

One rather indistinct vaccination mark on the left shoulder, dating from infancy.

I considered that variola was probable, and certified accordingly. I, however, wrote to the medical officer of the hospital ship to which he was sent to inquire about him, and nine days later I heard from the medical officer that no eruption had developed, and that revaccination was successful; and he adds, "We were unable to trace a cause of the fever, and diagnosed febricula."

Where the rash of variola is confluent on the face and the papules are somewhat flattened, it may resemble a papular syphilide, but the history will generally prevent mistakes.

On the body also syphilitic papules may resemble those of variola at first sight, though if the rash is examined all over the body, the resemblance generally disappears; and I remember one case, that of a patient under Mr. Bruce Clarke, where the rash in one part of the body had the characters of the papules of syphilis, in another part presented umbilicated vesicles almost indistinguishable from those of variola. And I am indebted to Mr. Bruce Clarke for the information that this case was kept

under observation and developed no other symptoms of variola; and further, that this so-called variola-form syphilide is described by several writers on syphilis. Of course the fact above mentioned, that the rash was in quite different stages in different parts of the body, was greatly against variola; but in other cases the history might require to be taken into account, the chief point in it being the slow development of the syphilitic as compared with the variolous eruption.

The papular form of copaiba rash may now and then bear a superficial resemblance to that of variola, but in a case of this kind of which I have notes, the rash on the face was not shotty, and rather resembled measles in colour and arrangement, though a normal temperature helped to exclude this; the breath smelt strongly of copaiba, and the urine contained it. Two days later the rash had completely disappeared from the face, and there was no trace of the resin in the urine.

In varicella the eruption is not all in one stage; while there are papules in some parts, there are vesicles in others. There will probably be more spots on the back than elsewhere, and generally on the upper part of the back, or about the shoulders or axillæ, there may be found several pure crystal vesicles, globular, not umbilicated, and with little or no areola. As to general symptoms, I have seen one or two cases that I took to be varicella accompanied by considerable constitutional disturbance; and Dr. Collie says that the eruption of varicella is followed by a rise of temperature, that of variola by a fall.

Where the characters of the rash are doubtful, the presence of good primary vaccination marks in a child under 10 or 11 years of age should, I think, throw a doubt on the diagnosis of variola; but above this age it should not count for so much, and varicella also is much less common after this age than before it.

One case (probably rheumatic) with a very peculiar eruption, in some parts reminding one of erythema nodosum, and in others formed of papules either scattered or grouped, was thought by some who saw it at first to be perhaps some form of variola; but there were pretty distinct joint symptoms. The temperature was raised, and the history was certainly not characteristic of variola. The case was taken into the wards, and was there treated with salicylate of soda, and in a week was convalescing and the rashes fading. With regard to this case, Dr. Collie mentions acute rheumatism with a pustular eruption as one of the things which may be mistaken for variola; but I don't know whether the papules in this case ever became pustules.

A CONTRIBUTION TO THE TOPOGRAPHICAL ANATOMY OF THE SPINAL CORD.

BY

HOWARD H. TOOTH, M.B.

Although considerable advances have been made of late years in the anatomy of the central nervous system, yet it appears that the topographical anatomy of the spinal cord is still far from complete.

The methods by which our present knowledge has been obtained are pathological, physiological (Waller's method), and embryological. Of these methods, the former has yielded by far the most important results. The study of the development of the various tracts is highly interesting and important, but has so far done little more than confirm the facts already established by pathology. The methods used by Waller to demonstrate the course of the fibres in nerves has not been applied with very great success to the cord at present, owing to the surgical difficulties attending operations on so delicate an organ. But the facts established by Waller¹ can be applied to the bundles of nerve-fibres composing the white matter of the spinal cord, and it is on these facts that is based our knowledge of ascending and descending lesions.

Cruveilhier² was the first to notice that in lesions of the motor tract degeneration of a certain part in the cord followed. But Türck³ in 1851 was the first to treat systematically of *descending* lesions in the lateral and anterior columns; and in a further research in 1853 he discussed the *ascending* degeneration in eight cases of compression of the cord from Pott's disease, tumours, &c. Of the ascending changes, he describes in six cases

¹ Waller, Comptes Rendus, November 23, 1851.

² Cruveilhier, Anat. pathologique, vol. xxxii. p. 15.

³ Türck, Sitzungsberichte der Akad. der Wissenschaft in Wien, 1851 and 1853.

degeneration of the tract known as the posterior median, or postero-internal column, and he also recognises a narrow band situated outside the pyramidal tract in the lateral column, which has been since traced by Flechsig to the cerebellum, and is now known as the direct cerebellar tract. Thus it will appear that it is to Türk that we are indebted for a great deal of our knowledge of these tracts, and that we have not made any very great progress in the pathology of them since his time.

At present there are recognised two definite tracts of descending or motor fibres, namely, the *direct pyramidal tract* in the anterior column, and the *crossed pyramidal tract* in the posterior segment of the lateral column. There are also two definite bundles of ascending or sensory fibres, the *posterior median column*, and the *direct cerebellar tract*.

There are still, however, two considerable areas to be accounted for—first, a large wedge of white matter included between the posterior median column and the posterior root, called the *postero-external column*, the *posterior radicular zone*, or the *fasciculus cuneatus*; second, a large area in the lateral column, bounded anteriorly and internally by the anterior horn of the grey matter, posteriorly by the crossed pyramidal and direct cerebellar tracts combined, and externally by the pia mater; this tract has been called by Flechsig the "*mixed tract*."

The posterior radicular zone certainly contains ascending fibres, for in compression of the cord, if the section be taken close above the constricted spot, the whole of the posterior columns may be found degenerated. This is shown very well in the figures illustrating Bouchard's paper¹ on secondary degenerations; also, though to a less degree, in figs. 7 and 8 of this article. But a very little way above the lesion the degeneration is found to be confined to the posterior median columns only. It is more than probable that large numbers of the posterior root-fibres pass straight into this column, instead of passing into the grey matter, and so into the posterior median column to the brain. This affords an explanation of the pains, anæsthesia, and loss of knee-jerk in sclerosis of this posterior radicular zone.

It is, however, to the comparatively unexplored "*mixed tract*" that I wish to draw particular attention. In his work on the Diagnosis of diseases of the spinal cord, Dr. Gowers mentions a case of fracture of the vertebrae low down in the spinal column, with crushing of the cord at that spot. Six months after the accident the patient died, and well-marked ascending change of the posterior median column was found. But there was also noted and figured by him a small patch of sclerosis occupying a

¹ Bouchard, Arch. Gén. de Méd., 1866, t. vii. viii.

wedge-shaped area in the mixed tract. The interest of Dr. Gowers' case is greatly enhanced by the fact that the direct cerebellar tract was not affected owing to the injury being so low down in the cord. The cerebellar tract is supposed to receive fibres all the way up from the ganglion cells of the *vesicular column* (of Clarke), and therefore the lower down the injury, the fewer of these fibres will be degenerated. Now, the tract described by Dr. Gowers has been figured by several observers. Dr. Bastian¹ in 1867 describes a case of injury to the cervical cord, with resulting secondary lesions, and in one of his figures this tract is undoubtedly affected, but it is in direct continuity with the cerebellar tract.

Westphal² again in 1879, in a case of combined lateral and posterior sclerosis of the dorsal region, figures in one of the cervical sections a distinct wedge-shaped area in the mixed tract, in addition to the direct cerebellar tract. Another striking case is given by Westphal³ in 1880 of compression of the cord by tumour; here in some of the sections this same degeneration is very evident. Among other observers may be mentioned Kahler and Pick,⁴ Strümpell,⁵ and Leyden.⁶ None of these writers, however, have drawn particular attention to this tract, but have apparently considered it as part of the cerebellar tract. In no case was the cerebellar tract free from degeneration, as in Dr. Gowers' case.⁷

A very important observation has been made by Bechterew⁸ in connection with the development of this tract. He describes a bundle corresponding in situation to the one in question as developing at an earlier period than the pyramidal tract, and later than the rest of the lateral column. Bechterew considers that the fibres of this bundle are sensory and give passage to pain sensations. He does not appear to have known of Dr. Gowers' observation.

The case about to be narrated will, I hope, help to substantiate

¹ Bastian, *Med. Chi. Trans.*, 1867, p. 499.

² Westphal, *Archiv für Psychiatrie*, 1879, p. 413.

³ Westphal, *Ibid.*, 1880, p. 788.

⁴ Kahler and Pick, *Ibid.*, 1880, p. 179.

⁵ Strümpell, *Ibid.*, 1880, p. 676.

⁶ Leyden, *Zeitschrift für klin. Med.*, 1880.

⁷ Dr. Byrom Bramwell in his "Diseases of the Spinal Cord" shows a drawing of a case of ascending degeneration in the mixed tract on one side, secondary to Pott's disease. The posterior median columns are sclerosed, but not the cerebellar tract. He makes very little comment upon it.

Dr. Hadden, *Pathological Transactions*, 1881, describes a case of symmetrical patches of sclerosis in the same tract, but there is no change in the posterior median column, neither is there any history attaching to the case.

⁸ Bechterew, *St. Petersburg Psychiatrische Gesellschaft*, December 1884. Abstract in *Neurolog. Centralblatt*, 1885, p. 155.

the claim this little tract has to be considered one of the ascending bundles of fibres of the lateral column.

As to the destination of the tract in question, all that can be said at present is that the degenerated fibres marking its course, in the case about to be described, cease as a separate lesion by about the level of the first cervical nerve-roots. It is possible that the fibres take the same course as the cerebellar tract.

There is great probability that the function of this tract is to conduct pain sensations. This is Bechterew's opinion, and it is borne out by a case reported by Dr. Gowers¹ of gunshot injury involving the anterior part of the lateral column between the first and second cervical nerves. Here there was distinct loss of sensation to pain, but not to touch.

I am indebted to Mr. Marrant Baker for permission to report the following case, and to Mr. Bowlby, who made the post-mortem, for the spinal cord.

Fracture - dislocation of fifth and sixth dorsal vertebræ—Corresponding transverse crushing of the cord—Hæmorrhage into right half of cord between first and second dorsal roots—Total paraplegia and paræsthesia below level of sixth ribs—Sacral decubitus—Secondary degeneration of certain tracts of cord above and below the lesion. (See plate.)

The main facts of the case as gathered from the ward notes are as follows:—

H. W., æt. 54, a scaffolder, was admitted into Harley Ward on September 9, 1884. He had fallen from a scaffold 16 feet high, on his back, across a wall. He was sensible on admission, but had total loss of sensation and power in the lower extremities, and in the trunk to the level of the sixth ribs.

Breathing was quite diaphragmatic. Great pain in the upper part of back and chest. No knee-jerk, ankle-clonus, cremasteric, or abdominal reflex could be elicited on admission, but the epigastric reflex was present on the right side. Two months after admission it was noted that on pinching the lower part of the thigh the ham-string muscles contracted; but there was no sole reflex. The state of the deep reflexes was unfortunately not noted at this time. There was complete atony of bladder and rectum. Six weeks after admission extensive bedsores appeared, which, however, were rapidly healing before death.

The patient developed hectic temperature, sank, and died January 30, 1885. He had lived twenty weeks and four days after the injury.

¹ Gowers, Clin. Soc. Trans., vol. xi., 1877.

Post-mortem.—Brain, thoracic, and abdominal viscera natural, except the kidneys, of which the pelves were dilated with purulent urine; numerous small abscesses were scattered throughout the cortex and pyramids. Through the middle of the bodies of the fifth and sixth dorsal vertebræ had been fractures now firmly united. There was some deviation of the column at this point, the fractured bodies being twisted on their long axes. The spinous processes had been driven inwards and formed an angle, narrowing the canal, but not to such an extent as to compress the cord closely. The spines were fixed by callus, and there was some thickening of the dura mater. The membranes were not torn.

Condition of the cord.—Opposite the fifth dorsal vertebra the cord was markedly constricted; in fact, it had the appearance of having been cut across without injury to the membranes, in the same way as the middle coat of an artery is cut by the ligature. This must have been done by the dislocation of one of the fragments of the fractured vertebræ, the dislocation probably being reduced by the moving of the patient. In the region of the injury, above and below, the cord is very soft, probably owing to myelitis spreading from the lesion. No ascending or descending changes could be seen by the naked eye.

Microscopical examination.—The cord was hardened in Müller's fluid for about fourteen days in the incubator. Sections were cut in paraffin principally, but in the softened regions celloidin was found necessary, as recommended by Schiefferdecker.¹ The staining method which gave the best results was the hæmatoxylin method instituted by Professor Weigert of Leipzig.² By this means the medullated nerve-fibres only are stained a deep purple, the grey matter and areas of degeneration being left yellow. The result is an almost diagrammatic representation of the degenerated areas. Picrocarmine was not so successful in mapping out the affected tract, because there was not much increase of connective tissue. In the immediate neighbourhood of the constriction the cord was completely disorganised. The grey matter was indistinguishable from the white in the general destruction of tissue. Axis cylinders were few. There was little increase of connective tissue, but a large number of inflammatory nuclei in the meshes of the neuroglia, and also in the subarachnoid spaces. This description applies to a region extending from the level of

¹ Journal Royal Microscopical Society, 1884.

² Weigert, Fortschritt für Medicin, 1884, p. 190.

I am indebted also to Dr. Beever, who has used this method with great success, for several valuable hints.

the fifth to that of the seventh dorsal vertebræ, the point of constriction lying midway between.

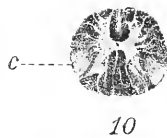
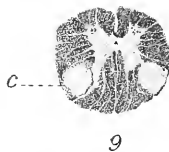
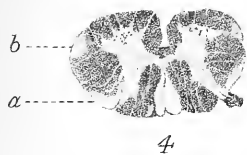
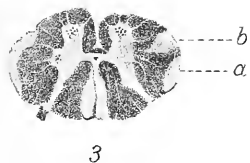
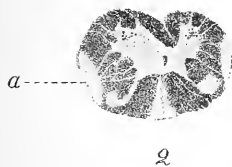
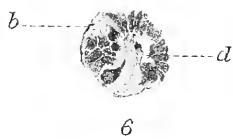
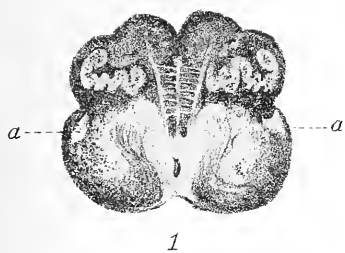
Dorsal between third and fourth roots (fig. 8) (above the constriction).—Here are signs of general inflammatory processes spreading from the injury. The lesions are not very distinct. The posterior median columns are, however, quite devoid of nerve-fibres, and show also a large number of inflammatory corpuscles and so-called "amyloid bodies." The posterior root-zone is very small, little more than a narrow strip of nervous tissue next the posterior roots. In the lateral columns there is a general and indefinite destruction of the white matter, probably inflammatory. The form of the grey matter remains, but there are very few ganglion cells, and they have an abnormally granular appearance.

Dorsal between second and third roots (fig. 7).—Here the signs of inflammation are less distinct. The nerve-fibre destruction in the lateral columns tends to become more circumscribed, occupying the posterior part of the *mixed tract*. The cerebellar tract is not represented here in its usual position, a circumstance I am unable to explain.

Dorsal between first and second roots (fig. 6).—There was in the position of the right anterior horn a cavity as large as a pea. This was probably the focus of a hæmorrhage occurring at the time of the accident. The section was taken at the lowest level of the cavity, not at its broadest part (fig. 6, *d*). The posterior median columns are much sclerosed. There is general destruction of the right half, but the left has plenty of nerve-fibres in it, except in the small area marked *b* on the left side. This is the first appearance of this tract. This lesion of the cord will account for the paralysis of the intercostal muscles and the diaphragmatic breathing.

Cervical between the seventh and eighth roots (fig. 5).—In this section it will be seen that the degeneration of the posterior median columns, though not so extensive as in figs. 7 and 8, yet is more so than in the superior cervical sections. There is some atrophy of the left half of the cord in this region. The degeneration of the direct cerebellar tract, (*a*), is well marked, and extends from the posterior root round the margin of the section, to become expanded apparently into the wedge-shaped area (*b*), well shown on the left side. This is the condition which has been so often figured, and evidently mistaken for the anterior continuation of the cerebellar tract. The grey matter here and in the succeeding sections is normal.

Cervical between third and fourth roots (fig. 4).—This description will apply also to fig. 3, which is taken between the second



and third cervical roots. Here the degeneration of the posterior median columns is complete, but the area is smaller than in the preceding sections. This degeneration is marked by complete absence of nerve-fibres, but very little increase of connective tissue; in fact, it cannot be called a sclerosis. In these sections the degenerated area (*b*) in the *mixed tract* is seen to be quite distinct from the direct cerebellar tract (*a*); they are separated from one another by a neck of healthy white matter.

Cervical at the level of the first roots (fig. 2).—The posterior median degeneration is here very small. The cerebellar tract is well represented, but the little area above described has disappeared; possibly its fibres may have merged into those of the cerebellar tract, and so passed up to the cerebellum.

Medulla through lower third of olivary body (fig. 1).—A little way behind the grey matter of the olivary body may be seen a wedge-shaped patch of degeneration (*a*), which is the upward continuation of the direct cerebellar tract.

Below the constriction the cord shows the ordinary descending lesion in the crossed pyramidal tract (figs. 9 and 10), taken between the seventh and eighth, the eighth and ninth dorsal roots respectively. There is no degeneration of the anterior columns, a fact which confirms the observation made by Bouchard that the direct pyramidal tracts do not reach lower down than the middle of the dorsal region.

In conclusion, a curious and hitherto unexplained point in the symptomatology is the complete abolition of all reflexes superficial and deep below the lesion shortly after the injury. It is unfortunate that the condition of the reflexes was not noted when the shock had completely passed off, and the secondary changes had begun to be established. This state of the reflexes is not unprecedented, for a case has been recorded by Kahler and Pick, in an article quoted above, of fracture of one of the cervical vertebræ, in which all reflexes were abolished up to the time of death, seventeen days after the accident.

FROM THE DEPARTMENT FOR DISEASES OF THE LARYNX.

BY

HENRY T. BUTLIN.

ARTICLE III.—TRACHEAL PAPILLOMA—MALIGNANT NASAL TUMOURS—ADENOID VEGETATIONS OF THE NASO-PHARYNX.

In my two previous articles on this department (see Vols. XVIII. and XIX.), the general working of the department was described, and its gradual growth and increasing importance were alluded to. Again I have to announce that its sphere of activity has been enlarged. From six lamps we have increased to eight. Instead of two dressers, there are six every three months, in addition to one senior dresser, who has already dressed for three months in the department. The appointment of a senior dresser is a great advantage, not only to the man who holds the office, but to the other dressers; for he knows the manner in which the work is carried on; he allots the new cases; assists me in instructing the other dressers in the use of the laryngoscope; shows them how to apply solutions and powders to the larynx, and takes charge of some of the most important of the cases. The extra three months which he devotes to the study of the laryngoscope is rendered far more valuable to him because it is not a mere desultory or dilettante study, but is a real labour, obliging him to know his work thoroughly in order to impart it to the others. The senior dresser is almost always a qualified man, and the responsibility of carrying on the work is intrusted to him during my absence. The number of patients is also increasing. During the past year there have been 475 new patients, which gives an average of a little over nine new patients on every Friday afternoon, compared with rather less than seven in a previous report. Each dresser takes, there-

fore, about three new cases in two afternoons,—at first sight apparently a very small number, until it is remembered that the cases are not so strictly the property of the dresser who takes them as they are in the out-patient room, but that each dresser is encouraged to examine all the patients, provided they are not seriously ill, and consequently unfit to bear prolonged examination.

In spite of the improvements which have been made, the number of applications for dresserships is still in excess of the supply, and we are obliged to encourage men whom we cannot receive as dressers to come on Friday afternoon, bringing with them their laryngoscopes, to learn to use them. Even the most industrious dresser is not seated at his lamp during the whole afternoon, but is writing prescriptions or taking fresh notes of his cases; and this gives an opportunity to the unattached student of examining many cases. In the same way former dressers frequently attend, if only for half an hour at a time, and keep up their knowledge of the art of laryngoscopy.

The number of laryngoscopes in the wards and in the hands of students may be taken as an indication of the increased importance which the students attach to a knowledge of the use of the laryngoscope. Whereas five years ago there were only two or three of these instruments within the walls of the hospital, I am probably far within the mark when I estimate that there are more than fifty of them at the present time. And, what is of far more importance, they are frequently used in the wards by the house-physicians and clinical clerks. Owing to what may be described as the establishment of "friendly relations," I am asked to see laryngeal cases of interest in the medical wards, and consequently see many instances of disease which would not naturally come under my care in the Throat Department. I attach great importance to this, not only because it gives me the opportunity of seeing rare cases, but because it tends to increase the interest which is already exhibited in laryngology throughout the hospital. In order to meet a want which has been frequently expressed by students, I am glad to be able to announce that one of my former senior dressers, Dr. A. Garrod, who has spent several months at work in the throat clinics in Vienna, is about to publish a small work on the use of the laryngoscope. The opportunity he has afforded me of looking through the manuscript enables me to say beforehand that I shall be able strongly to recommend it to all students who wish to learn not only the manner of using their laryngoscopes, but also the reasons for the different manœuvres, together with such general knowledge of the anatomy and physiology of the

larynx as is necessary for the perfect comprehension of the pictures in the mirror.

TRACHEAL PAPILLOMA.

In the article on Diseases and Injuries of the Air-Passages in Ashhurst's "Encyclopædia of Surgery," Dr. Solis-Cohen has given a very complete account of papilloma of the trachea, together with a table containing a large number of cases. The first case in his table is that which I described in the 18th and 19th volumes of our Reports. In the last note which was given in Vol. XIX., the development of a small papilloma was described as it occurred on the left vocal cord, quite unconnected with the original papilloma of the trachea. This was in November 1883. During the course of the following summer she appeared to have some symptoms of returning tracheal obstruction, and I began to fear that the papilloma was growing again. About this time she ceased to attend the hospital. A few months ago I was asked by my friend Dr. Semon to review the articles relating to diseases of the throat in "Ashhurst's Surgery" for the "Centralblatt für Laryngologie," and finding that Dr. Solis-Cohen had described my case of tracheal papilloma as cured by the operation, I mentioned the occurrence of symptoms indicative of return of the disease. But shortly after the review was completed, the woman came, in reply to a letter sent her from the hospital, to show herself. The small papilloma of the left cord had increased in size, but gave her no inconvenience, and there were no symptoms or appearance of return of the tracheal growth. I am therefore pleased to be able to report, that although three years have elapsed since the operation, she is quite free from recurrence. This is the more remarkable, because the original growth was sessile, and occupied a tolerably large area of the surface of the interior of the tube.

TUMOURS OF THE INTERIOR OF THE NOSE.

1. *Osseous Outgrowth*.—2. *Sarcomatous Polypi*.—3. *Papilloma of Septum*.—4. *Epithelioma of Ala*.

1. *Osseous Outgrowth*.—This case is an illustration of a disease which is not at all common, but of which nearly every pathological museum furnishes at least one example. The patient was a servant, 18 years of age, who for eighteen months had suffered from gradually increasing obstruction of the left nostril, with which there had lately been associated lachrymation of the left eye. There was neither pain nor discharge, whether of blood or

matter, nor was there any impairment of the general health. The face, close to the ala of the nostril, was fuller on the affected side, and an examination of the interior of the nostril discovered a diffused swelling of the outer wall, corresponding to the border and nasal process of the superior maxilla, rounded, smooth, covered with unbroken mucous membrane, and very hard beneath the membrane. The consistence was that of ordinary bone. The nostril was almost completely blocked by the growth, which appeared to be limited to the front part of the bone, for nothing could be seen or felt of it behind.

On account of the diffused character of the growth and the slowness with which it was progressing, it was decided to watch it and not to operate, for the time at least. She first came to the hospital in January of this year (1885), and after one month ceased to attend the throat department.

The only other case of the kind which has been seen in the department, or of which I have any recollection, was that of a young woman who was sent down from one of Mr. Willett's wards for examination. She was suffering from a precisely similar outgrowth, but of both sides, and very symmetrical in character as well as in position. In her case, too, no operation was performed.

What the ultimate fate of these patients may be is difficult to foretell. It is not improbable that the tumours may cease to grow, or may grow so slowly that many years may elapse before they produce any more serious mischief than they caused at the time the patients last were seen. On the other hand, there is no probability of spontaneous improvement, and the disease may attack other of the facial bones, or other parts of the superior maxilla, producing horrible deformity, against which surgery may be defenceless. In the case which was under my own care, the question of operation was considered, but it was concluded that more deformity might be caused by the operation than by the disease, and that it would be certainly more prudent to watch its progress for a few weeks than to attack it at once.

2. *Sarcomatous Polypi*.—On the 2d of October a very upright and sturdy old lady, 78 years old, came to us with considerable disease of the right nostril. She said she had been quite well until two years previously, when, about Christmas time, her nose began to bleed violently at intervals of about three weeks. But it was not until twelve months later that the nose began to swell, and shortly afterwards a polypus came away when she was blowing her nose, after which there was copious hæmorrhage.

About this time she noticed a clear watery discharge, and experienced difficulty in breathing through the nostrils. The hæmorrhage occurred at short intervals, and in June a polypus was removed at St. Thomas's Hospital. During the last four months the swelling of the nose had increased very much, and the obstruction had become complete; besides which, tears had been overflowing from the right eye.

In spite of her repeated losses of blood, she presented the aspect of a remarkably strong old person. She walked well, and was active in mind as well as body. The bridge of the nose was very much broader than natural, and the whole of the nose appeared to be enlarged. The swelling was very elastic, so that there was a sensation of fluctuation where the nasal bones ought naturally to have stood. Examination with the speculum discovered a very large mass, looking like an ordinary but exceedingly large mucous polypus, in the right nostril, where it almost reached the orifice. It was very juicy, and rather firmer than a simple mucous polypus. Its attachment could not be perceived. The left nostril appeared to be free from new growth, but the septum was thrust over so far towards the left side that the nostril was almost wholly blocked. With the rhinoscope the tumour could be only just perceived. With the exception that the lachrymal duct was obstructed, and the tears consequently overflowed the right eye, there was no sign of invasion of any of the parts bordering on the nostril, and the antrum and sphenopalatine fossa appeared to be free from the disease. On the other hand, it had extended up through the nasal bones, which were almost completely destroyed, and had probably made its way into the frontal sinus, although the sinus was not distended. In addition to the distress of the nasal obstruction, she complained exceedingly of neuralgia of the frontal region and of the root of the nose, and of the annoyance due to the abundant watery discharge.

She was treated with insufflations of tannic acid (one grain to one drachm of borax), and with croton chloral, and the pain and discharge were somewhat lessened. But the disease made steady progress; the bridge of the nose became more swollen, and soon an opening formed on the right side of the bridge and discharged thin fluid abundantly. In the course of a week or two a second opening formed on the opposite side, and discharged in like manner. She complained so much of the obstruction of the nostril, and said that she had been so much relieved by the removal of the growth some time previously, that I acceded to her request, and removed with the galvano-cautery loop a large piece of the polypus which lay lowest in the nostril. In spite of

the hot wire the bleeding was profuse, and I began to wish that I had not meddled with it; but a tampon of cotton wool arrested the hæmorrhage, and she went home as usual to Brixton. She has been only once since then, when she was none the worse for the loss of blood, and indeed apparently little the worse for the rapidly progressing disease.

3. *Papilloma of Septum*.—Papilloma of the interior of the nostrils is not by any means a common disease, so far as our experience in this country goes. The only case I have seen of it during the past year was towards the end of March in the right nostril of a girl, 13 years of age, who had suffered for six months previously from frequent hæmorrhages and obstruction, but no other symptoms. Examination with the speculum showed a warty growth depending from the upper part of the front of the nostril and almost completely blocking the passage. I put a galvano-cautery loop around it as high as I could, and cut the tumour through. Free bleeding followed, but was very easily arrested by a plug of cotton-wool. On the following Friday the loop was passed up around the remains of the growth to its constricted base, which was attached to the septum, and it was easily removed.

The tumour was a well-marked specimen of vascular papilloma, a species of growth which is not very common in the interior of the nose, and regarding which there has been much discussion. Hopmann of Cologne has observed many cases compared with the total number of cases of intra-nasal tumours which have been observed by him. He has found them always on the inferior turbinated bone. Zuckerkandl has only seen a single instance, and in his case the tumour grew from the inferior turbinated bone. Morell Mackenzie, on the other hand, has only seen a few cases, but in neither of them was the growth situated on the turbinated bone. It was attached to the septum or to "the inner plate of the alar cartilage, where it joins its fellow in the middle line close to the tip of the nose." The present observation confirms the experience of Mackenzie; and, in the only other instance I have seen, the tumour was seated at the point which he has indicated, near the tip of the nose. It is not improbable, as Mackenzie has suggested, that Hopmann has discovered by microscopical examination a papillary structure in many polypi which look like ordinary mucous polypi, and this has given rise to the curious character of his experience. On the other hand, I have examined a large number of mucous polypi taken from different individuals, and have not discovered such a structure as would ever lead me to classify them as papillomata.

So far as the diagnosis and treatment of this disease is concerned, the former is easy, for the warty character of the tumour is distinctly visible as it lies in the interior of the nostril. It may of course be mistaken for a warty epithelioma, a disease even more rare. The difference between the two tumours will be better perceived by a comparison of this case with the next. No method of treatment could be more satisfactory than that which was adopted in the present case—removal with the galvano-cautery loop; but in the absence of the galvano-cautery, there is no reason why the tumour should not be snared with a cold wire loop or torn away with polypus forceps.

4. *Squamous-celled Carcinoma (Epithelioma) of the Inner Aspect of the Ala.*—At the beginning of October (1885), Mr. Humphry, Mr. Smith's house-surgeon, brought to the Throat Department an Italian asphalte-layer, 44 years old, who complained of obstruction of the left nostril. He was quite sure that there had not been anything the matter with his nose until about two months previously, when the obstruction had gradually formed, until at length it had become complete, and had entirely stopped the left nostril. There had not been any pain or discharge or hæmorrhage, and the health of the man was as good as it had ever been. No cause was known for the disease.

The patient was a very rough-looking man, in whose left nostril a warty growth could easily be seen without the aid of a speculum. It appeared to be about the size and shape of half a nut, had a distinctly warty surface, was very firm to the touch, and was clearly attached to the inner aspect of the ala about two-thirds of an inch from its free border. The outer surface of the ala corresponding to the growth was very firm, rather stiff than hard, and the stiffness extended beyond the apparent attachment of the tumour. I put a galvano-cautery loop around it, and cut through its slightly constricted base flush with the inner surface of the nostril. There was scarcely any bleeding, and the man went home.

The tumour was very firm, with a cauliflower surface. Its firm consistence and the stiffening of the ala made me very suspicious of its nature, and the suspicion was confirmed by the microscopical examination made by Mr. Bowlby, who found that it was a typical epithelioma, squamous-celled, and containing numerous nests.

Three weeks later to the very day, the man came again to the Throat Department with a recurrence of the tumour, which was quite as large as when it was removed. Seeing that the complete removal of the ala was necessary, he was admitted

under Mr. Smith, whom I assisted at the operation at the beginning of November. The man is still in the hospital.

Carcinoma of the interior of the nose is always a rare disease, and the carcinomatous tumours which do grow there are still more rarely squamous-celled. With this and one other exception, those I have examined have been cylindrical-celled, such as are found in the rectum and the uterus, or spheroidal-celled; and this experience accords with that of most other observers. Again, the situation of the growth is so unusual, that I am not aware of any other instance of epithelioma in that situation. In the other case I have alluded to, which will, I hope, be published by my friend Dr. Felix Semon, the disease appeared to have commenced in the lower and front part of the septum, or even in the floor of the nose close to the septum.

In spite of the very free removal of the ala, the prognosis in this case cannot be other than bad, for the original tumour had grown very rapidly, and the recurrence was immediate, while the infiltration of the ala for some distance beyond the actual seat of attachment of the tumour augured ill for the patient's future. He is at present well, and there is no glandular enlargement.

ADENOID VEGETATIONS: THEIR IMPORTANCE, DIAGNOSIS, AND TREATMENT.

Although at least twelve years have elapsed since Dr. Meyer of Copenhagen published an account of the adenoid vegetations in the *Transactions of the Medico-Chirurgical Society of London*, the disease, with its important associations, has not even yet attracted nearly so much attention as it deserves to do. Not that it has been unknown to or neglected by some of the chief specialists in diseases of the throat and ear in London and some of the principal towns in the United Kingdom, or that papers have not been written describing the vegetations, their situation, diagnosis, and treatment; but that it is not generally recognised by practitioners, either in town or country. Very little appears to have been known of these adenoid vegetations in England, even by specialists, until the year of the International Congress (1881), when papers were read in the section devoted to diseases of the throat by Dr. Meyer himself, by Dr. Loewenberg of Paris, and by Dr. Woakes of London. Since the Congress, other papers have been published by English medical men, and the disease is described in some of the general works on diseases of the throat and nose. Nevertheless adenoid vegetations are not generally recognised by practitioners, whether in town or country. Nor can this be wondered at when it is possible to point to more

than one specialist who little more than a year ago was almost absolutely ignorant of even the existence of the disease, much more of the methods of treating it.

Yet this adenoid disease is an exceedingly important disease, producing very serious consequences, and well worthy of study. And it is by no means uncommon, occurring in children both of the upper and the lower classes of society.

The Throat Department, working in conjunction with the Aural Department, over which my friend and colleague Mr. Cumberbatch presides so ably, furnishes me with a considerable number of cases in the course of every year. On these cases, and on those which have occurred in my private practice, the following remarks are founded. I shall probably not furnish any matter which is not well known to specialists, nor shall I tell a very different story to that which has appeared in some of the papers which have been published in Transactions, Reports, and Journals. But this paper is not intended for specialists, but for men who practise general medicine and surgery, and these Reports will probably be read by men who have not seen the Transactions of our principal societies or the Reports of other hospitals, or even the Transactions of the Congress of 1881. I intend, too, to describe the treatment and after-treatment of the disease more in detail than is usually done, and particularly to impress the necessity for great care of the patients after the operation.

Take a typical case of the disease, and the *symptoms* are as follows:—A child, perhaps eight years old, and either male or female, is remarkable by the vacant expression of its countenance, which amounts almost to an air of stupidity. While you are talking to the parent or friend who brings it, you notice that its mouth is kept almost constantly open, and that it breathes with a peculiar snoring sound. The nose is generally narrow from side to side; the eyes are heavy; the face is lacking in expression. In reply to a question, it speaks in a "dead" voice, dull and nasal. The appearance of the child and the character of the voice suggest enlargement of the tonsils, and an examination of the throat frequently confirms this impression; for enlargement of the tonsils and granulations on the pharynx are often associated with adenoid vegetations. Or you may learn that the tonsils have already been removed, and that the improvement, which was expected to follow the operation has either not been gained or has been only partial. Closer examination discovers semi-purulent discharge running down the back wall of the pharynx from the naso-pharynx, and in many instances the soft palate is more forward and more fixed than usual. The patient

is usually deaf; indeed, deafness is one of the chief reasons for which the child is brought. Inquire into the *history* of the case, when it will probably appear that the symptoms have been noticed in a varying degree for many months or several years, perhaps even from the earliest infancy. The dull expression, the muffled voice, and the discharge at the back of the throat have been present continuously from the first; but the deafness has been intermittent, or has been much worse at one time than another. There has occasionally been discharge from one or both ears, sometimes associated with pain and with all the symptoms of middle-ear catarrh. Occasionally, too, the discharge in the throat has been tinged with blood. The child has snored at night ever since the commencement of the symptoms. All the symptoms have been slowly growing worse, and have always been rendered more intense by a cold, to which the patient is usually very subject.

The symptoms and the history point to some affection of the throat and naso-pharynx. A *rhinoscopic examination* is made; the patient is told to breathe through the nose, first with the mouth closed, then with it open, and while the mouth is open and the breathing is carried on through the nose, the rhinoscopic mirror is introduced; for now the palate lies well forward, and there is ample space between it and the back wall of the pharynx. Although the breathing is not easily carried on through the nose on account of the disease, it can usually be managed for a minute or two. But the majority of patients, whether young or old, require training before they will permit a thorough rhinoscopic examination: the nasal breathing, which is maintained with very little effort so long as the tongue is unrestrained in the mouth, becomes exceedingly difficult when the tongue is depressed. The tongue and palate are until that moment in apposition, and the entrance of air through the mouth is barred, but the depression of the tongue opens a wide aperture through which air can pass by the mouth. It is, however, surprising how even very sensitive and intolerant patients can be trained in the course of a few days to the necessary docility. Several of my dressers in the Throat Department, whose business it has been to train children for rhinoscopic examination, will bear me out in this. The mirror shows first that the posterior wall of the naso-pharynx is rough, and more or less closely covered with sessile lumps, of the same colour as the natural mucous membrane, or redder. The sides of the cavity are affected in the same manner, and the smooth Roman arches, which are naturally formed by the roof of each nostril with the septum, are broken and lowered by similar red masses. In some

instances the chief seat of the vegetations is immediately behind the posterior orifices of the nostrils, in the roof of the nasopharynx, in the situation of Luschka's tonsils. In other instances,

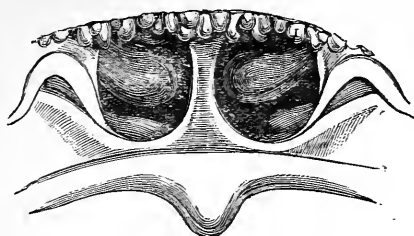


FIG. 1.—View of posterior nares, showing adenoid vegetations, numerous and small.

the cavity of the naso-pharynx is so filled by vegetations that scarcely any of the natural structures can be distinguished. The Eustachian prominences and the orifices of the tubes often

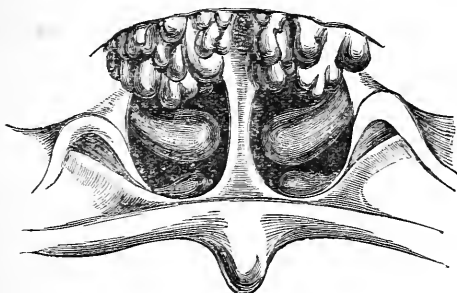


FIG. 2.—View of posterior nares, showing larger masses of vegetations.

appear quite free from vegetations, even in patients whose most serious symptom is deafness or middle-ear catarrh. In addition to the examination with the mirror, and in those cases in which rhinoscopic examination cannot be accomplished, the finger should be passed up behind the soft palate, when the larger masses can easily be distinguished and the smaller vegetations produce the impression of a velvety substance or the surface of a velvet-pile carpet. The roof of the cavity on each side must be especially examined, for here lies in most cases some of the disease—in many cases the bulk of it. When the finger is withdrawn, it will be found to be smeared with blood, for the vegetations bleed much more readily than the walls of the normal naso-pharynx.

Such are the symptoms, appearance, and feel of adenoid

vegetations, and when they can be seen as well as felt, there is no fear of making an error of diagnosis. They occur very far more *frequently in children* than in adults: indeed, it is very rare to meet with them in persons more than twenty years of age, although there is at the present time a male patient in the Throat Department more than thirty years of age, from whom I have removed several large masses. They are, in my experience, more frequently met with in girls than boys; but other surgeons have found them more commonly in boys, so that probably the two sexes are equally subject to them. The youngest patient on whom I have operated was three years old, but the symptoms often date from a much earlier age than this. They occur in children of the rich as well as of the poorer classes.

Now *what are these adenoid vegetations*, and to what do they owe their origin and growth? They are outgrowths of the adenoid tissue of the mucous membrane, and present a structure similar to that of an enlarged tonsil or of the granulations of granular pharyngitis. They are covered by a layer of epithelium, either cylindrical or squamous according to the part of the cavity from which they spring, and the adenoid tissue lies almost immediately beneath the epithelium. Their polypoid or warty aspect when they are present in great numbers has led to the opinion that they are papillary growths, but this opinion is not justified by their structure, or indeed, in all instances, by their gross characters. With regard to their nature, I believe they belong, more or less closely, to the class of scrofulous affections. They are much more frequent in delicate than in healthy children; they are commonly associated with enlarged tonsils and with some enlargement of the glands behind the angle of the jaw; and they consist of overgrowths of the tissue, which, above all others, is subject to morbid growth in scrofulous persons. They occur, too, much more frequently in children than in adults, and I have found them associated with lymphatic glands which were not only enlarged, but actually suppurating. In studying their natural history and course, the circumstance that they are very rarely found in adults must be particularly borne in mind. When a disease which is common in children is comparatively rarely observed in adults, several explanations of the circumstance may be offered. The disease may have been cured by operation during childhood; it may have undergone resolution, or it may cease from troubling. The first of these three explanations can scarcely apply to adenoid vegetations, for the operation for their removal has only been practised a few years in any country; in this country not much more than five years by any surgeon, whether special or general, and only so long as this by two or

three surgeons. The experience of these men is that the disease is a disease of childhood and seldom occurs in adults. Meyer himself, one of the first surgeons to discover and treat the disease by operation, tells the same story. Nor do I think the third of the three explanations I have offered is the correct explanation; for although masses of vegetations must necessarily produce much more discomfort or serious trouble in the small naso-pharyngeal cavity of a child than in the large cavity of an adult, even the comparative obstruction, the deafness, and the discharge could not fail to be noticed. Nor is there any reason to assume that the vegetations, if they persist, remain stationary in size. The contrary is more probably the case; for where I have met with them in adults, they have generally been of large size and have occupied a large space in the naso-pharyngeal cavity. The second is the explanation which appears the most probable: that with advancing age the vegetations gradually disappear in the large majority of patients, perhaps not by simple resolution and subsidence, but by contraction following the organisation of inflammatory products and by supuration, whence comes some of the discharge which runs down from the naso-pharynx.

Unfortunately, before they disappear spontaneously, the vegetations not only produce threatening of mischief, but in not a few instances are *the cause of serious and permanent trouble*. The mere circumstance that the patients are forced continually to breathe with the open mouth is in itself a source of peril. Sore throats are frequent, and attacks of bronchitis and broncho-pneumonia are not rare in some of the children. The ailments of infancy and childhood are more severe in these children than in other healthy children. The semi-purulent discharge which runs down into the stomach or on to the larynx affects the appetite and induces chronic laryngitis. The natural delicacy of the child is increased by the disease, which was perhaps, in the first instance, the result of delicacy of constitution. But an evil scarcely less dreaded than the impairment of general health threatens a large number of these patients, that of deafness, more or less intense and permanent. At first it is probable that the deafness is due to temporary obstruction of the mouths of the Eustachian tubes by swelling of the vegetations during the occurrence of catarrh. But by and by catarrh of the middle ear is produced, either by extension of inflammation from the naso-pharynx along the tubes, or secondary to the long-continued obstruction at their orifices. The patients are subject to repeated attacks of pain in one or other of the ears, and sometimes the pain is followed by discharge. Usually in the course

of a few days the discharge ceases, at least in the earlier attacks, but the deafness becomes more intense and permanent.

In addition to these evils, the chest is said not to be normally developed in patients with adenoid vegetations; and a modification of the form of the upper jaw has been pointed out to me by my friend Mr. Mackrell as due to the presence of the adenoid growths and the constant breathing through the open mouth. With regard to the ill-development of the chest, it appears more probable that it is due to associated enlargement of the tonsils and consequent obstruction to the free entrance of air. It can matter little to the development of the chest whether the air enters in through the mouth or nose, provided there is no obstruction to the free entrance. The prominence of the incisor teeth and narrowing laterally of the alveolar arch is said by Morell-Mackenzie not to have any direct connection with the vegetations, but to be due to an irregular mode of development of the palatine arch which occurs in many persons who are not the subjects of post-nasal affections, and he quotes Oakley Coles in support of his statement.

From what has been said of the effects produced by adenoid vegetations, it is quite evident that the spontaneous cure which they may be expected to undergo in the course of years cannot with safety be awaited. Although I believe that a scrofulous constitution lies at the bottom of many of the cases, I am not aware of any facts which show that the disease is capable of cure by constitutional treatment, by the administration of cod-liver oil and iron, and the phosphates and hypophosphites, or by sea air and the various measures which are employed against scrofula. Nor will this appear singular to those who know how obstinately enlarged glands and chronic enlargement of the tonsils resist constitutional treatment. The opinion of almost all, if not of all surgeons, special and general, is that *the growths must be removed or destroyed*, and that constitutional measures are only of value in association with or after operation. But although there is such harmony with regard to the necessity for operative treatment, there are great differences in the methods which are employed, and great weight is laid on the relative advantages and dangers of different methods. I shall not enter into a description of all the instruments which have been invented for the removal of the growths, or of all the possible or commonly employed methods of removal, but shall limit myself to a detailed description of the method which I have been in the habit of pursuing for the last three years, and shall give the reasons why I prefer it to any other.

The patient having been prepared for *the operation* in the

usual manner, is laid on a table with the head raised and towards the light. Chloroform is administered, and is maintained during the operation by means of Mr. Mills's tube and air-ball. A strong gag is placed between the teeth on the opposite side to that on which I stand. If there are vegetations in close proximity to the Eustachian orifices (which has probably been already determined, but which may now be clearly ascertained by examination with the finger, for the Eustachian prominence and orifice can easily be felt), or if there is merely thickening of the mucous membrane, I keep the forefinger of one hand on the orifice of the tube, and with the other hand pass Meyer's ring-knife through the corresponding nostril, and, guiding the knife with the finger behind the palate, scrape the prominence carefully from above downwards until the abnormal tissue is removed.



FIG. 3.—Meyer's ring-knife, used through the nostril.

The same manœuvre is repeated on the opposite side. This is done first in order that the small growths at these important points may not be overlooked or obscured, as they very well may be when the naso-pharynx is full of soft blood-clot. In many cases, however, nothing requiring treatment will be discovered in the immediate vicinity of the Eustachian orifices, even in those cases in which deafness is a prominent symptom. Next, the exact situation of the largest growths having been ascertained by examination, they are removed piece by piece with Loewenberg's forceps, which may require to be introduced many times.

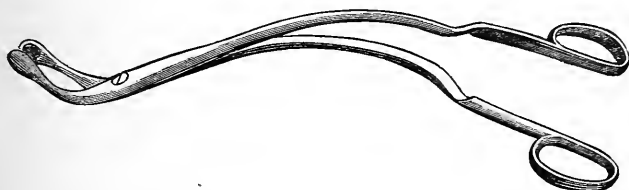


FIG. 4.—Loewenberg's forceps, used behind the soft palate.

Between the re-introductions the naso-pharynx is frequently examined with the forefinger, and in large cavities the finger and the forceps can be employed simultaneously. The back of the mouth is sponged out at frequent intervals, for, in addition to abundant salivary and mucous discharge, the bleeding is free,

sometimes even profuse, owing to the vascularity of the vegetations. The free bleeding may well alarm persons who are not accustomed to the larger operations in the interior of the mouth, such as the removal of the tongue or upper jaw. It is impossible to describe all the manipulations with the forceps, the blades of which require to be pressed in turn against the back wall of the pharynx, its sides and upper wall, where the largest masses are often found. Care must be taken not to seize the Eustachian prominences or the septum nasi. The forceps at first appear very clumsy, but a little practice, especially if they are first employed on the dead body, will enable them to be used with safety, if not indeed with ease and freedom. It is particularly in regard to the use of these forceps that I always take care that the patient's mouth is opposite as good a light as can be obtained. The uvula, and even the free border of the soft palate, is apt to be thrust into the naso-pharynx by the finger or the forceps, and may be seized and torn. To avoid this unfortunate error, the uvula and soft palate should be *seen* in front of the forceps as the blades lie in the naso-pharynx. When the projecting masses which can be removed with the forceps have been taken away, the entire cavity is examined with the forefinger, first on one, then on the other side, and every irregularity or flattened prominence is scraped away with the finger-nail, which should be rather long for the purpose. I generally use the forceps from the right side of the patient, on account of the greater facility with which it is managed with the right hand, but it is often necessary to introduce it from the left side, in order more readily to grasp a vegetation which cannot thoroughly be reached from the right side. The manipulations with the ring-knife and with the finger-nail are performed first on the one, then on the other side. During the whole of the operation the bleeding is very free; the pharynx requires to be constantly sponged out, and the child may need to be turned over on its side to allow the fluids to escape. At a recent operation I completed the removal of the vegetations while the child was still lying on its side, and probably this may be effected in many cases with great advantage to the patient, both on account of the freedom of breathing at the time, and of the far less quantity of blood which runs down into the stomach, and perhaps the lungs. When the operation is completed, it is surprising how quickly the bleeding ceases.

The *after-treatment*, although it may be said to consist in doing nothing, is even more important than the manner of operating. The child is put to bed and kept there for at least a week. If the weather is in the least degree cold, a fire is ordered to be

kept up day and night, so as to maintain the temperature of the room at about 65°. These precautions are the more difficult to carry out because the patients, after the second day, usually feel well and desire to get up. They are the more difficult to carry out because there is absolutely no other treatment in twenty-nine cases out of thirty. There is no syringing, or insufflation of powder, or gargling; and, as a rule, no medicine is needed. But when the child is delicate and has lost much blood at the time of operation, it is well to administer a dose of iron twice a day after the third or fourth day, and with the iron, in some instances, a small quantity of cod-liver oil. At the end of a week the patient is allowed to get up, but is not usually allowed to go out until ten days have elapsed since the operation. The necessity for great caution after the operation will be admitted by all surgeons who have been accustomed to treat adenoid vegetations. To begin with, many of the patients are naturally delicate, and therefore require special care: the loss of blood at the time of the operation is never inconsiderable, and is often large for young children, so that they are weakened by it, and more liable in consequence to cold and pulmonary inflammations; and one great danger in all cases is of inflammation of the middle ear, set up by the inflammation which almost of necessity follows wounds of the naso-pharynx. The object of the extreme caution in after-treatment is to reduce as far as possible the liability to these dangers. The only instances in which I have seen trouble ensue upon the operation have been those in which these precautions have been neglected. Among the earliest cases which came under my care was a young man on whom I operated at the house of one of his relatives in London. The weather was very cold and damp, and there was no fire in his room during the first days after the operation. He suffered from a slight attack of pulmonary inflammation, which weakened him exceedingly, and delayed his recovery, although it did not impair it. A boy from Wales, on whom I operated in the hospital last summer, was so well on the fourth day that the house-surgeon permitted him to get up. On the day following he complained of pain in both ears, and I fully expected the pain would be followed by suppuration. He was, however, saved by being immediately sent to bed and kept quiet for several days. Recovery from the operation is in the majority of patients very rapid, so that those who come from the country are able to return there in less than a fortnight. No after-treatment such as is described by some authors is needful.

The above treatment and after-treatment differ so widely from that which is employed by some of those who treat adenoid vegetations, that it would not be right to pass over without notice

the objections which have been made to it. The use of an anæsthetic of whatever kind is very strongly opposed by more than one author, probably by the majority of those who have written on the subject: it is said to add much to the danger of the operation. Unquestionably the use of an anæsthetic implies danger, whatever it may be used for. But children are in so much less danger from this cause than adults that the danger is reduced to a minimum. The anæsthetic has been administered for me by Mr. Mills, Mr. Gill, and Mr. Colville at St. Bartholomew's Hospital, and I have particularly asked the opinion of Mr. Mills whether he thinks there is any objection to the use of an anæsthetic in these operations, or whether he has ever seen one of these patients in serious danger during the operation. His reply is decidedly in the negative on both points.

The second objection is that there is far greater danger of inflammation of the middle ear after complete removal of the vegetations than when they are removed at several or many sittings. To this I answer, that there is danger of middle-ear catarrh in either case, and that the danger comes rather from neglect of precautions after the operation than from the amount of tissue which has been removed. Many of the patients have already suffered from catarrh of the middle ear, and it is therefore not surprising that they should be attacked by it after operation in the close proximity of the Eustachian orifice. One or two of my hospital out-patients have suffered from it after operation, but not a single one among my in-patients or private patients, from which I infer that the latter have been preserved by the better conditions in which they are placed after the operation, and by the care with which they are kept warm and quiet. On the other hand, I know that patients who have been treated without an anæsthetic at several sittings have been attacked during the course of the treatment by middle-ear catarrh. My firm belief is, that in those cases in which it is possible to carry out the after-treatment rigidly, there is less danger of middle-ear catarrh after the complete operation than after the piecemeal removal, for the caution which ought to be exercised after each sitting in the latter is observed absolutely in the former.

The advantages of what may be termed the single-sitting treatment are that no previous training is required, and that it does not matter how intractable the patient is. The operation is so thorough that no after-treatment with the galvano-cautery or nitrate of silver is needed. The length of time necessary for the entire treatment is reduced from several weeks—sometimes as many as ten or twelve—to ten days or a fortnight, a matter of great importance to patients not residing in London.

So far as the out-patients on whom I operate in the Throat Department on Friday afternoon are concerned, I am quite ready to admit that they run far greater chance of mischief after the operation on account of the impossibility in most instances of enforcing the requisite after-treatment. But on mature consideration, I have been forced to the conclusion that the occasional mishap of middle-ear catarrh or slight bronchitis (than which I have seen nothing worse) is more than compensated by the gain to the greater number of them of complete removal of their disease without the necessity of previous training and very numerous attendances, which so deter them, that many of them cease to attend long before the growths have been removed.

Before finishing this paper it is necessary to refer to questions which are often asked with regard to the *prognosis after operation*: first, with regard to the likelihood of recurrence of the vegetations; second, as to whether the patient will be completely cured of all the troubles which arose from the presence of the growths. The answer to the first question is, that if the vegetations have been completely removed, there is very little probability of a recurrence. Even when fragments have been left behind, I have not seen them enlarge and form important masses, as they have been reported to do. Nevertheless it is quite conceivable that the same conditions which led to their formation in the first instance may lead to their recurrence, especially if portions of the original growths are left behind. The reply to the second question must depend on the amount of injury which has been inflicted by the presence of the growths before their removal. It may be safely affirmed that the patient will be able to breathe through the nose and will lose the vacant expression which was due to the post-nasal obstruction. And here one word of caution is needful. Associated with the vegetations, perhaps depending partly on their presence, there may be very considerable enlargement of the inferior turbinated bones, and this may be so considerable that the passage of air through the nostrils may be seriously hindered. It should always be looked for, and if it is of very long standing, and feels firm, and is therefore likely to be permanent, the bone should be removed at the time of removal of the vegetations, or the thickened tissue should be destroyed at a later period by caustics or the galvanocautery. Attention to this complication and the mere mention of it before the vegetations are removed will often spare both the operator and the friends of the patient great disappointment. My experience is that this condition, when present, almost invariably requires active treatment, and the earlier it is treated the better for the perfect result of the operation.

So far as the recovery of hearing is concerned, it is, in the majority of instances, complete. In the course of a week or ten days after the operation, there is usually a marked improvement, and the improvement advances until the hearing is perfectly re-established. But the prognosis naturally is not nearly so good when the middle ear has been the seat of frequent attacks of inflammation and perhaps of suppuration. The improvement, however, in cases in which the membrana tympani is perforated, or in which it is distinctly thickened, is distinct, and often considerable, and future attacks of inflammation are prevented, so that the progress of the mischief from bad to worse is arrested.

CASES

OF

MENTAL DISTURBANCE AFTER OPERATIONS.

BY

W. P. HERRINGHAM, M.B.

Between October 1881 and 1882, when I was Mr. Smith's house-surgeon, two cases occurred which were both unusual and interesting.

An employé on the Underground Railway, aged 44, was brought in on December 7, 1881. He had been knocked down by a train, which had crushed his left hand, nearly tearing off the thumb, and breaking the second metacarpal bone. Under gas and æther I disarticulated the first metacarpal bone and sewed up the wound. He had also a cut over the right eyebrow, and a cut on the right thigh. He was never fully, though almost, conscious.

The accident happened at two in the morning, and that afternoon he became wildly delirious, so that I had to strap his right arm to the bed; but being dosed with pot. brom. and chlor. hydr., became quiet and slept well. The next day he became gradually sensible, and slept well the following night. From this time his hand healed up well.

On December 17 a slough formed over the sacrum, which with poulticing recovered.

On January 9 an abscess had formed up the left thigh among the muscles. It was opened, but refilled, and had to be opened again on January 17. A few hours after this operation it had filled with blood, but when laid freely open no artery could be found spouting, nor any other source for the blood but general oozing.

From this time he recovered well of his bodily ailments.

From having been conscious and rational on December 8 and 9, he began on December 10 to wander slightly, and from that day until January 15 was continuously out of his mind.

He was not raving nor violent, but wandered in his speech, talking aimlessly to himself, and answering wrongly, having delusions, not recognising his friends, and unable to feed himself.

His temperature varied, occasionally rising to 101° or 102° , but generally near the normal, and often below it. The pulse was at first very soft, but gradually became firmer. The urine was not albuminous.

He recovered his mind slowly, and on January 16 he showed no symptoms of insanity. He was discharged cured on February 23, 1882, and often now puts me into my train.

When the mania first began it was violent in character, and I supposed that he had an attack of delirium tremens. His wife, however, the safest of all witnesses against a man, and he himself when he recovered, have continually assured me that he was never in the least degree intemperate, and his position on the railway, which is one of considerable trust, points in the same direction. The mania was, moreover, after the first violence, not in the least like delirium tremens. There was no history of insanity in his family. He had, however, an accident two years before, in which he was knocked down by an open door, and bruised his left leg and thigh. After this also he was delirious for four days and nights.

Mrs. H., aged 42, married, but deserted by her husband, was admitted on August 24, 1882, for femoral hernia, and was operated upon the same night. In the middle of the night she began to bleed. I opened the wound, but found no artery; plugged it, and laid ice upon it. She went on well until the evening of August 28, when she informed the nurse that she would shortly die. Nurse turned a deaf ear to this warning, so that I never heard of it till afterwards; but at 4.30 A.M. on the morning of the 29th I was called to the ward, as she could not be roused and was apparently sinking.

She was then looking very bad; her head thrown back, her mouth open, her lips blanched, her eyes half opened, her eyeballs turned back, nose pinched "like a lawyer's pen," and cheeks sunken. Her breath smelt foul, and her body had an odour like that of a corpse. There was very slight corneal reflex, and slow slight movements of the eyeballs. There was, besides, that quivering of the eyelids which I have since seen in a case of trance, and have never seen except in hysteria.

The severest pinching produced no sign; the arms stayed

rigidly for some time where they were placed, and then dropped heavily on to the bed.

Meanwhile her pulse was good, her chest sounds and movements were natural, the abdomen soft and full, and the wound discharging healthily.

Nothing was done to her, except that fluids were inserted by the nose and withdrawn by the catheter, until August 31, when, at 9 A.M. she awoke and said to the nurse, "I have been dead." She went off again, however, and continued entranced off and on until September 3, on which night she became very noisy, and had to be taken to Casualty Ward. The next day she asserted, when the nurse wished to feed her, that she had no tongue or stomach. She was restless and violent in the night, and then went again into a trance. At this time she passed everything under her, unless regularly put upon the bedpan. On September 7 she again came to herself, and showed, by mentioning her friends and our conversation, that she had been at any rate to some extent conscious. On September 9 she came round for good, and was discharged at the end of the month. The wound always did well, and was in no way influenced by the state of her mind.

We found afterwards that she had had hysterical convulsions before, and she was by profession a pew-opener.

In March last Mr. Barwell detailed a case, and mentioned others, of mania after ovariectomy. So many sins are laid at the door of these viscera, that it seems important to show that an allied change may take place where they have not been touched, and mania itself after an operation upon a person who does not possess any.¹

¹ British Medical Journal, 1885, vol. i., p. 695, for another case in a male.

A CASE OF LEAD-POISONING WITH BOSSES ON THE METACARPAL BONES.

BY

W. P. HERRINGHAM, M.B.

Henry F., a tall strong man of 30, came to me in the Casualty Department on November 21, 1883. He had complete wrist-drop on both sides, but could supinate both arms.

His history was, that one day last Christmas, in Australia, he had an attack of severe colic; that his hands gradually got weak from that time, and that in March a blue line was noticed on the gums both by the doctor attending him and by himself.

He was at the time drinking beer which came through leaden pipes—this was inquired into at the time—and often had a glass before breakfast, when the beer had probably been standing in the pipe for some hours. Since his paralysis did not improve, he came to England for treatment.

When I saw him, his general health was good, his digestive functions and his heart natural, and his urine contained no albumen. The extensor muscles at the back of the fore-arm were much wasted, though not entirely gone.

So far the case was one of ordinary lead-poisoning, but he possessed an unusual symptom in a large bony boss projecting on the dorsum of each hand. These lumps, which I examined carefully, lay beneath the extensor tendons, which worked freely over them and had no connection with them. They were situated over, and apparently were enlargements of, the carpal ends of the third metacarpal bone of each side, resembling very much the swellings produced by rheumatoid arthritis. They were not tender, and caused no inconvenience to the patient. They measured nearly an inch across the bases, and projected about three-eighths of an inch above the general surface.

There was neither history nor sign of either syphilis or rheumatism about the man, who did not seem inclined to conceal any such fact if it had existed. The lumps had appeared since the paralysis.

I gave him pot. iod. gr.v. three times a day and sent him for electrical treatment to Dr. Steavenson, who kindly allows me to confirm my notes by his own.

The lumps decreased under the treatment, and by the end of his attendance (April 7) were almost imperceptible.

Besides rheumatism and syphilis, I know of no other disease likely to produce such bony bosses as these, and upon the strictest investigation I could discover no trace of either. But although they must be exceedingly rare, tumours like these have been before now noticed in cases of lead-poisoning. Ernst Remak writes that his father, Robert, noticed them, and refers to three papers by him mentioning the subject. I have only been able to see one of these, in which I cannot find the point noted. I suppose, therefore, that this paper, which touches upon a kindred subject, joint affection in progressive muscular atrophy, has been given by mistake. Rosenthal in his "*Klinik der Nervenkrankheiten*" mentions a case of the sort, though without any full description.¹

This affection is quite different from the uratic deposit which accompanies renal disease in cases of lead-poisoning, upon which Lancereaux has written. This is apparently nothing but gout, and according to Lancereaux is always complicated with renal disease. The bosses in this man's hand were in their hardness, their painlessness from the first, and their regularity, different from any gouty deposits that I have seen. I have never noticed gouty deposit in the carpal end of the metacarpal bones alone. There were no other signs of gout, and the urine was natural.

I conclude, therefore, that they were connected with the lead-poisoning itself.

Besides the mere rarity of their occurrence, these tumours are of great interest as being possibly another instance of nervous disease affecting the articular end of bones. They are so construed by Rosenthal, and according to Ernst Remak were believed to be of this nature by his father. The joint-disease in locomotor ataxia is referred by Charcot to disease of the spinal cord. Cases of progressive muscular atrophy have been noted which had enlargement of the articular end of the metacarpal bones, and rheumatoid arthritis itself has been from many of its symptoms referred to some central nervous affection.

The seat of the lesion which produces wrist-drop in lead-

¹ Edition 1875, p. 800.

poisoning has not been established. Some have found changes, others have denied them, in the spinal cord, the nerves, and the affected muscles. Supposing, as seems most probable, that the disease is nervous, and that the lead affects either the peripheral nerves or the nervous centres, the fact that the posterior interosseous nerve supplies both the affected muscles and the carpal joints renders it at least possible that in this case also some similar cause to that observed or supposed for the diseases above mentioned may have been active in producing the articular enlargement here described.

PARAMETRITIS AND ABSCESS OF THE LIVER.

BY

E. W. ROUGHTON, M.D.

The causes of abscess of the liver are very numerous and varied, and are fully stated in text-books, but I am unable to find any record of cases of abscess of the liver secondary to parametritis. It is for that reason that I am induced to publish the notes of the following case.

M. A. W. was admitted to "Faith," under the care of Dr. Church, on May 16, 1885: she was subsequently under the care of Dr. Matthews Duncan and Mr. Langton. To the kindness of these gentlemen I am indebted for permission to publish the notes.

She was a well-made woman, 25 years old, and, with the exception of an attack of typhoid fever in August 1884, had always enjoyed good health. She had been married one year, but had never been pregnant. The catamenia first appeared at the age of 15, and had always been natural. On May 14th she was taken ill somewhat suddenly, with pain in the lower abdomen and back, accompanied by vomiting and pain in passing water.

She was transferred to "Martha" on May 25th, complaining of the above-mentioned symptoms. Her temperature varied from 100° to 103°, and she presented the usual symptoms of pyrexia. The urine was of sp. gr. 1027, acid, and free from albumen.

The abdomen was not distended or generally tender, but there was fulness in the left iliac and adjacent portion of the hypogastric regions, and some hardness and dulness to percussion over the horizontal ramus of the left pubic bone.

On vaginal examination, the cervix was found to be far back in the pelvis, and in front of it a dense mass of tender indura-

tion, felt bimannally to be only slightly displaceable. She was ordered a milk diet, saline laxatives, opiates, and poultices.

No particular change took place for some days; the temperature remained high, reaching 102° to 103° at night, and falling to near the normal in the morning; the swelling in the lower abdomen gradually increased, and the urine became slightly albuminous, and showed a few pus cells under the microscope.

On June 9th the urine contained about three-fourths albumen, but no pus; the swelling had become more prominent immediately over Poupart's ligament, and seemed as if about to point in that situation.

On June 20th she complained of cough and pains in the lower part of the right side of the chest. On auscultation it was found that the breath sounds were weak, and that there was slight pleuritic friction and increase of vocal resonance over the painful area; there was no expectoration. The hypogastric swelling had become less tender and decidedly smaller, but no discharge of pus was discovered, although the urine and fæces were carefully examined. The temperature continued to fluctuate, and she became weaker day by day.

On July 1st some fulness and tenderness was first noticed in the hepatic region, and an abscess of the liver was suspected.

On July 7th the liver could be felt one inch below the costal margin in the nipple line; there was great tenderness, but no jaundice, and her general condition remained about the same.

On July 11th the fulness was much more marked, especially in the epigastric region; an aspirator was passed into the swelling just below the ribs, and ten ounces of pus removed.

As no improvement followed the tapping, on July 15th she was put under the influence of æther, and Mr. Langton made a free incision into the abscess and evacuated four or five ounces of pus. After the anæsthetic had been stopped for about five minutes, and whilst the dressings were being adjusted, she suddenly ceased breathing, and although artificial respiration was vigorously performed, she did not rally.

The post-mortem examination was made twenty-four hours after death.

The uterus was quite natural. Surrounding it, but chiefly in front and on the left side, was a dense inflammatory mass composed partly of cellular phlegmon and partly of small collections of serous fluid enclosed by peritoneal adhesions. The right ovary contained about two drachms of pus. The liver was much enlarged, and contained three enormous abscesses, only the most superficial one of which had been opened. The base of the right lung was collapsed and its pleura slightly roughened.

The intestines were quite healthy, and showed no signs of ulceration, past or present. There were no abscesses elsewhere, and all the other viscera were quite normal.

The first point of interest about this case is that the pelvic inflammation developed without any apparent cause. She had never been pregnant, had never sustained any injury, never had any operation performed on the uterus, and had never suffered from any menstrual irregularity. I do not think that it could have been a sequel of the attack of typhoid fever nine months previously.

The common situation of parametritis is in the cellular tissue of the broad ligament, but in this case a large portion of the phlegmon occurred in front of the womb. It has only recently been recognised that there is an appreciable amount of cellular tissue between the uterus and bladder, all inflammatory lumps in front of the uterus having previously been considered perimetritic. This was a typical and undoubted case of "anterior" parametritis.

The gradual increase of the swelling made one think than an abscess had formed, and was about to point just above Poupart's ligament; and on one occasion it was almost decided to insert an aspirator. Had we done so, we should certainly have withdrawn nothing except perhaps a few drops of serum. This indicates a point of some practical importance in the treatment of pelvic inflammations, viz., that they should not be incised until it is absolutely certain that they will, if left alone, burst externally. Fluctuation (as understood by surgeons) is but a very uncertain sign of the presence of fluid. One frequently sees inflamed parts which present this sign incised, and no fluid except blood evacuated. The only certain sign of the presence of fluid, short of actual tapping, is fluctuation in its proper sense, *i.e.*, the feeling of a distinct thrill or wave communicated from side to side of the tumour, but this sign is, of course, rarely available in an ordinary abscess.

But the most interesting point to consider is the relation in which the pelvic inflammation and the hepatic abscess stood to one another. They might have been simply coincident and not causally related, or they might both have been due to the same cause, or the parametritis might have been the cause of the abscess in the liver.

It is of course quite possible that these two conditions might have been quite independent of each other, but in the absence of any other discoverable cause which could have produced the hepatic abscess, one naturally associates them as cause and effect, although by so doing one may be falling into a *post ergo*

propter fallacy; yet it is impossible to argue with anything like logical certainty on a single case. It is well known that dysentery and hepatic abscess are frequently associated, and the theory of Dr. Budd, that the abscess is the result of a portal pyæmia, is the most generally received explanation. Arguing from analogy, I think that the present case may admit of a similar explanation. Many of the pelvic veins involved in the inflammatory mass must have been thrombosed, and it is quite possible that an embolus might have been detached from one of them and found its way to the liver, there setting up inflammatory action.

I have seen one other case of abscess of the liver following parametritis. The liver was aspirated, and fifteen ounces of pus evacuated: the patient recovered.

I have put this case on record as one of parametritis associated with abscess of the liver, but it must be left to subsequent experience to determine whether or not hepatic abscess may be included under the occasional results of parametritis.

THE
FORMATION OF ABNORMAL SYNOVIAL CYSTS
IN CONNECTION WITH THE JOINTS.

(Second Communication.)

BY

W. MORRANT BAKER.

In the 13th volume of the St. Bartholomew's Hospital Reports I drew attention to the formation of synovial cysts in the leg as a consequence of disease, especially osteo-arthritis, of the knee-joint; and I ventured to deduce from an examination of the cases there related the following conclusions:—

1. That in cases of effusion into the knee-joint, and especially in those in which the primary disease is osteo-arthritis, the fluid secreted may find its way out of the joint, and form by distension of neighbouring parts a synovial cyst of large or small size.

2. That the synovial cyst so produced may occupy (*a*) the popliteal space and upper part of the calf of the leg, or may (*b*) be evident in the calf of the leg only, projecting most, as a rule, on the inner aspect of the leg as a small defined swelling, not approaching within three or four inches of any part of the knee-joint.

3. That however large the synovial cyst may be, fluctuation may not be communicable from it to the interior of the knee-joint; but the absence of such fluctuation must not be taken to contra-indicate the existence of a connection between the joint and the cyst.

4. That the synovial cyst may be expected to disappear after a longer or shorter period, without leaving traces of its existence, even on dissection of the limb.

5. That the cyst should not be punctured or otherwise sub-

jected to operation, unless there appear strong reasons for so doing, inasmuch as interference may lead to acute inflammation and suppuration of the knee-joint.

6. That most often the disease in the knee-joint will be found to have begun some time before the appearance of the secondary synovial cyst; but sometimes the patient's attention may be first drawn to the latter, or the cyst may seem for a long period the more important part of the disease.

In the course of the eight years which have elapsed since the publication of my paper, I have met with many other cases of these synovial cysts in connection with the knee, and have found the preceding conclusions amply confirmed by further experience.

With reference to the route taken by the synovial fluid when escaping from the interior of the joint, I suggested in my former communication that it is probably one determined in many cases by definite anatomical conditions, especially those connected with the tendons respectively of the semi-membranosus and the popliteus muscles, although in others the starting-point may be a "hernia" of the synovial membrane in some other situation.

The following account of two dissections, since made by Mr. D'Arcy Power, appears to show that the suggestions then offered were correct:—

The first case was that of a man (under the care of Mr. Thomas Smith), æt. 44, who had suffered from pain in the left knee-joint for a period of two years before its amputation. "At some time between March and October 1884 a swelling appeared in the calf of the leg, behind and below the head of the fibula. In October the swelling was punctured and a few drops of blood with some glairy fluid were removed, but there was no pus. He stated that many years before he had rheumatism in his shoulder. On admission into St. Bartholomew's Hospital his symptoms were recorded by Mr. Bowlby as follows:—'The knee is stiff, and, as the patient lies, the leg is at right angles with the thigh. The head of the tibia is enlarged and the patella is displaced outwards. A fluctuating swelling about the size of half an orange is situated behind and below the head of the fibula, extending into the popliteal space. A sinus in the middle of this swelling constantly discharges pus. The skin over it is red and inflamed.'

"On opening the knee-joint after amputation of the leg, about half an ounce of pus escaped.

"The cartilage covering the external condyle of the femur is ulcerated in patches." . . .

"The synovial membrane is much thickened, and in parts has grown over the upper portion of the femoral condyles. It is slightly pedunculated, the tufts of synovial membrane being well defined. The crucial ligaments are destroyed. There is no lipping or eburnation of the bones in any part, and the cartilage, upon microscopic examination, does not appear to be fibrillated.

"On the outer side of the spine of the tibia is a passage through which a probe can be passed downwards, backwards, and slightly inwards, through the posterior ligament, into a sac containing about four ounces of a thick curdy pus."

"The cyst lies beneath the gastrocnemius muscle in the situation of the popliteus. It is, I believe, the popliteus muscle, which itself has been gradually distended until all traces of muscular substance have disappeared."

"Near the outer edge of the plantaris, at the back of the joint, is a well-marked hernia or pouch of the synovial membrane, which has protruded between the fibres of the ligamentum posticum."

Mr. Power comes to the conclusion that in this case the formation of the cyst in the leg was preceded by that of a hernia of the synovial membrane of the knee-joint, and that "as the swelling increased in size its course was directed by the popliteus muscle."

In the second case, that of a girl, *æt.* 22 (under the care of Mr. Langton), "On the inner side of the leg, commencing at a point two inches below the inner condyle and extending downwards for about six inches, was a fluctuating swelling. This swelling, the patient said, had existed for about six weeks, and was getting larger. The skin over it was normal. No communication could be detected between the swelling and the knee-joint. The swelling was punctured, and three ounces of puriform viscid fluid were drawn off. Three weeks later the swelling was again punctured, and an ounce of very viscid fluid was with difficulty removed."

(The preceding note was made by Mr. J. L. Hewer.)

"The leg was amputated. Subsequent dissection showed that, as in the previous case, the joint was completely disorganised."

"The bones showed no signs of rheumatoid change, and no history of rheumatoid or other affection could be obtained from the patient.

"On the posterior surface of the joint two openings are visible. The one situated at the back of the internal condyle, immediately above the inner head of the gastrocnemius, is large

enough to admit a lead pencil. The opening is part of a canal which led from a cyst into the connective tissue surrounding the muscles at the back of the thigh." . . .

"The second aperture is situated in the tendon of the inner head of the gastrocnemius; it is somewhat below and a little to the inner side of the preceding, and is in communication with the cyst. By an opening in communication with this channel a connection is formed between the cyst and the knee-joint, through which a probe can be passed beneath the internal condyle of the femur." . . .

"The cyst measures 4 by 3 inches. It appears to have been formed by an enlargement of the bursa which naturally exists beneath the semi-membranosus muscle, and in this instance may have communicated with the knee-joint. The enlargement has taken place in the connective tissue on the inner side of the gastrocnemius muscle, and some of the fibres of this muscle form its inner and posterior wall."¹

My object in the present paper is to direct attention to the fact that abnormal synovial cysts are formed in connection with other joints than the knee; that, like those met with in connection with the latter joint, they may present many difficulties in diagnosis; and that these difficulties may lead a surgeon astray as to both prognosis and treatment.

At the time of my previous contribution on this subject to the Hospital Reports, I had not noticed the disease except in the neighbourhood of the knee. Since that period, I have seen it in connection with the shoulder, the elbow, and the hip joints. Regarding the wrist-joint and the ankle, I am not so sure. In connection with the former I can recall one case at least, which was probably identical in nature; but it occurred many years ago, and I have not preserved any detailed record of it.

CASE I.

Disease, probably Osteo-Arthritis, of the Right Shoulder-Joint, with Consecutive Synovial Cyst in the Upper Arm.

A healthy-looking man (E. S.), æt. 24, was admitted, under my care, into St. Bartholomew's Hospital on September 26, 1883, on account of a fluctuating swelling, supposed to be an abscess, in the upper arm. He had applied at the surgery on the previous day, complaining of the swelling in the arm, and stating that three months ago he first noticed pain, which struck upwards to the shoulder. Soon afterwards he noticed the lump, of about

¹ Trans. Path. Soc. of London, vol. xxxvi., 1885.

the size, at that time, of a hen's egg, and this has gradually increased in size. The swelling, which at the time of his admission measured about 4 inches in length by 3 in breadth, was situated at about the middle of the upper arm in front, immediately over the biceps muscle, to which it seemed to be adherent. It fluctuated readily, and was formed obviously by a sac of some kind containing fluid. It had been punctured on the previous day in the surgery by a grooved needle, and a small quantity of thin straw-coloured fluid had escaped. There was slight redness of the skin over the swelling, but it nowhere "pointed" like an abscess. At this time no complaint was made regarding the shoulder-joint, and nothing regarding its condition was recorded in the notes.

[Three years previously the patient had undergone amputation of the thigh on account of "white swelling" of the knee-joint. Beyond this there was nothing apparently worth noting in his previous history, unless that he had had an abscess in each groin about four years ago, and that he had had small-pox.]

From the general character of the swelling, and the absence of complaint on the part of the patient of any symptom which might have guided one to a different diagnosis, I came to the conclusion that the tumour must be either a simple cyst or a chronic abscess, and gave directions that it should be again punctured. The house-surgeon accordingly punctured it with a tenotomy knife. About two ounces of straw-coloured fluid escaped first; then the fluid became blood-stained, and this was followed by the escape of about a dessert-spoonful of curdy lymph or pus.

On examination the fluid was found faintly alkaline, and became solid on boiling. Mixed with liq. potassæ it became slightly gelatinous. The pus (?) was slightly soluble in cold liq. potassæ, and completely so on boiling.

[The urine was normal. Sp. gr. 1025.]

Oct. 2, 1883.—To this date (four days after the puncture), the patient had had no pain in the arm; a good deal of clear fluid had escaped from the site of the puncture.

On the following day the patient complained of headache, and his temperature rose to 102° F. Pulse 100. In the evening the temperature was 104° F. A good deal of purulent fluid escaped from the wound.

Oct. 6.—The temperature was at this date 102° F. There had been less discharge from the wound.

At about this time the patient first complained of pain in the shoulder, and I began to suspect the true nature of the swelling of the arm. But unless I had previously known that a synovial

cyst in connection with the knee might appear in the middle of the calf of the leg, it is quite likely that even at this time the direct connection between the abscess and the shoulder-joint would not have been discovered. For, as before mentioned, the cyst or abscess was about half way between the shoulder and the elbow, and my attention had not been previously drawn to any affection of the former.

On questioning the patient, we found now that he had suffered from pain and stiffness about the shoulder-joint for many weeks, although the relation in time between the appearance of these symptoms and that of the cyst in the arm could not be clearly made out.

Oct. 13.—The discharge had now ceased, but there was increased pain in the shoulder-joint, and a slight grating was perceptible on rotating the head of the humerus.

Oct. 22.—At this date it is noted that there is again discharge from the wound in the arm, and that the patient suffers from pain in the shoulder-joint, especially in the evening. He gets up in the afternoon.

Nov. 5.—The patient is now much better. The pain in the shoulder is less, and he can move the arm much better.

Nov. 11.—There is now no pain in the shoulder. The patient can raise his arm. The wound still discharges.

Nov. 26.—There is still discharge of pus from the wound, and there is occasionally a good deal of pain in the shoulder-joint, which of late has been swollen and tender.

Dec. 10.—At this date the discharge from the arm had almost ceased, and there was little or no pain or swelling about the shoulder; but during the last few days the patient has suffered from pain in the head and sleeplessness. He has also frequently vomited. The temperature has varied from 99.8° to 101.6° F.

Dec. 11.—The patient was delirious this morning, and on the following day he became unconscious, taking no food, and passing his urine and fæces involuntarily.

On December 14 the patient was better, perspiring freely, and quite conscious; but no real improvement was maintained, and he died December 16.

(For the details of the preceding notes I am indebted to Mr. Aldous, surgical dresser.)

Post-mortem Examination.—Nothing abnormal was discovered in the brain, or in the thoracic, or abdominal viscera.

The cartilage had disappeared from the head of the right humerus and from the glenoid cavity, and pus was found tracking from the joint for some distance backwards beneath the latissimus dorsi muscle.

I regret that by some accident no account has been given in the surgical registrar's notes of any careful dissection of the specimen; but there can be no doubt (there was none at the time) that synovial fluid had found its way from the shoulder-joint to the middle of the upper arm by tracking along the course of the long tendon of the biceps muscle.

CASE II.

Synovial Cyst in connection with the Shoulder-Joint—Puncture— Subsequent Suppuration—Amputation at the Shoulder-Joint —Recovery.

In August 1884 I was asked by Dr. Fred. F. Andrews to see, in consultation with him, a patient (F. H. P.), æt. 54, with abscess and several sinuses in the upper arm and about the shoulder-joint. He had suffered from aching pains, apparently rheumatic, in the shoulder since November 1883, and in February 1884 there was a large prominent fluctuating swelling at the upper part of the chest, at about the level of the shoulder, but which did not seem to have any connection with the shoulder-joint (although at this time the latter was somewhat stiff and painful), but rather, from its position, to be connected with the anterior and upper part of the thorax. In June 1884 the swelling, which was very tense and fluctuated readily, was punctured, when there escaped a quantity of thick yellowish fluid like serum or synovia. At the time it was considered possible that the fluid, if not cystic, might have come from the thorax; there were no symptoms attracting attention to any definite connection with the shoulder-joint. Soon afterwards, however, suppuration occurred in and about the site of the original swelling, and in the neighbourhood of the shoulder-joint. Various abscesses "formed," and were either punctured or burst spontaneously—one above the clavicle, and one or more in the upper arm.

The patient, notwithstanding the abscesses and the increasing stiffness of the shoulder-joint, was able to get about, and for a time to return to his business. Suppuration, however, never entirely ceased, and indications of disease of the shoulder-joint became more and more marked.

When I first saw the patient, he was in the condition just mentioned; able to get about, but with several sinuses leading for long distances beneath the skin and towards the shoulder-joint, with pus escaping rather profusely from some of them.

The joint was stiff, but at this time no symptoms of acute disease were present.

Some few months afterwards, in December 1884, the symptoms, both general and local, became much more serious. There could be no doubt that the shoulder was undergoing a process of acute inflammation and disorganisation; abscesses were extending from it in various directions, with profuse discharge from sinuses above the clavicle and in front of the shoulder and in the upper arm. The patient's health was much broken; he had a red, glazed, and aphthous tongue, and a hectic temperature, and was fast losing flesh and strength.

I performed amputation at the shoulder-joint in December 1884; the patient afterwards making a rapid and complete recovery.

The specimen, which was kindly dissected for me by Mr. D'Arcy Power, curator of the Museum at St. Bartholomew's Hospital, is figured in the 36th volume of the Path. Soc. Trans., plate xii., p. 336. It shows the effects of acute inflammation of the head of the humerus, with ulceration and destruction of the cartilage. In connection with it are the remains of a cyst, which was probably in connection with the bursa beneath the subscapularis muscle.

CASE III.

Synovial Cyst in connection with the Elbow-Joint.

A post-office porter (W. H.), æt. 32, was admitted into St. Bartholomew's Hospital, under my care, in August 1884, on account of a swelling in the neighbourhood of the left elbow-joint.

The swelling, which had an oval outline, was about the size of a hen's egg, and was situated immediately above the internal condyle.

The skin over it was quite normal, and was not adherent to the tumour. There was slight fulness on each side of the triceps tendon, just above the olecranon, as if from the presence of fluid in the elbow-joint. The movements at the elbow-joint were painless, but the forearm could not be quite completely flexed or extended. The swelling was not tender, but a little pain was produced by free movements at the joint.

The swelling was first noticed two years and a half ago, when it was about the size of a small nut. It grew slowly, but for the last three or four weeks has rather rapidly increased.

A few days after the patient's admission into the hospital, the swelling was tapped, when some brownish viscid synovial fluid containing granular matter escaped.

The tumour almost entirely disappeared after the tapping, but rapidly re-filled; and the patient left the hospital in almost exactly the same condition as on admission.

I have seen the patient at intervals of a few weeks to the present time (November 1885):

But little alteration has occurred in the swelling, but gradually, under gentle pressure with a flannel bandage, the size has somewhat diminished, and the patient has been able to do his work; the pain and tenderness gradually becoming less, and the movements of the arm less restricted.

CASE IV.

Synovial Cyst in connection with the Elbow-Joint.

(For permission to publish this case I am indebted to Mr. Savory, and for the notes to his house-surgeon, Mr. Lawrence.)

A man (H. D.), æt. 40, was admitted into St. Bartholomew's Hospital, November 25, 1884, under the care of Mr. Savory, on account of a swelling in the arm. The swelling is situated on the inner side of the left elbow, about an inch above the internal condyle, being somewhat larger than a pigeon's egg, fixed to the deeper textures, but, like the skin over it, freely moveable. There is fluctuation. The arm cannot be extended beyond an angle of 120° , and cannot be completely flexed.

The swelling was first noticed in the beginning of May last, and increased so rapidly that the patient came to the hospital as an out-patient about a week afterwards. At that time the swelling extended in front from the internal to the external condyle; full extension being impossible.

An angular splint was applied, with lotio plumbi dressing.

After about six weeks the arm had so much improved that in July the patient recommenced work; but about a week before his admission he again suffered from pain and swelling and inability to fully extend the arm.

A few days after his admission into the hospital the tumour was punctured with a grooved needle, and about three drachms of thin glairy and curdy, apparently synovial, fluid escaped. A pad and bandage were applied and the arm placed in a sling.

As a result of the treatment the swelling almost disappeared; but in a few days it "re-formed," though it did not become so large or tense.

January 10, 1885.—Another small incision into the tumour was made to-day, when some clear yellow glairy fluid escaped, with a small piece of what looked like thickened synovial

membrane. A pad was applied; and a few days afterwards the patient left the hospital wearing a plaster of Paris bandage.

I have seen one other case very like the two which have been just recorded.

CASE V.

Synovial Cyst in connection with the Hip-Joint.

[I am indebted to Mr. Thomas Smith for an opportunity of seeing on several occasions the patient to whom the following account belongs, which has been published by Mr. Stephen Paget in the 36th volume of the Trans. Path. Soc. of London, p. 342.]

“William B., house-decorator, æt. 34. Father rheumatic; himself healthy, except for rheumatism. Four children, all very healthy; has lost none.

The history of his case is as follows:—

In 1874 he began to feel pain in the left hip and knee.

In 1876 these pains interfered with his work. He was in St. George's Hospital for four months, and then in the Royal Free Hospital.

In 1877 he was in St. Bartholomew's Hospital under Mr. Thomas Smith. The left hip was immovable; the left knee was stiff; there was slight fulness below Poupert's ligament; and the note taken at this time puts “deep-seated fluctuation (?)” He was treated by extension of the limb with a weight of 10 lbs., and was sent out on crutches.

In 1883 he was again admitted, having managed to get about and do his work for the last six years. The movement of the left knee was now much impaired, and of the left hip still more. There was pain only after exertion. The limb was everted and three-quarters of an inch shortened. The trochanter was thickened. The whole of Scarpa's triangle, from Poupert's ligament to the middle of the thigh, and inward as far as the edge of the adductor longus, was occupied by a large hemispherical cyst, fluctuating throughout, measuring $7\frac{1}{2}$ inches vertically by 7 across. It was tapped, and 42 oz. of yellow alkaline fluid drawn off, of specific gravity 1028, containing much fat and cholesterine. Next month it was again tapped.

In 1884 it was again tapped, and 40 oz. of fluid, evidently synovial, were drawn off.

In 1885 (March) he can get about well enough to do his work, and can walk two miles. He has lately suffered from more pain. There are pain and creaking noises in both shoulders. He com-

plaints of pain at the back of the head and at the epigastrium. Pupils normal; patellar reflex normal. The cyst is filling again. The veins of the limb are varicose. There is no œdema of the scrotum, such as followed the first tapping in 1883."

The following case of disease of the ankle-joint appears to be one of like nature to those previously recorded. But I do not remember seeing the case, and lighted upon it only by accident in the Hospital Records.

CASE VI.

Synovial Cyst over and below the External Malleolus.

"E. B., æt. 13, was admitted into Darker Ward, March 22, 1879, under the care of Mr. Callender.

No history of injury.

In the last three years patient has noticed a swelling in the neighbourhood of the left ankle-joint, which has varied in size, nearly disappearing after prolonged rest, and getting much larger during exertion. It gives him no pain, but he states that the joint is weak, and inclined to yield under him.

24th.—At present there is a small, smooth, fluctuating swelling stretching along the anterior edge of the external malleolus, generally rounded in shape, and evidently containing fluid. The skin over it is natural, with the exception of having been discoloured by the application of some iodine. The top of the swelling slightly overlaps the surface of the malleolus, but does not extend either below its apex or under the anterior tendons. No alteration in size is noticed after short pressure upon it. The hollow behind the malleolus, between it and the tendo-Achillis, is not so well marked as it should be. The anterior tendons are rather more lifted up from their bed than those of the opposite side. There is no thickening of the bones round the joint, nor is there any pain on movement or pressure anywhere. Mobility (passive) of the joint appears, if anything, to be increased.

25th.—Trocár and cannula inserted into swelling, with the result of evacuating a clear, gelatinous, synovial fluid.

April 4.—The swelling has again increased.

9.—Swelling tapped, and lead foil strapped over the part where the fluid had been evacuated.

29.—Swelling much smaller than formerly, but still it gives a sense of fluctuation.

May 23.—Swelling nearly gone.

Discharged.

Readmitted into Abernethy Ward under the care of Mr. Savory, January 1, 1880.

In the last five months he has been in Bow Infirmary, and unable to walk.

He cannot now bear his weight upon his left foot. The foot he keeps extended, and cannot flex it more than to a right angle. The leg and thigh have wasted, and are conspicuously smaller than the right. There is uniform swelling round the ankle-joint. It is soft and tender on pressure.

The surface of the joint is hot, and when the foot is moved or the heel pressed upwards he complains of pain.

Back splint, swing cradle, lotio plumbi.

Jan. 8.—Ol. morrhue, syr. ferri phos. \bar{z} i. ter s.

18.—Less tenderness.

26.—Gum and chalk bandage.

Discharged.

I have seen a case some few years since of an apparently bursal multilocular cyst on the back of the fore-arm and carpus, which I have no doubt was identical in its pathology with that of the synovial cysts here described. Unfortunately I cannot find any written notes of the case. The patient was a man about 30 to 40 years of age, a butcher from Smithfield Market, who attended as an out-patient for many months on account of a large fluctuating irregular swelling on the back of the hand and extending up the fore-arm for some little distance; the swelling being deep-seated and involving the region of the sheaths of the tendons, but without any indications of being produced by a regular thecal distension. On the contrary, the swelling was irregular in outline, as if more or less multilocular, with a general thickening of all the tissues in the neighbourhood of the wrist-joint, and I believe (although I cannot now speak positively on this point) with restricted movement of the latter.

With the help of elastic support to the wrist the patient was able to continue his work; and although the question of operation was often considered, I never felt justified in recommending any. After many months I lost sight of the case; but the last memory I have of it is distinctly that of a more or less thickened and crippled wrist-joint, and not that of thecal disease only.

In the *British Medical Journal*, vol. ii. 1884, p. 413, Mr. Arthur T. Norton describes cases of what he terms "gangliar disease of joints," which seem to me identical with the case just described, and which, like it, are probably identical in their pathology

with many of the cases which I have related in connection with other joints.

"In one case a woman, *æt.* 40, fancied she had sprained her wrist five years ago, but did not recollect the occasion. For four years there had been some swelling and pain, but she had not been prevented from continuing her employment as a domestic servant. For the last three months before admission to the hospital there was a so-called ganglion about four inches in length, extending upwards from the wrist-joint in the centre of the fore-arm. The ligaments of the wrist-joint were sufficiently loose to allow lateral gliding movement. The annular ligament was pushed forward by ganglionic enlargement, and there was evidently fluid within the wrist-joint. The hand hung down, and there was no power to raise it. The hand was quite useless, and the disease was increasing and had continued so to do for more than five years, regardless of treatment."

From a past experience of similar cases Mr. Norton concluded that the only treatment was amputation, which he accordingly performed. On examination of the hand after removal, he found the ganglion already mentioned filled with the usual jelly-like material, which on pressure separated into plates or melon-seed shapes. This ganglion extended into the wrist-joint. The wrist-joint contained a small quantity of fluid; the synovial membrane was villous; the ligaments were distended and allowed lateral gliding movement of the joint; and all the bones of the carpus were rarefied or softened, so that a pin or a knife could be easily pushed through their substance. Though there was no caries, the articular cartilages were thinned.

Mr. Norton relates other similar cases.

From the foregoing cases the following conclusions may be drawn:—

1. That abnormal synovial cysts may be formed in connection, not only with the knee, but in connection with the shoulder, the elbow, the wrist, the hip, and the ankle joints.

2. That the manner of formation of these synovial cysts probably resembles that which has been proved to occur in connection with the knee-joint, namely, that the synovial fluid on reaching a certain amount of tension by accumulation within the joint, finds its way out in the direction of least resistance, either by the channel by which some normal bursa communicates with the joint, or, in the absence of any such channel, by forming first a hernia of the synovial membrane. In both cases, should the tension continue or increase, the fluid at length escapes from the sac, and its boundaries are then formed only by the

muscles and other tissues between and amongst which it accumulates.

3. That in the case of the shoulder-joint the abnormal synovial cyst may be found either in front a little below the clavicle, or in the upper arm in the region of the biceps muscle.

4. That in connection with the elbow-joint the cyst is usually placed on the inner side, a little above the internal condyle of the humerus.

5. That in the case of the wrist-joint the synovial cyst may be either in front or behind.

6. In the only case in connection with the hip of which a note has been preserved, the swelling was in the upper part of Scarpa's triangle.

7. In the one case in connection with the ankle-joint the synovial cyst was in front and to the outer side.

8. That the apparent want of direct communication between the joint and the abnormal synovial cyst is frequently deceptive, and should not lead to the inference that no such communication exists.

9. That the caution given in the previous communication, not to interfere by operation with these synovial sacs without good reason, has been justified by increased experience.

Hitherto I have not discovered any relationship between the form of osteo-arthritis with which some of these synovial cysts are associated and locomotor ataxy, but I suspect that in some of them a relationship will be found to exist.

ON THE
BREATH SOUNDS OF HEALTH AND DISEASE.

BY
J. F. BULLAR, M.B.

The present paper is an extension of an account of an artificial thorax, and of some experiments performed with it, in illustration of the production of the respiratory sounds, which appeared last autumn in the Proceedings of the Royal Society (No. 234).

The experiments to be described demonstrate that the vesicular murmur is produced in the lungs, and not only dispose of the theories based upon the assumed glottic origin of this sound, but explain satisfactorily all the peculiarities of the respiratory sounds in health. The experiments further illustrate the effects upon the respiratory sounds of the various physical changes in the lungs, and enable us to understand how, in different conditions of the parts, the morbid sounds are due either to changes in the sound-conducting power of the parts ausculted, to suppression of the sounds produced in health, or to the addition of new sounds having no existence in the healthy state.

The artificial thorax (a description of which is given at the end of the paper) was made in the hope of illustrating the manner of production of bronchial breathing in cases of consolidation, but after a few preliminary trials it became evident that the first thing to do was to determine in what parts of the respiratory tract and in what manner the breathing sounds of health are produced. It is surprising that the cause, and even the place of production of these sounds should still be a matter of dispute; but such is the case. There is no generally accepted theory of the respiratory sounds in health; almost every author of a text-book upholds a particular view, and builds upon it a theory of the morbid sounds, with the result that the literature of the subject is a mass of confusion.

The point in dispute is the place of origin of the vesicular murmur. If this could be demonstrated, the respiratory sounds of health would be sufficiently understood, and the foundation of a true theory of morbid sounds would be laid, for the sounds which are known to be glottic and oral in origin present no difficulty.

An account of the various explanations of the breathing sounds may be found in Dr. Paul Niemeyer's "*Handbuch der Percussion und Auscultation*" (Erlangen, 1870), of which the following is a short abstract.

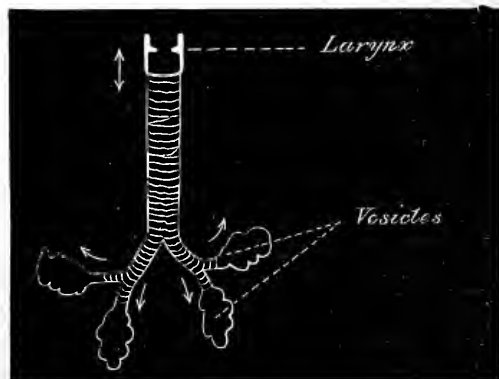
The various theories, though differing more or less in detail, may be arranged under three principal heads.

According to the first, the sounds are produced all along the respiratory tract by the friction of the air against its walls.

According to the second, the sounds are produced at the glottis alone; the difference in the sounds heard over the trachea and lungs, and the modifications they undergo in disease, are attributed to the greater or less conducting power of the structures through which they are heard at each spot.

According to the third, the sounds are produced at those parts of the respiratory tract where the air passes from a narrower to a wider space. Thus during inspiration one sound is produced at the glottis and another at the points where the smallest bronchioles open into the vesicles. During expiration a sound is produced at the glottis alone.

The sites of the production of the sounds are represented



in the figure by arrows which show the direction of the air-current by which a sound is produced at each spot.

I shall describe first an experiment which demonstrates that the vesicular murmur is produced in the lungs.

In the rest of the paper I shall consider the origin of the vesicular murmur as proved, and my arguments are of no value if I am wrong on this point.

The experiment was performed in the following way :¹—

A pair of sheep's lungs with the trachea attached was arranged so that the left lung was within the artificial thorax, while the right lay outside upon the roof of the chamber. The chamber was filled with water, and by moving the handle of the bellows the left lung could be made to breathe without affecting the right lung, which lay collapsed outside the chamber. By fixing the handle of the bellows in different positions, different degrees of distension of the left lung could be maintained. An india-rubber air-bag was now attached to the trachea. Pressure on this bag tended to drive air into both the lungs, but, owing to the incompressibility of the water in the chamber, it had no effect upon the lung within it as long as the handle of the bellows was kept still, but caused only the outer lung to breathe.

If now the handle of the bellows was fixed in the raised position so as to keep the inner lung collapsed, while the outer lung was made to breathe by pressure on the bag, the sounds heard over the two lungs were very different. In the outer breathing lung the sound was vesicular, inspiration soft and rustling, expiration much more faint. In the inner lung both inspiration and expiration were loud and blowing, the sound bronchial. Over the trachea the sounds were loud, and resembled those in the collapsed lung in character. If the inner lung was kept in a state of expansion while the outer lung breathed, the sounds heard over it had the same bronchial character as before, but were very faint. The sounds heard over the distended and motionless lung were not more vesicular in character than those heard over the lung when collapsed—they were the same sounds but fainter. The more the motionless lung was expanded the fainter were the sounds heard through it; the more it was collapsed the louder were the sounds—they never acquired the character of the sound heard over the breathing lung.

If now, while the inner lung was expanded and the outer lung was breathing, the handle of the bellows was allowed to move, both the lungs breathed at once, and at each inspiration the rushing vesicular murmur could be loudly heard over the inner lung.

The only explanation of these facts is that the vesicular murmur is produced in the lung itself, for the experiment proves that the sounds elsewhere produced are heard but faintly through a distended and motionless lung, and that they have the bronchial character; it further proves that the vesicular murmur is developed in the distended lung by the entrance into it of a current of air,

¹ For a figure of the apparatus see Appendix, p. 207.

that is, by a cause which, while it may produce a sound in the lung itself, must diminish its power of conducting sounds produced outside it; for we have seen that increase of distension lessens the conducting power of the lung.

The above experiment proves simply that the vesicular murmur is produced in the lung during its expansion; it does not indicate the way in which the sound is produced.

The following experiment was devised to determine the manner of production of the vesicular murmur, and though it had a negative result, it is of interest as showing that the murmur is not produced by the movement of the tissues of the lung, as has been suggested.¹

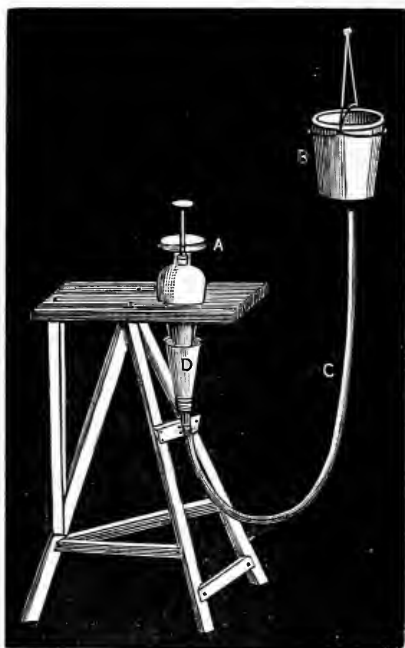


Fig. 4.

I thought that, as the vesicular murmur is produced in the lung, it might be possible to obtain it without allowing any air to enter the bronchi. With this view I made an apparatus in which a lung with its bronchus tied could be at will relieved from or subjected to the atmospheric pressure, and thus made to expand and contract. I supposed that, the bronchial tubes being incapable of much distension, a current of air would be set up from them to the vesicles, and that thus a murmur might be produced.

The apparatus used is shown in fig. 4. From the bottom of

¹ Bristowe, *Theory and Practice of Medicine*, 2d edit., p. 380.

the glass vessel A an india-rubber tube C leads to the vessel B. The junction of the tube and glass vessel is surrounded by the india-rubber funnel D filled with gelatine jelly to ensure the joint being air-tight. The neck of the glass vessel is ground to fit an india-rubber stopper, and the edge of the glass expands and projects above the stopper so that it can be covered with water. A solid stethoscope passes through the stopper.

In order to use the instrument, the vessel B is raised and mercury poured into the tube C till it rises into the lower part of the glass vessel. The rest of the glass is then filled up with water. A cat's lung or the small lobe of a sheep's lung, with the bronchus securely tied, is placed in the water, the cork and stethoscope adjusted, and the cork covered with water. On lowering the vessel B and the tube C connected with it, the lung expands, and on raising it again contracts. This expansion and contraction is, of course, caused by the expansion and contraction of the air contained in the bronchial tubes and vesicles of the lung; but as the bronchial tubes are far less extensible than the vesicles, the expansion is accompanied by a passage of air from the bronchi to the vesicles, and the contraction by a passage of air from the vesicles to the bronchi. The less the amount of air contained in the vesicles, or, in other words, the more the lung is collapsed when the bronchus is tied, the greater will be the relative amount of air contained in the bronchi, and hence the greater will be the current from bronchi to vesicles and from vesicles to bronchi during expansion and contraction. Although the lung expanded and contracted freely, no breathing sounds could be satisfactorily heard through the stethoscope. This was not the fault of the stethoscope or stopper around it, for the breathing of a living cat could be heard quite plainly with it.

I thought that after pressing as much air as possible out of a part of the lung, and placing the stethoscope over this part, the first expansion was accompanied by a faint sound, but of this it was difficult to be certain. The current of air set up in this way was probably very feeble, the greater part of the expansion of the vesicles being caused by that of the air already contained in them. For this reason the result of the experiment is no evidence that the vesicular murmur is not produced in the lungs under natural conditions, but simply shows that, for the production of this as of all similarly developed sounds, a certain minimum force of air-current is essential. The experiment shows that the vesicular murmur is not caused by the movements of the tissues of the lung, since these were as great as in ordinary breathing.

The results of the above experiments, proving as they do that the vesicular murmur is produced in the lungs, dispose altogether of the glottic theory of the production of the vesicular sounds.

There remain for our acceptance the first and last theories quoted at the beginning of this paper. The first of these, the theory of the production of sound all along the respiratory tract by friction of air against its walls, is unsatisfactory, for it is easily demonstrable that a current of air passing through a uniform tube is unproductive of sound, and that sound is produced by making a constriction in the tube. It is true that the trachea and bronchi are not absolutely uniform tubes, and that some sound may be produced in them at different parts, but that the vesicular murmur is produced by "friction" against their walls is negated by the fact that the sound is much louder during inspiration than during expiration, a difference which cannot be accounted for by any difference in the friction between the air and air-passages in the acts of inspiration and expiration. We shall be safe in assuming, therefore, that any sounds produced in health at parts other than those indicated in the diagram (p. 192) are almost certainly too feeble to have any practical importance.

The theory of the healthy respiratory sounds which I adopt, therefore, is the third, which may be re-stated as follows:—

During both inspiration and expiration sounds are produced in the nose, mouth, and glottis—sounds which vary with the varying conditions of the parts. In the trachea and bronchi, which are in the natural condition nearly uniform tubes, little or no sound is produced. The "vesicular murmur" is produced in the lungs during inspiration, and though the exact place of its production has not been demonstrated, it is probably at the junction of the narrower bronchioles with the wider vesicles. The healthy sounds of respiration then are nasal, oral, glottic, and pulmonary. The nasal, oral, and glottic sounds may, for purposes of description, be all included together, and when in future I speak of the glottic sounds, I am to be understood to refer to all sounds produced in the glottis or above it.

In order to make our ideas of the healthy respiratory sounds clear, it is necessary to consider not only the sounds themselves and the places of their production, but also the conducting power of the parts through which they are heard, and the consequent differences in the sounds at different parts of the living body.

If the respiratory organs and the structures covering them were good conductors of sound, the sounds produced at any one part would be heard at all other parts, and wherever we listened on the surface of the chest or throat, we should hear the combination of all the sounds produced at the time. The distance between the most remote parts of the respiratory tract is so small that none but feeble sounds would be entirely lost on that account, even if it were not the case that in a great part of this short distance the sound is conducted through tubes (trachea and larger bronchi), by

which the effect of distance is diminished. Of course each sound would bear a somewhat greater or less proportion to the whole combination as the point auscultated was nearer to or farther from the place of its production, and thus there would be a difference of character in the resultant or combination sound at different parts. It would, however, everywhere be a combination of the sounds produced at the different parts of the respiratory tract. The rate of the air currents is so slow as to have no influence on the conduction of sound.

Distended lung, as the first experiment proves, is a bad conductor of sound; collapsed lung a fairly good conductor; and the conducting power diminishes as the collapse gives place to distension; the greater the distension the less the conduction of sound through the lung.

The whole of the phenomena of the healthy respiratory and voice sounds become explicable, indeed almost self-evident, on the recognition of the following facts:—

The production of a glottic sound during inspiration and expiration.

The production of a pulmonary sound during inspiration.

The feeble conducting power of distended lung.

The glottic sounds, including the voice, are heard loudly over the trachea and in the neighbourhood of the large bronchi. They are heard indistinctly over distended lung. In the first experiment the glottic sounds were clearly heard over the trachea and the collapsed lung; as the lung was distended they became fainter and fainter over the lung, but were still audible during full distension. When the lung was allowed to breathe, the vesicular or "pulmonary" sound was added to the glottic inspiratory sound, and the combination produced the sound of healthy inspiration. During expiration the sound did not appear to be much louder than when the lung was at rest; probably therefore the expiratory part of the so-called vesicular murmur consists of conducted glottic sounds alone. Just as the sounds heard over the lung consist, in part, of sounds conducted from the glottis, so the sounds heard over the trachea consist, in part, of sounds conducted from the lungs. This point will be discussed more fully when I come to deal with the morbid respiratory sounds.

Alterations of the healthy sounds may be brought about in three ways. By *suppression* of a healthy sound, by *alterations in conducting power of the parts through which the sounds are heard*, and by the *production of sounds having no existence in health*. These causes of alteration do not, as a rule, come into existence separately. As we shall see hereafter, the same physical condition of the lung may both suppress a healthy sound, alter the conducting power of the lung, and be the cause of production of a sound having no existence in health.

In the experiment¹ in which one lung is distended and motionless while the other breathes, we have an example of the suppression of the pulmonary sound in the distended lung without alteration of its conducting power. In the experiment in which one lung is collapsed while the other breathes, we have an example of suppression of the pulmonary sound in the collapsed lung with accompanying increase in its conducting power. In each case the breathing heard over the motionless lung is bronchial, but in the first the sounds are feeble, in the second loud.

The question whether in these experiments there is or is not a production of sound which does not exist in health remains to be solved.

In order to answer this question I shall show that in these experiments the conditions for the production of a new sound are present, and that these conditions are of such a nature as to explain the various kinds of bronchial breathing met with in practice, and shall describe an experiment intended to demonstrate the production of new sound.

First, then, it is well known that a current of air passing over, but not entering, the mouth of a tube, produces a sound which, under certain conditions of the length of the tube, &c., may become a musical note, and that in cases where the sound is a noise rather than a note, that by listening carefully a note may be detected through the rushing noise. What I mean may be easily illustrated by blowing across the mouth of a test-tube. By blowing more or less hard one may produce either a clear note or a rushing noise characterised by a certain pitch, or, in other words, a noise and an accompanying note. Now, in the experiments the bronchus leading to the non-breathing lung is in the position of the test-tube. Air does not enter it, but blows across it on its way from the trachea to the breathing lung. *The condition for the formation of a new sound is therefore present whenever there is stasis of air in a bronchus, from whatever cause this may arise.*

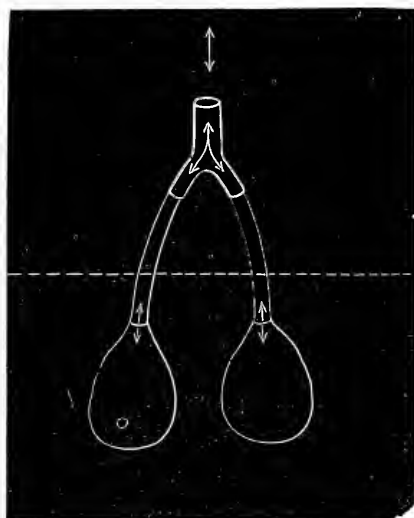
Secondly, if we first blow across the mouth of an empty test-tube, and then gradually fill it with water, blowing across it again after each addition of fluid, we shall notice that the pitch of the note produced rises in proportion as the air-space in the tube becomes shorter.

Clinically the bronchial breathing in different cases is characterised by differences in pitch. In some the pitch is low, like that of the sound heard over the trachea in health; in others high and the sound whiffing.

The production of unnatural sounds was demonstrated in the following way:—A gutta-percha tube of about an inch in internal diameter was moulded at one end so as to form a bifurcation into two smaller tubes, each having an internal diameter of somewhat

more than half an inch, and to each of these was fitted an india-rubber tube of the same diameter and about six inches in length. The inside of the whole apparatus was smooth.

To the lower free ends of the india-rubber tubes equal-sized bags of india-rubber tissue were attached, as shown in the figure.



The artificial thorax being filled with air, the tubes, with the bags attached, were let through its roof as far as the dotted line in the figure. By working the handle of the bellows air was drawn in and out of the bags. During the inspiration and expiration thus caused a gentle murmur was produced, probably at the open ends of the tubes. The loudness of the murmur depended upon the force with which the respirations were performed, and by working with a proper force the sound could be made very faint indeed. If, when this was the case, one of the smaller tubes was nipped, so as to prevent any air passing through it, the sounds became much louder. The expiratory sound was increased more than the inspiratory. The character of the sound also changed; a note could be detected in it whose pitch varied with the part of the tube pinched—the shorter the length of tube between the bifurcation and obstruction the higher was the note.

The sounds could be heard either at the mouth of the large tube (trachea) or with the stethoscope in the obstructed and unobstructed tubes (bronchi).

The same result was obtained with the lungs of a calf. Both lungs were placed in the artificial thorax with the trachea and main bronchi above the cover. On compressing either of the

bronchi a marked increase of sound was heard over the trachea, the increase in the expiratory sound being, as before, the greatest. The shortness of the bronchi made it impossible to elicit different notes by compressing them at different points.

These experiments show that, with a given rate of respiratory movement, more sound is produced when there is stasis of air in a bronchus than when all parts of the lungs breathe at once; they further show that a change in the character of the sound accompanies this increase, and that the quality of the change depends upon the length of tube in which there is stasis of air.

Consolidation of the lung, therefore, acts in three ways in altering the sounds of respiration :—

First, the pulmonary sound is abolished in the consolidated part.

Second, the conducting power of the consolidated part is increased, so that we hear the sounds produced elsewhere more plainly through it.

Third, a new sound, having no existence in health, is produced at the mouth of the tube or tubes leading to the consolidated part, and this new sound is characterised by some particular note, whose pitch depends upon the size of the tubes in which there is stasis of air.

In different cases of consolidation the result of the combination of the three causes of change will be different. In cases of small masses of consolidation the amount of healthy sound suppressed and of morbid sound produced will be insignificant, and the consolidation will be effective simply by its increased conducting power; it will act as a continuation of the stethoscope through the vesicular structure to the bronchus on which it rests, and will enable us to hear the sounds normally present in the bronchi.

That this is the case may be shown in the following way :—A lung is made to breathe by attaching it to the air-bag and pressing intermittently on the bag. The stethoscope is first placed lightly on the lung, so as not to interfere with its movements, and the vesicular murmur is heard. The stethoscope is then pressed more firmly, so as to compress and consolidate the lung beneath it; the breathing sounds then become bronchial.

In a large consolidation, on the other hand, the suppression of pulmonary sound will be great, and the production of new sound may also be considerable, giving rise to bronchial breathing of high or low pitch according to the size of the tubes in which there is stasis of air.

It is needless to give more examples of the various proportions in which suppression, altered conduction, and new formation of sound may occur. All that is necessary is to remember that in every case of unnatural breathing-sounds due to consolidation, the change is produced by one or more of these three causes.

I shall next consider the changes produced by cavities, so as to be able to compare their effects with those of consolidation, and then discuss separately some further points of interest which cannot be introduced here without confusion.

In a cavity, as in a consolidated portion of lung, the natural pulmonary sound is abolished.

The conducting power of air is greater than that of healthy lung; therefore, if the cavity contain air, the conduction through it is increased just as it is in consolidation.

A cavity may also be the cause of the production of new sounds. These sounds may be produced in various ways, which I shall discuss immediately, but before doing so I wish to point out a fact which is not always sufficiently insisted upon. It is that unless the new sound produced by the cavity has some special character by which it may be distinguished, the auscultatory signs of cavity and consolidation are the same. Suppression of pulmonary sound and increased conduction of sounds produced elsewhere are common to both consolidation and cavity, and the characters of the new sounds produced are seldom sufficiently distinct to enable us to say, by the auscultatory signs, whether the case before us is one of consolidation or cavity. Cavities are always accompanied by more or less consolidation, and it is not uncommon to find post-mortem that auscultatory signs which during life were attributed to a large cavity were really due to extensive consolidation surrounding only small excavations. *The signs then of consolidation and cavity may be, and frequently are, identical.*

The new production of sound in cases of cavity may be due, as in consolidation, to stasis of air. A cavity with rigid walls cannot expand appreciably during respiration, and if it is in communication with a bronchial tube, the air in the cavity and tube will be motionless, and the conditions for the production of a sound at the origin of the bronchus leading to the cavity will be the same as in a case of consolidation. Supposing the communication between the bronchus and the cavity to be free, the cavity will have some influence by resonance on the character of the sound produced, but this may be too slight to distinguish it clinically from consolidation.

In cases in which the air passes through the cavity, as in a dilated bronchus, a sound will be produced in the cavity both during inspiration and expiration; but again these sounds may have no special characters by which they can be distinguished from the sounds due to consolidation, and though produced by movement of air in the cavity, may resemble the sounds due to stasis.

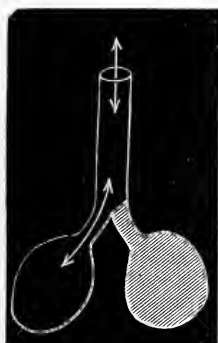
A very low-pitched note in the bronchial breathing, or, as it is called, cavernous breathing, may be indicative of the resonance of a large cavity. If the pitch is not lower than that of the

normal tracheal sounds, it is not an indication of cavity, since the tracheal sounds may be heard by conduction through a solid lung.

An important point to remember, and one which is made evident by the experiments I have described is that breathing sounds, other than the vesicular murmur, heard over parts of the lungs in which the vesicular murmur is naturally present, are no indication that air is entering those parts. We hear loud bronchial breathing over parts of the lung that are completely consolidated by pneumonia, and they only cease to be heard if the bronchial tubes become plugged by mucus. In the same way we may hear loud breathing sounds over an empty cavity, but we cannot therefore infer that air enters the cavity during inspiration. The entrance of air into a cavity may be inferred from the sound of splashing or of large bubbles, but not from the breathing sounds alone.

I shall now discuss a point which was mentioned in the description of the previous experiments, but which has not yet been fully considered.

In the experiments demonstrating that a new sound is produced when there is stasis of air in a bronchus, it appeared that the expiratory sound was more increased than in the inspiratory. (See p. 199.) The explanation of this appears to be that the trachea is a larger tube than a bronchus, and that hence when there is stasis of air in one lung, as shown by the shading in the diagram, the conditions for the production of sound are different during inspiration and



expiration. In both cases the air-current, as shown by the arrows, passes over the mouth of the shaded bronchus in which there is stasis of air, and gives rise to a sound in the way described above. During inspiration this is the only new sound produced, but during expiration the air passes from the smaller bronchus into the larger trachea, and the passage of air from a smaller to a larger tube produces sound.

A sound produced at the mouth of a bronchial tube is conducted upwards as well as downwards. In the experiments the tracheal sounds were changed as well as the sounds in the obstructed and unobstructed bronchi. In the living body sounds produced in the bronchi and lungs, râles, clicks, and even crepitation, may often be heard over the trachea. It is to be expected, therefore, that in cases of high-pitched bronchial breathing, in which well-characterised sounds are produced in the bronchial tubes, there should be a change in the sounds heard over the trachea. The natural sounds heard in the trachea are formed in the glottis

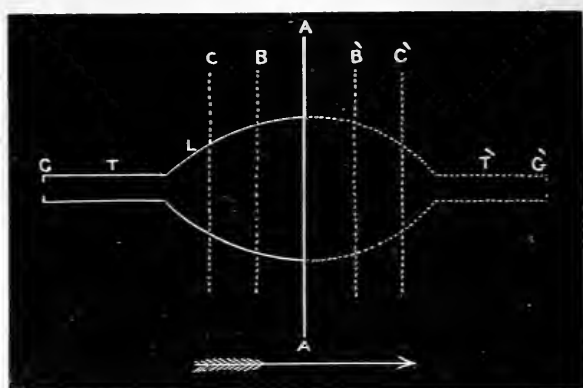
and in the lungs. The addition to these sounds of a new sound formed in the bronchial tubes, unless it were of a different character from them, would not be recognisable; it would simply increase the loudness of the tracheal sounds; and as the trachea is a single organ, and we have nothing with which to compare it directly, the change would not be detected. Cases, however, occur in which, as the bronchial breathing disappears from the lungs, a change may be detected in the tracheal sounds. Dr. Andrew has had the kindness to examine several cases of pneumonia and phthisis in his wards with regard to this point, and he has in several instances observed a distinct change in the character of the tracheal sounds to occur simultaneously with changes in the character of the breathing sounds heard over the lungs. The changes in the tracheal sounds are not likely to be of any clinical importance, but are interesting in connection with the theory of bronchial breathing.

In cases in which a considerable portion of lung ceases to breathe, as in pneumonia, phthisis, pleurisy with effusion, &c., the sounds heard over the unaffected parts of the lungs are often louder than natural and are called puerile. Thus Dr. Gee (*Auscultation and Percussion*, second edition, p. 257), in speaking of the signs of pulmonary phthisis, says: "The loudness of the puerile breathing sometimes leads the inexperienced to predicate disease just in that solitary part where the lung remains healthy." And in discussing the physical conditions of the respiratory sounds (p. 131) he says: "Puerile breathing implies louder sounds than usual, produced in the glottis, and a very open state of lung." The implication is a necessary one if the theory of the glottic origin of the vesicular murmur adopted by Dr. Gee is true. It will be interesting therefore to inquire whether the destruction of lung tissue affects the production of sound in the glottis, and whether the occurrence of puerile breathing can be explained, if, as I believe, the vesicular murmur is produced in the lungs.

In order to understand the changes in the movements of air consequent upon parts of the lungs ceasing to breathe, it is necessary first of all to picture to ourselves the movements of air which take place in the healthy respiratory tract.

The glottis is the narrowest part of the tract; from this point the cross section of the tract increases and is largest in the vesicles. Just as the blood current is quickest in the narrower aorta, and slowest in the wider capillaries, so the air current is quickest in the glottis and slowest in the vesicles. During inspiration the movement of the air from the glottis towards the vesicles becomes progressively slower, and during expiration the movement of the air from the vesicles towards the glottis becomes progressively quicker. The absolute rate of the air current at any part of the respiratory tract depends upon the energy of the respiratory

movements, but the relative rates at different parts of the tract depend upon the areas of the cross sections at those parts. The following diagram will make what I mean clear:—



The outline to the left of the vertical line *A A* represents a longitudinal section of the respiratory tract; the narrowest part is at the glottis *G*; this is followed by the uniform trachea *T*, after which the cross section represented by the truncated cone *L* rapidly increases to the line *A A*, which is supposed to pass through the vesicles or widest part of the tract. During inspiration a stream of air may be supposed to flow from *G* to *A A*. The dotted outline to the right of *A A* represents the same parts as the outline on the left, and during expiration a stream of air may be supposed to flow from *A A* to *G'*. Thus inspiration and expiration may be represented diagrammatically by a stream flowing through the whole scheme in the direction of the arrow from *G* to *G'*.

The rate at which the air passes any point of the scheme, *G*, *C*, *B*, or *A*, will depend upon the force with which the respiratory movements are performed; but, whatever the absolute rate may be, there will be a certain proportion between the rates at the different parts of the scheme. Supposing the current at *G* to be ten times quicker than at *C*, and a hundred times quicker than at *A*, this relation will hold good whatever the rate may actually be at *G*, since the differences in rate at *G*, *C*, and *A* depend solely on the differences in the cross sections of the scheme at those points. Now, consolidation of the lung would be represented in the figure by a narrowing of the scheme at *A A*, and the effect of it would be to upset the ratio previously existing between the rates of the current at *A* and *G*. In proportion as the cross section at *A* was diminished, the rate of the current at *A* would be increased; but there would be no cause of increase in the rate of the current at

G. As the intensity of a sound depends upon the rate of the current producing it, the consolidation of one lung would increase the sound produced in the other, but would have no effect upon the production of sound in the glottis.

We thus see that the destruction by compression, consolidation, or otherwise, of a part of the lung implies greater rapidity of air currents in the healthy parts of the lungs, and, therefore, if sound be produced in them, greater production of this sound.

We further see that consolidation does not imply greater rapidity of air current, and therefore of production of sound in the glottis. If consolidation leads to an increase in the glottic sounds, it must do so indirectly, either by narrowing the glottis or by increasing the force of the respiratory movements.

So far as I know, there is no reason to suppose that the rima glottidis is narrowed in cases of consolidation.

With regard to increased force of respiration, it must be remembered that increased frequency and increased force are quite distinct. Suppose a man with healthy lungs to be breathing fifteen times a minute, and that during each inspiration thirty cubic inches of air pass through his glottis, say in two seconds. Suppose now that, while he continues to breathe at exactly the same rate, one of his lungs becomes suddenly consolidated. (We may assume for the sake of argument that the capacity of each lung is the same.) Each inspiration will now occupy one instead of two seconds, during which time fifteen cubic inches of air will pass through his glottis; the time occupied in expiration will be equally diminished, and he will be able to perform thirty respirations a minute in place of fifteen without any increase in the rate of the air current in the glottis or of the sound produced in it. If, therefore, the capacity of the chest is diminished by half, the rate of respiration must be more than doubled before any increase in the production of the glottic sound is produced.

I think it will be admitted that the facts of puerile breathing receive a better explanation from the theory of the pulmonary origin of the vesicular murmur than they do from the glottic theory, and that they are, therefore, an additional proof of the truth of the former.

I have one more experiment to describe, which may help to explain the cause of jerking or intermittent breathing. While I was working at the respiratory sounds I saw a very marked case of this kind, in which, after the general expiratory sound had ceased, there came a distinct puff, quite audible to the patient himself, and at a little distance from him. In this case there was certainly a considerable cavity, for periodically an ounce or more of purulent sputum was thrown up, and the sign was only present shortly after this had occurred.

It struck me that the sound might depend upon altered elasticity of the different parts of the lung giving rise to a difference in the periods of inspiration and expiration at which they would expand and contract. I therefore modified the apparatus described on p. 198 by replacing one of the gutta-percha bags by a thin elastic india-rubber balloon. During inspiration the inelastic bag became filled first, and not until it was full did the elastic bag become distended. During expiration the elastic bag contracted and emptied itself before the inelastic one began to expire. It seems probable that the same cause may give rise in the lungs to the same irregularity in the filling and emptying of different parts; and if it does so, it would have the effect not only of producing an irregularity in the vesicular sound during inspiration, but, by causing a temporary stasis of air in various bronchial tubes, would produce the conditions for the development of new sounds at the mouths of these tubes, and thus, under conditions favourable to the conduction of sound, give rise to jerking expiration.

I have not made any experiments on the production of the various accessory sounds, râles, crepitation and friction, since there does not appear to be any great difficulty about them. A râle produced in the lungs may be heard over the trachea, and a râle produced in the mouth may be heard at the base of the lungs. This may be easily shown by sucking air through a pipette containing a drop of water; the râle in the pipette is easily heard at the base of the lungs behind. A râle heard over a patch of consolidation may simply be heard there on account of the increased conducting power, and may be produced elsewhere.

Stoppage of the bronchial tubes by plugging with mucus or by pressure prevents the conduction of breathing sounds through the lung to which they lead.

In conclusion, I may say that the results of my experiments on the vesicular murmur confirm those of Chaveau, Bondet, and Bergeon performed on horses, and quoted in Dr. Paul Niemeyer's work, and that the demonstration of the production of a new sound when there is stasis of air in the bronchi, &c., I have not seen elsewhere.

I have to thank Dr. Andrew for his kindness in giving me much help and many suggestions with regard to the experiments, and also Dr. Buller for many valuable criticisms.

APPENDIX.

DESCRIPTION OF THE APPARATUS.

DESCRIPTION OF FIG. I.

- A. Chamber with glass sides.
- BC. Chamber with india-rubber sides (like the body of a pair of bellows), communicating with A through the hole K.
- D. Handle for working bellows.
- E. Hinge on which handle D turns.
- F. Tap for emptying bellows.
- H. Hole in roof of chamber A.
- I. Tap leading through roof into chamber A.
- K. Communication between the two chambers.
- LL. Stethoscope with india-rubber tube.

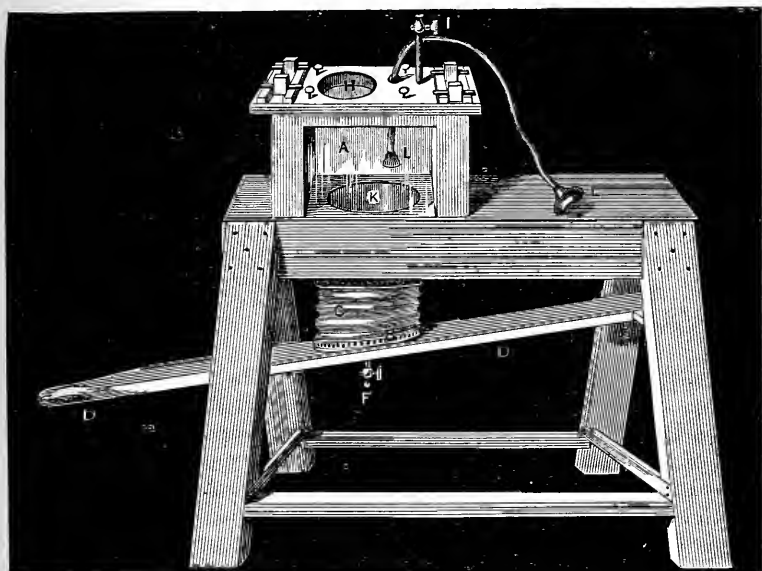


Fig. 1.

The artificial thorax with which most of the experiments were made is represented in fig. 1. The glass-sided chamber A, fixed upon a firm wooden bench, communicated through the smooth hole K with a second chamber C. The sides of the chamber C were made of flexible india-rubber cloth, like the sides of a pair of bellows. The top of the bellows was fixed air-tight to the bench round the hole leading into the upper chamber A, and the bottom of the bellows was attached to the handle D, moving on a hinge at E; at the bottom of the bellows was a tap F. The hole

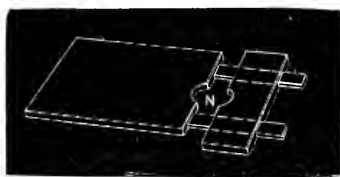


Fig. 2.

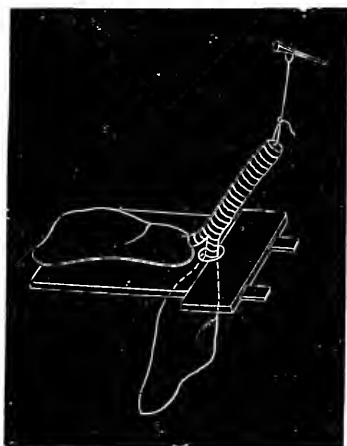


Fig. 3.

H in the roof of the chamber A was intended to admit the collapsed lung of a calf or sheep. The tube of the flexible stethoscope L and the tap I also passed through the roof. The inner end of the stethoscope was covered with a piece of bladder to prevent the escape of air or water from the chamber.

In order to place a lung, or pair of lungs, in the chamber for experiment, the bronchus or trachea was passed between the two parts of the sliding frame, fig. 2, and the parts brought together so that the bronchus lay without pressure in the hole formed by the two notches in the frame at N. A lung placed in the frame

is represented in fig. 3. The interval between the bronchus and the sides of the hole N was stopped up by wrapping some tow dipped in a strong solution of gelatine around the bronchus. The gelatine, when solidified, adhered firmly to the frame and bronchus, and made a perfectly air-tight joint. The two parts of the frame shut upon a piece of india-rubber, so that the frame with the lung fixed in it formed an air-tight lid which could be screwed down air-tight upon a ring of india-rubber surrounding the hole H in the top of the chamber A. The inner end of the stethoscope L was attached to the lung by tying it to the fold of pleura known as the ligamentum latum pulmonis.

When the lung was suspended in the air-tight cavity formed by the continuous chambers A and C, it could be made to breathe by raising and lowering the handle D, just as in the natural chest the lung is made to breathe by the ascent and descent of the diaphragm.

By means of the taps I and F the cavity of the artificial chest could be filled either with air or water, and the quantity of its contents regulated.

The motion of the machine itself, and of the air or water contained in it, produced no sound.

CASES FROM DR. CHURCH'S WARDS.

BY

T. G. STYAN, M.B.

Cases of Aortic Aneurysm.

By the kindness of Dr. Church I am enabled to publish an account of three cases of aortic aneurysm which have lately been treated in his wards. They possess one point of interest in common, namely, that they all ended fatally by a sudden rupture into the left pleural cavity. They present, in addition, individual features which render them worthy of record. The first two illustrate the great difficulty that may be experienced in forming a correct diagnosis or prognosis of such cases; the former was rendered difficult by the indefinite nature of the symptoms, and the latter was at fault because the patient had been actually improving for some time before death came unexpectedly. The third case was an ordinary one, but possesses interest as exhibiting the results of Tufnell's diet maintained for many weeks.

For the notes of the post-mortem examinations I am indebted to Dr. Norman Moore.

CASE I.

E. H., a woman aged 55, came to the surgery on the evening of October 25, 1885.

She walked there, alone, a distance of more than a mile.

She stated that she had been in good health up to that afternoon; at about 5 P.M. she had been seized with sudden and severe pain in the epigastrium and had vomited several times. She attributed her illness to "stomach-ache," and considered that it had been caused by her taking a rather heavy meal of bacon in the middle of the day. The contents of her stomach had been ejected, but retching still continued.

When seen, she was evidently in great pain, being unable to keep still for a minute at a time, with beads of perspiration standing out on her forehead.

Her pulse was 84, regular and full, rather hard. Respiration 20, easy. Temperature 99°.

She kept retching at intervals, but brought nothing up. Her bowels had acted in the morning, and had been previously regular.

Being questioned closely as to any previous history of gastric pains or vomiting, she denied having experienced either, but ultimately said she had noticed a slight sensation of pain in the left side of her chest at times during the last month. It was, however, of a trivial character, and she had not paid much attention to it.

After further examination, as the pains appeared to be due to colic, an opiate draught was administered internally, and a mustard and linseed poultice applied to the seat of the pain. She was directed to lie down on the couch in the surgery and visited at intervals.

Paroxysmal attacks of pain continued in the epigastrium and as low down as the umbilicus, but the retching became alleviated.

Later on a subcutaneous injection of morphia, gr. $\frac{1}{6}$, was given, and the pain disappeared in the course of the next hour.

There was no vacant bed in the hospital, so she was sent home in a cab, with orders to return in the morning if she still felt unwell. At 9 A.M. the following day she walked back, saying that the pains had begun to return about 6 A.M., and were now getting worse. She had also vomited twice during the night, each time immediately after drinking some tea, and had had very little sleep.

She was then admitted.

Condition on admission.—A well-nourished woman, with a somewhat congested face. Had an anxious expression of countenance, as if in momentary expectation of pain. She preferred to lie on her back, that position being the least painful.

Pulse 90, full, regular. Respirations 26, easy, but not deep.

She complained of great pain of a shooting character, which started from the upper part of the epigastrium and travelled through the left hypochondrium round to the back. She kept retching at intervals, but brought nothing up, her stomach being probably empty. There were no signs of collapse; her extremities were warm. Temperature was 99.2°.

A careful examination was made of her chest, and nothing could be discovered there to account for the pain. The lungs were both emphysematous, but the breathing was easy, and no moist râles were present; there was no dulness at any part of them.

The heart was displaced a little downward by the emphysematous lungs; its action was normal, the sounds clear and distinct.

The cause of the pain thus appeared to be not in the thoracic cavity.

The abdomen was natural in appearance and not distended. The liver was somewhat lower than normal, its edge being quite an inch below the ribs in the right hypochondrium. This could be accounted for by the condition of the lungs. Its surface was smooth.

Spleen could not be felt.

The stomach seemed normal.

There were no signs of any tumour, and no pulsation nor bruit could be detected either in front or behind.

There was no jaundice.

Urine, sp. gr. 1022, acid, clear; no albumen; no blood.

She was given some ice to suck at intervals. A linseed poultice was applied over the epigastrium, and a subcutaneous injection of morphia, gr. $\frac{1}{4}$, was given, with the result that the pain became easier. Three times in the course of the day about two ounces of milk were administered by the mouth, and the effect noted; they were on each occasion rejected within a quarter of an hour, but it was noticed that they did not in any way increase the pain.

In the afternoon, as she had retained no nourishment in the stomach for eighteen hours, it was decided to feed her by the rectum. Accordingly an ordinary warm-water enema was first given, in order to clear out the bowel. A copious evacuation took place, the fæces being quite natural in appearance. After this, nutrient enemata, each containing four ounces of milk and two drachms of brandy, were given every other hour, and were all retained. At 8 P.M. the subcutaneous injection of morphia was repeated and the patient passed a very fair night, only waking three times.

On the morning of the 26th at 9 A.M. a severe paroxysm of pain in the epigastrium and left hypochondrium came on suddenly. The pain was evidently intense; she crouched in a sitting posture in the bed, rocking herself to and fro, groaning, and at times screaming out loud. Pulse was 104, regular. She vomited up some green bile-stained mucus. A morphia injection eased the pain for the rest of the day, and the nutrient enemata were continued.

Her symptoms were in many ways similar to those of an attack of biliary or renal colic, but there was no jaundice, and the urine was natural; sp. gr. 1030, acid, and containing no blood nor albumen.

During the night of the 26th she again had two sudden and sharp attacks of pain, which necessitated the further use of morphia injection. She then had some hours' sleep, and awoke in the morning feeling better and complained of hunger. During the day she took half a pint of milk by the mouth and retained it. The bowels acted once, the motion being solid and quite natural. The pulse was 100. On the whole, she was decidedly better and more comfortable. The temperature was 98.8°.

On the 28th, after a good night's rest, she had a pain in the epigastrium, no longer paroxysmal, but persistent and dull in character. The retching had quite ceased, and she was taking all her nourishment by the mouth. The pain gradually lessened during the day, and she slept well the following night. An acute paroxysm of pain came on at 7 A.M. on the 29th, but it only lasted a few minutes, and afterwards she had a comfortable day. The pulse was 96, and regular.

The note taken on the 30th was, "Better; has no more pain, and the retching and vomiting have quite ceased. Is taking plenty of liquid food by the mouth without any discomfort. Pulse 90."

On the 31st, about noon, the note was, "She has passed an easy and comfortable night, with some good sleep. Has been quite free from pain for two days and nights now. It threatened to return in the epigastrium early this morning, but soon passed away, and she is quite easy now. Pulse 84, regular and full. Tongue clean."

Half an hour after this note was taken she vomited some milk, and continued to retch for some minutes. An action of the bowels followed, and almost immediately after the bed-pan had been removed she gave a piercing shriek and fell back dead on the pillow, becoming suddenly blanched.

Post-mortem examination.—Body fat. No anasarca. Cranial bones very thick. Dura mater and sinuses thick. Arachnoid and pia mater opaque on the vertex. Cranial arteries atheromatous. Chest pigeon-breasted. Both lungs emphysematous; the left one altogether collapsed by an effusion of blood in the left pleural cavity. At the end of the arch of the aorta, at its junction with the descending portion, was a small calcareous patch, about the size of a threepenny-bit, one third of an inch long, situated in the posterior wall of the vessel. This was cracked across, a transverse linear fissure letting blood escape between the middle and outer coats of the artery. The escaped blood extended about one-third round the aorta, and had tracked down the whole length of the vessel, and had made its way between the coats of the two iliac arteries. On the left side it had burst into the pleural

cavity, which was full of freshly clotted blood. The aorta was calcareous at the spot where the rupture occurred, and very considerably so near the bifurcation.

The valves of the heart healthy; some hypertrophy of the left ventricle. Kidneys granular and small, with the capsules adherent.

The diagnosis of this case was difficult. When first seen, her symptoms in many respects resembled those of three patients lately admitted with a perforating ulcer of the stomach. But this was negatived by the absence of any previous gastric symptoms, in conjunction with the fact that she was not at all collapsed. The case, therefore, seemed to be one of intestinal colic, and was treated as such. Later on, the sudden and paroxysmal nature of the pain, together with vomiting and retching, seemed to point to biliary or renal colic. The absence of any jaundice and the natural condition of the urine militated against this view.

The question of aneurysm arose several times, but not the slightest evidence of it could be detected. The tumour caused by the blood was too deeply seated, and not sufficiently circumscribed to allow of any pulsation being felt, even if any was present, and no bruit could be heard anywhere.

During the last two days of her life, the symptoms were so greatly alleviated that she appeared quite convalescent, and no suspicion was aroused of the nearness of the end. It was not until the actual moment of death, which was so characteristic of a copious and sudden internal hæmorrhage, that any real light was thrown upon the nature of her disease.

This case, though falling under the head of dissecting aneurysms, was in truth not an aneurysm at all. There was no dilatation of the aorta itself, and no circumscribed pouch in the vicinity of the crack. In immediate connection with the crack in the aorta there was a considerable quantity of laminated clot, which appeared of older date than the remainder. It seems probable that the leak through the crack in the aorta was at first slight, and that for a time but a limited portion of the outer coat of the vessel was separated from the middle, and that the blood thus slowly extravasated formed the older and more thoroughly laminated portion of the clot. This may have taken place without causing severe symptoms, and may thus explain the trivial pain she told us had been present from time to time in the left side of the chest. When the crack in the small atheromatous patch widened, more and more blood would be pumped through it; the cohesion between the laminæ of the middle coat was not sufficient to withstand the pressure, and the effused blood made its way right down the aorta

and along the iliac arteries. This was contemporaneous with the occurrence of the severe symptoms. Then came a time when the patient had almost complete relief from her symptoms; this may possibly have been due to a lessening of the pressure on the parts around the aorta and iliac arteries, when the extravasated blood began to make its way through the mediastinal tissues towards the left pleura, into which it eventually burst.

The late Dr. Peacock took much interest in these cases of dissecting aneurysms, and in the 14th volume of the Pathological Society's Transactions collected together numerous instances of this lesion. The present case is interesting as belonging to the rarer form of this lesion. In only eight out of seventy-three cases collected by Dr. Peacock did rupture of the vessel occur in the descending portion; in all the rest, the wall had given way in the ascending portion or in the arch of the aorta. Another point of unusual interest in this case was the general freedom from disease of the coats of the aorta at the place where the rupture took place; with the exception of the small calcified patch which had cracked, there was little or no atheroma at that portion, although there was a good deal near the bifurcation of the aorta. The very small size of the crack as compared with the size of the ruptures of the wall usually found is also noteworthy, the diseased patch not exceeding a threepenny bit in size. The separation of the coats of the aorta took place in this instance, as it commonly does, through the laminae of the middle coat. Mr. D'Arcy Power's report of the specimen is as follows:—"The calcareous plate in the aorta is situated a quarter of an inch below the level of the bifurcation of the trachea, or an inch and a half lower down than the origin of the left subclavian artery. The blood appears to have separated the layers of the middle coat, for I have made sections of the artery, and I find that the inner portion consists of elastic and fibrous tissue with a small proportion of muscular tissue. The outer portion of the artery, when examined with the microscope, consists of loose areolar tissue, which has undergone some small amount of cell infiltration as the result of inflammation, and towards its deeper layers some elastic and muscular fibres are visible; so that I believe it to be the outer and a portion of the middle coat of the vessel."

CASE II.

J. R., a man aged 41, was admitted to Matthew on October 2, 1885. He stated that he had always enjoyed good health, and had been quite well till the present illness, which commenced three months previously. The first symptom he noticed

was pain in the right lumbar region, worse at night. It was at first intermittent in character, but had gradually become more frequent and also more severe. He had worked for many years as a porter in the meat-market, but in consequence of this pain he was obliged to stop work, and attended for some weeks as an out-patient of Guy's Hospital. For the last three weeks he had been confined to bed at home by his great weakness. His illness had been marked by rapidly progressing debility and loss of flesh. He formerly weighed 12 stones, but now only 9 st. 3 lbs. His bowels had become costive, so that four or five days usually passed without a motion; the fæces were small and hard, "like bullets." He was not aware of any melæna; he had been much troubled with flatus. There had been no vomiting.

There was no pain during defæcation, but a little in the abdomen after the act.

He had noticed nothing unusual in his urine.

Condition on admission.—Very pallid and weak, with the appearance of a man who had lost much flesh. Temperature normal. Pulse 84, and regular. Respirations 20. Bowels have not acted for five days. His chest was somewhat hyper-resonant on both sides, chiefly at the bases. Expiration prolonged; no moist râles; there was no cough. Heart natural, in normal position; area of cardiac dulness diminished.

He complained of a dull pain in the right side of the abdomen, on a level with the umbilicus, both in front and behind. There was no dulness at this spot, and no tumour could be felt on deep pressure. The pain was not increased by the pressure.

There was no enlargement of the liver or spleen. The whole abdomen was natural in appearance, and nothing abnormal could be discovered in it. The urine, sp. gr. 1012, acid, clear, with no deposit, and contained no albumen.

He was ordered to have half an ounce of castor-oil with ten minims of laudanum, to get his bowels open. It had no effect on him.

He slept well the two following nights, but had pain at times, always in the same place, catching him chiefly when he moved in bed.

On October 5th, as there had been no action of the bowels for a week, an enema was given. The result was a copious evacuation, containing a large quantity of small, hard fæcal pellets.

On the 6th and 7th he complained of pain over the lower part of the abdomen, especially on the left side. On the 9th he passed a small motion after a dose of castor-oil; the motion consisted of a very small quantity of loose fæcal matter, and about four ounces of bright blood with it.

A rectal examination was at once made, and neither hæmorrhoids nor any malignant growth could be felt. He felt so much pain in the left iliac fossa that it was necessary to give him laudanum during the day.

During the week he had now spent in the hospital he had lost 4 lbs. in weight, and was weaker than he had been. This fact, taken in conjunction with his constipation, the small size of his fæces, the abdominal pain, and the passage of blood by the bowels, seemed to point to some constriction of the intestines, probably due to malignant disease, though at what part it was impossible to say.

During the next month he continued to lose flesh, till he weighed only 8 st. 6 lbs.; he also lost strength. His bowels continued constipated, and were only relieved about twice a week, chiefly by the use of enemata. Various purgatives, such as castor-oil, sulphate of magnesia, senna, jalap, and cascara sagrada, had little or no influence on them.

On three occasions during this month he passed blood with the motions. The pain shifted about, sometimes being altogether absent for a day, and then returning once more. When present, it was always either in the right lumbar or the left iliac region.

His pulse varied between 80 and 100, being always regular and fairly strong. He slept well at night without the aid of morphia. He continued very pale and weak, feeling faint if he got out of bed for any purpose. On one occasion he did actually faint for a few seconds. He complained of no symptoms referable to the thorax; and although several examinations were made, no abnormal sound or bruit was heard. His appetite continued good, and he had no pain after a meal.

About November 5th he began to improve; the pain lessened, though still present at times in both sides of the abdomen. He began to gradually regain weight; in one week he increased by 4 lbs.; his strength gradually improved also. His bowels remained constipated; the fæcal masses were of small calibre, but only once was there any trace of blood in the motions. The temperature was quite normal; the pulse continued between 80 and 90.

He became quite cheerful, and several times requested leave to sit up in the evening.

On the evening of the 25th his temperature reached as high as 100° for the first time.

The following night it was again 100°, and his pulse was 118. His heart's action was quite regular, but the first sound was no longer distinct, having a faint and prolonged character. He felt quite comfortable and slept well.

On the 28th his temperature was 100° in the morning; the pulse was 120, regular, but weaker. He felt some pain at the heart, and the first sound at the apex was indistinct. During the day he became quite free from any uneasiness, and in the evening wanted to sit up, but was not allowed to. He went to sleep at 9 P.M., and about two hours later suddenly shouted out twice for help. When the nurse reached his bedside he was dead.

Post-mortem examination.—The body was lean. The lungs were highly emphysematous; the right one weighing $21\frac{1}{2}$ oz., but the left one, which had been greatly compressed at the moment of death, only 11 oz. The left lung was collapsed by an effusion of blood into the pleural cavity, so great that the diaphragm was depressed. The heart weighed $10\frac{1}{2}$ oz.; the valves were healthy, and both the endocardium and pericardium quite natural. The cardiac tissue was brownish and soft. From the end of the first three inches of the straight part of the aorta to the diaphragm was a largish aneurysm with a complete anterior wall, but behind only bounded by the eroded vertebræ. The sac extended about equally to the right and left, and had burst into the left pleural cavity by a large rent. The liver and spleen were natural; there was no abnormal condition noticed in the gastro-intestinal tract. There were no hæmorrhoids.

Here again the diagnosis was far from simple. The usual signs of thoracic aneurysm, such as pain in the chest, dysphagia, dyspnoea, loss of voice, &c., were entirely absent. Instead of them, the leading symptoms were abdominal pain, obstinate constipation, with fæces of small calibre, and passage of blood with the motions. These, taken in conjunction with the rapid loss of flesh and strength, were suggestive of ulceration of the intestines, probably of a malignant nature.

The absence of any audible bruit is easily accounted for. The aneurysm was situated immediately behind the left side of the heart, and, in addition, the lungs, being highly emphysematous, were unduly distended in front of it. The breath sounds and the cardiac sounds together were quite sufficient to drown any bruit that might exist.

But it is not so easy to account for the absence of pain or pressure symptoms in the thorax during his illness. It was only four days before his death when signs of pressure were first exhibited in the increased rapidity and weakness of the pulse, showing embarrassment of the action of the heart. Thoracic pain was first felt at the same time, and the systolic cardiac sound, previously clear and distinct, became prolonged and indistinct. The probable explanation is that the aneurysm increased slowly at first and did

not exert any pressure on the surrounding organs. During the last week of his life, however, the walls of the sac yielded rapidly, and embarrassed the action of the heart and caused pain.

CASE III.

T. J., aged 45, was admitted to Matthew on April 28, 1884. He was a muscular, well-built man; a boatswain on a large cargo steamer. He had been in India for nineteen years, but always enjoyed good health, and had never had syphilis. For the last few years he had been at sea, but had little physical work to do. Eighteen months ago, whilst superintending the loading of the vessel, he had been knocked down and doubled up by some bales of goods. At the time he did not feel much hurt, but some weeks later he began to experience pain in the epigastrium, and soon afterwards felt pulsation and swelling just below the sternum. He continued his duties till three months ago. Since then, he had been very ill with severe epigastric pain, which extended from there to his left shoulder and through the abdomen down both thighs. During these three months he had lost flesh and strength, and had suffered much from vomiting and dysphagia. The food appeared to lodge about the level of the ensiform cartilage.

On his admission, there was visible in the epigastrium and left hypochondrium a large pulsating tumour, about seven inches across. It was not distinctly expansile, but a faint bruit was audible in front. No bruit could be heard behind. The lungs were emphysematous; the heart sounds were natural.

The legs were slightly cedematous. The urine contained no albumen.

From the day of admission till May 8th he remained much the same, except that the vomiting became less. The pain remained unchanged, and kept shooting at intervals from the epigastrium.

On May 12th he was put on Tufnell's diet.

During the next fortnight the pain was very severe at times, and had to be relieved by injections of morphia. He stood the restricted diet well and his pulse continued steady at 72.

After this the complete rest and the diet seemed to benefit him. On June 5th the note says that the pain was decidedly less than on admission, so that he was able to sleep well without the aid of morphia. A week later, when he had completed the first month of Tufnell's treatment, the pain had ceased entirely. He had not apparently lost flesh. The pulse was only 51, but quite regular. The temperature was generally somewhat subnormal.

He remained on the same diet till August 1st, by which time he had completed twelve weeks of it. During this period the pain

was very seldom felt, and was not severe on the few occasions when it did occur. The pulsation gradually and sensibly diminished, and he felt stronger and more comfortable in every way. An opinion was formed that the marked improvement in his condition was most likely due to the formation of a fibrinated clot in the sac.

During the month of August his diet was gradually increased.

On September 4th he had been in bed for four months and a half, and he was then allowed to sit up for a short time in the evening. This immediately caused a fit of shivering, and his temperature rose to 101° that night; the next day it had risen as high as 104.4° , but no abnormal physical signs were detected which could account for it. It then began to descend, and on the 7th was again normal, and he was feeling well and comfortable; he had no pain of any sort.

He continued to get up for longer periods each day until October 16th, when he left the hospital. He was then feeling strong and was free from pain.

A few days after leaving the hospital he returned to his old occupation, and superintended the loading of the vessel in preparation for a voyage to India.

On November 13th, the day before she was to start, the pain returned in the epigastrium. The next day it was so severe that he wisely decided not to go to sea.

On November 17th he came back to the hospital and was re-admitted. The tumour was then pulsating over a wider area than before, and the pain was so severe that he had repeated injections of morphia given to him.

On November 27th he was again put on Tufnell's diet, having ten ounces of solid food and ten of fluid in the day. This was rigorously continued till February 7th, a period of exactly ten weeks. In addition to this he was kept on fifteen-grain doses of iodide of potassium taken three times a day. No appreciable effect was produced by the treatment. The pain came and went at intervals. On the whole, his condition did not materially alter during the winter.

After February 7th his diet was gradually increased, as he had lost a good deal of flesh and no effect seemed to have been produced on the tumour. His pulse remained fairly constant between 70 and 80, and the temperature was always about normal.

On April 15th the bruit of the aneurysm could be heard for the first time in the back, close to the spine, at the level of the last dorsal and upper lumbar vertebræ. This grew gradually more distinct, till, on May 14th, pulsation could also be felt there.

On May 21st he was comfortable in the morning, but soon after

noon, whilst talking quietly, he suddenly gave a shout for the nurse and died.

Post-mortem examination.—A well-nourished, muscular man. The head was not examined. The costal cartilages were calcified. The lungs were highly emphysematous, but the left one was much compressed by an effusion of blood into the pleural cavity; the clot of effused blood weighed 3 lbs. 14 oz. The heart weighed 9 oz. The pericardium and endocardium were natural. The liver and kidneys were both natural.

The aneurysm extended both above and below the diaphragm, more below than above; and when the abdomen was opened, it appeared at the upper edge of the stomach as a large projecting tumour the size of a large orange. The opening of the aneurysm towards the aorta was the size of a florin, and the orifice of the cælic axis was near it, and was much thickened and corrugated.

The sac was 6 inches long by 3 inches broad. Its lower wall, which was the strongest portion, was a quarter of an inch thick; elsewhere it was thinner, especially at the upper part. It contained no coagulum or clotted fibrin. There was a large rent in its upper surface, by which it had opened into the left pleural cavity. The rent was 2 inches long by $1\frac{1}{2}$ inches across, and had thin edges.

The clinical interest of this case lies in the results obtained by a prolonged trial of Tufnell's diet. The patient was an intelligent man, who put up bravely with the discomfort of this treatment for a period altogether of twenty-two weeks, more than half of which was during a hot summer, when it must have been particularly irksome.

The treatment at its first trial seemed to be decidedly beneficial to him; the pain was much relieved and the pulsation diminished, so that reasonable hopes were entertained that a firm coagulum had formed in the sac. At its second trial it appeared to have no beneficial effect, and was not persevered with.

From an examination of the aneurysm and adjoining parts after death, taken in consideration with the clinical symptoms, it is probable that the marked relief from pain and the lessening of pulsation observed after the patient had been for some time under treatment on Mr. Tufnell's plan, was due to the aneurysm undergoing a partial cure, but in a very different manner to that we usually see. The density and thickness of the anterior lower portion of the aneurysmal sac was remarkable, being much more than could be accounted for by the wall of the vessel and the tissues it had pushed before it, and appeared due to the organisation of inflammatory exudation in immediate connection with the

fibrous coat of the aorta. The original dilatation probably ceased to increase when the man was subjected to the first course of Tufnell's treatment, and during this time the dilated wall gained so much strength from the contraction and condensation of the new fibrous tissue that for a time (whilst he was able to resume his ordinary life) it was strong enough to withstand the blood-pressure. The second sudden advent of pain on November 13th marks the time at which a fresh portion of the wall of the vessel suddenly bulged, and from that time the aneurysm appears slowly but steadily to have increased in size.

The case is valuable as showing how careful one should be in drawing conclusions from incomplete cases. Had this man not returned to St. Bartholomew's, but been taken to another hospital or treated privately, his case would probably have been considered one of abdominal aneurysm successfully treated on Mr. Tufnell's plan.¹

Cases of Optic Neuritis from Intra-Cranial Disease.

Dr. Church has had three patients under his care during the last few months in whom symptoms of cerebral irritation were followed by acute inflammation and atrophy of the optic nerves. The first two cases present similar features, and both of the patients after a long illness eventually recovered excellent health, but remained totally blind. The last case varied in many respects from the others, and ended fatally. Dr. Norman Moore has kindly given me the notes of the post-mortem examination.

CASE I.

J. W., a policeman, aged 31, was admitted to Matthew on February 23, 1885. His family history was good, and he had always enjoyed good health himself till the present illness commenced. Some months before admission he began to complain of pain in the back of the neck and head, which he attributed to a fall that he had lately had whilst on duty. He continued at work till December 1884, when the pain became greatly aggravated. He also felt pain now at the back of the eyes, and his vision became impaired. Vomiting and retching commenced at the same time. He was taken off duty, and for the last eight weeks had been laid up at home suffering with headache and vomiting. According to his wife, he had been frequently delirious.

¹ *Note by Dr. Church.*—Though unsuccessful in this instance, I have great confidence in the value of Mr. Tufnell's plan of treating aneurysms, and have had several most favourable results in thoracic, though not as yet in any case of abdominal aneurysm.

He was a strongly-built man, and appeared to have lost flesh. His pulse was 60 and regular. The tongue was very foul on the dorsum, the tip and edges being cleaner; the breath was offensive. He was in a lethargic, heavy condition, taking no notice of anything, but could be aroused by speaking to him loudly. He answered questions in a slow and deliberate manner. The eyes were bloodshot, the pupils being equal, but rather dilated. His movements, like his speech, were slow and deliberate, but gave no signs of paralysis. There was no strabismus. His thoracic and abdominal organs all appeared natural.

The urine was natural and contained no albumen. He denied having had syphilis, and there were no signs of it about him.

His bowels had not acted for a few days. The temperature was 98°.

For the first three days after admission he remained in the same condition. Very free action of the bowels was obtained by castor-oil and enemata, and his breath became less offensive. He was then put upon ten-grain doses of iodide of potassium with twenty minims of sp. ammon. aromat. three times a day, and this treatment was continued without intermission till the day of his discharge.

On February 27th, Dr. Roughton, the ophthalmic house-surgeon, examined his eyes, and reported that both discs were blurred and swollen, the veins swollen and tortuous, and in places hidden by effusion. There were numerous white patches of effusion surrounding the discs, and also many flame-shaped hæmorrhages.

These appearances were consistent with the presence of albuminuric neuro-retinitis; so the urine was again examined, and found to be sp. gr. 1018, acid, and to contain no trace of albumen. Only a natural quantity was passed in the twenty-four hours.

On March 1st he became much more drowsy, and could only be roused with the greatest difficulty; he complained of much occipital pain. The urine was passed in bed. For three days he lay in a nearly comatose condition, passing both urine and motions into the bed, and taking very little nourishment. The pulse was regular, about 64. The respirations were a little noisy, but not stertorous, and were about 26 a minute.

On March 4th he became more sensible, and was able to answer questions, speaking in a slow drawing manner. His eyesight, he said, had become worse; he could see bystanders round his bed, but could not distinguish between them. He had a good deal of frontal headache now.

The following day he was again nearly comatose, frequently

putting his hand to his head as if in pain. He passed urine in the bed and vomited several times.

Another fortnight passed without material alteration in his symptoms; he would be nearly unconscious for a day or two at a stretch, with intervals in which he seemed much better.

On March 18th, Mr. Vernon examined his eyes with the ophthalmoscope, and reported that there was no material change in the fundus since Dr. Roughton's examination; but that the retinal effusion had increased, so that the details could not be made out so clearly then.

He continued to vomit at intervals and to pass urine and motions under him occasionally till the end of the month. The pupils were dilated but equal. The pulse was always between 60 and 70, and quite regular. The temperature varied between 97° and 99°. The bowels were somewhat constipated, but acted after occasional doses of medicine. On the 26th the vision was suddenly and markedly worse, so that he could not see bystanders.

After the first week in April a gradual improvement began; the headache and vomiting ceased first, and he became more conscious and intelligent. His appetite improved, and the involuntary escape of urine stopped.

The blindness, however, remained so complete that he could at last distinguish light only with difficulty. Mr. Vernon made a further examination on April 25th, and found some atrophy of the right disc.

At the end of April his general health was so far improved that he was allowed to sit up in the evening. At first he walked with a staggering gait and required assistance; but there was no paralysis. It was due to general debility and the blindness.

During the month of May he progressed rapidly, becoming stout and strong, and feeling well.

On May 22d he went to Swanley, and since then he has twice returned to Matthew to show himself. When last seen, in August, he was in excellent health but quite blind, and had been pensioned out of the police force.

CASE II.

M. P., aged 19, a general servant, was admitted to Faith on April 1, 1885. Her family history was good, but she herself had never been strong as a child, and her tibiæ were slightly rickety. She had been able, however, to do very hard work as a general servant in a school until the present illness began. This had set in three months previously with headache and vomiting, and for the last seven weeks she had been in bed.

The vomiting at first used to be about once a day in the early morning; it had latterly increased to about a dozen times a day. The headache had become gradually more severe. Her bowels during this time had been constipated, nine days sometimes elapsing without a motion. The vomit was usually greenish and contained no blood.

On admission, she was a thin, wasted girl, with a pinched and anxious expression; her skin was very dry and rough, almost ichthyotic. The pupils were widely dilated but equal, and acted but slightly to light. The pulse was 84, and regular. The respirations were 24, and easy. Her temperature was 98.4°. The urine was sp. gr. 1018, neutral, and contained no albumen. Her bowels had not acted for five days. The heart and lungs were natural.

Her abdomen was sunken and the walls thin and wasted; scybala could be felt in the descending colon; there was no tenderness over the stomach. She complained only of severe pains shooting through both the frontal and occipital regions and constant vomiting. She vomited nine times during the day, the vomit consisting of curdled milk and bile.

She was given a simple enema, which brought away a large quantity of hard black scybalous masses. She had some ice to suck, and an effervescing draught of citrate of potash every four hours. Her symptoms became relieved towards evening and she slept well.

The next day another enema was administered, and a further quantity of hard feces removed. At the end of the first week she was decidedly improved; she both felt and looked better. The headache had almost gone, and she only vomited once daily. The pulse was steady at about 84, and the temperature normal. The tongue was clean. She slept well.

She began to complain, however, that her vision was failing her.

Mr. Spicer, the ophthalmic house-surgeon, accordingly examined her eyes, and found that both optic discs were large and swollen, with their margins obliterated. The veins were congested and obliterated in places, and there was one point of retinal hæmorrhage in the right eye.

On April 14th her eyesight was more misty, and on the 29th had become decidedly worse, so that she could not count fingers nor distinguish the surrounding beds; she could only just make out the position of the window in front of her bed. During this time the headache and vomiting had returned with their former severity.

Her history for the next six weeks was of a similar character. There was more or less vomiting nearly every day in spite of

various remedies which were tried. It was so excessive at the end of May that for two days she was fed by the rectum. Obstinate constipation continued, and was relieved by enemata and purgatives.

Her headache was the most troublesome symptom to combat. It varied in severity from time to time, but was always present in some degree.

Her head was shaved and ice-bags applied to it, blisters were raised in the temporal regions, leeches were applied behind each ear, and mustard poultices to the back of her neck, with only partial relief. Ultimately thirty-grain doses of bromide of potassium given every six hours were found to have the best effect. The pulse remained regular, between 60 and 80. Her vision became worse, until complete blindness supervened.

The pupils varied in size from day to day, but were always equal and usually dilated.

There was no paralysis anywhere.

At the end of May the pain had extended from the head to the back of the neck, causing rigidity, and continued for quite a month there.

No signs of cervical caries could be discovered, and there was no impairment of either motion or sensation in any part of the body.

She became much weaker and thinner, and twice during June she had shivering fits, and her temperature rose over 101° for a few hours.

At the end of June there seemed a strong probability of her death. She was too weak to sit up in bed for a minute; she passed her urine and motions under her in bed for more than a week, and was in a semi-unconscious condition, talking nonsense, and taking no notice when spoken to.

In July an improvement set in gradually but surely; the headaches became less frequent, though still severe at times; the vomiting was diminished, and her consciousness and reason returned. On the 11th of the month she was sitting up in bed; the bromide of potassium was discontinued and a tonic of liquor strychniæ and syrup of phosphate of iron substituted for it.

On the 15th Mr. Vernon examined her eyes and reported: "There are the remains of extensive optic neuritis in both eyes, *i.e.*, both discs are ill-defined, irregular, and surrounded by oedematous retina; there is considerable tortuosity of the veins; there are no definite patches of effusion nor any hæmorrhages in the retina; in some places there is much disturbance of the choroidal epithelium (? from commencing choroidal atrophy).

"This description applies to both eyes, which are remarkably alike."

From this time, with some slight intermissions, there was a steady improvement in her general health.

On August 1st she sat up in a chair, but was still too weak to stand alone.

On the 15th she was up nearly all day, and could walk feebly with assistance.

On September 2d she was sent to Swanley, and was then able to walk well by herself.

When last seen, early in October, she had increased greatly in weight and strength, and was in good health, though completely blind. The vomiting and headache had quite gone away. Her optic discs were then showing signs of atrophy, and she could not distinguish light from darkness.

In both these cases the inflammation of the optic nerves came on a long time after the establishment of other leading symptoms of disease, and was clearly secondary. What was the nature of the primary affection? Two main facts can be relied upon in solving this question: the disease was a chronic one, and was curable. It was, therefore, probably either a chronic form of inflammation or some syphilitic growth; no other form of intracranial new growth being, so far as I am aware, curable.

Now, there was no evidence of syphilis in either of the patients, and no history of it was obtained.

The balance of evidence, then, seems to be in favour of a chronic inflammation, most probably in the form of chronic meningitis.

CASE III.

M. A. R., aged 20, whilst dancing in the street in the latter half of July, fell down and struck her head against the pavement. It hurt her a good deal at the time, but she kept the accident a secret from her friends. A few days later she was troubled by constant vomiting and pains in the vertex of her head. These became so severe that she was obliged to stop her work as a machinist, and was laid up at home for six weeks. During this period the headache and vomiting continued, and a fortnight before her admission the eyesight had become impaired. Lately she had become childish in her manner at times.

She was admitted to Faith on September 5, 1885. She was a sallow, fairly-nourished girl, and complained of pain in the vertex of her head. She was unable to localise the seat of the pain, but tapping hurt her more on the right side than on the left. The pulse was 64, regular, and of good volume. The respirations

were 20, and natural. The temperature was 97°. Her tongue was coated with a thin brown fur on the dorsum.

There was slight ptosis of the right upper eyelid, and the right pupil was greatly dilated and larger than the left. There was no strabismus.

The thoracic and abdominal organs all seemed healthy. The urine, sp. gr. 1030, acid, and contained no albumen. Her bowels had not acted for two days. There was no paralysis of her limbs; she spoke with ease, and answered questions readily.

During the night after admission she vomited twice, the vomit consisting of curdled milk and bile. Her bowels were freely moved after an enema.

On September 7th the ptosis of the right side had increased.

On the 9th, Mr. Spicer examined her eyes, and found there was in each disc a large amount of effusion, the whole disc being very much swollen and the margins entirely obliterated; there were white patches of lymph in great amount both there and in the neighbouring parts of the retina. The veins were somewhat engorged, tortuous, and entirely obliterated in places.

The headache seemed to be constantly present, but never very severe. She vomited more or less daily, but kept down sufficient nourishment. Her pulse and temperature remained about normal.

On the 14th she was delirious all day. Both pupils reacted to light; the right one was now smaller than the left. Her vision had become worse, but she could count fingers. Three leeches were applied to her right temple, and relieved both the headache and delirium.

No material change in her condition took place till the 26th, when she first complained of stiffness and pain at the back of the neck. She soon became more drowsy than she had been, sleeping all night and a great part of the day, but could be roused to answer questions. When aroused her manner was childish and silly. The cervical pain continued, but no evidence of caries could be discovered.

On October 4th the drowsiness had increased so that she took no notice of anything going on in the ward and would not feed herself. The pulse was 84, regular. She could no longer count fingers correctly. During the following week she was very childish, constantly singing and talking nonsense out loud. When spoken to, however, she appeared rational and answered questions properly.

On October 8th she began to pass urine in bed, and occasionally her motions also. The ptosis increased, so that the right eye was half hidden. The right pupil remained always larger than the left. There was no strabismus.

On October 14th about midday she became very drowsy, and in

the course of an hour comatose. The respirations became irregular, varying from 5 to 9 a minute. Right hemiplegia came on, followed later on by left hemiplegia as well. In the middle of the afternoon she died.

During her whole illness the temperature had varied between 97° and 99°, and the pulse between 65 and 90.

Post-mortem examination.—Well-nourished body. The skull-cap was internally rough and with deepened vascular grooves. There was no local thickening of the dura mater or broken sinuses.

There was much effusion into the sub-arachnoid space. The cerebral arteries showed no signs of disease.

From the back of the right ascending frontal convolution of the brain to the level of the posterior cornu of the lateral ventricle there was a shallow depression in the cerebral hemisphere filled with very soft, broken-down grey matter and some pus. At the middle of this was a small hæmorrhage the size of a large pea, and here the broken-down part had a very thin limiting membrane on its inner side. There was a very large, clear effusion into both lateral ventricles.

This case differed from the preceding ones in being acute. The sequence of events was probably a localised meningitis at the seat of injury consequent on the rupture of a small vessel from shock caused by the fall in the street. This spread quickly, and within a month after the accident both the optic nerves were inflamed. A limited portion of the superficial brain substance also became inflamed, and at the time of death had begun to break down and form an abscess. The amaurosis was not so complete as in the preceding cases, because the disease had not existed for so long. The immediate cause of death was the large effusion into the lateral ventricles.

NOTE

ON THE

SIX GIFTS OF THEOPHILUS PHILANTHROPOS,

OR

ROBERT POOLE.

AN APPENDIX TO "OUR HOSPITAL PHARMACOPŒIA
AND APOTHECARY'S SHOP," Vol. xx. p. 279.

BY

W. S. CHURCH, M.D.

In a note on page 287 in the last volume of Reports, writing of Theophilus Philanthropos's "Physical Vade Mecum," or fifth Gift, I say, "I have been unable to discover why he calls this work a fifth Gift, and go on to say that I could find no other anonymous publication attributed to Robert Poole in the British Museum Catalogue, except the work known as the 'Benificent Bee,' published in 1753."

This, I regret to say, was due to my carelessness, as I find that the British Museum Library contains copies of all Theophilus's works.

The first four Gifts are all theological, or, more correctly, "revivalist" in character; the fifth is the "Physical Vade Mecum;" the sixth is of the same character as the first four. As Poole's works are rare and somewhat curious, a brief description of them may interest some of those who read my last year's article.

The first work is entitled "A Friendly Caution; or First Gift of Theophilus Philanthropos, Student in Physick." The copy in the British Museum is dated 1740. I think it must be a reprint, for the copies of the second, third, and fourth Gifts were also printed in 1740, and are entitled "Second editions with large additions." The sixth Gift, printed also in 1740, is the fourth edition; so that I think it is evident that these works of Poole must have been

printed before 1740, and that in that year he reprinted all of them. It is certain that the third Gift must have been published prior to April 21, 1739, on which day it was publicly burnt in Anne's Ward in St. Thomas Hospital, as we learn from Poole himself in the dedication to the second edition of the third Gift.

Opposite the title-page of the "Friendly Caution" or first Gift is a very well-engraved plate containing the ten commandments, the Belief, and the Lord's Prayer, resembling in its arrangement and ornamentation the tablets so commonly found in churches of that period. On the title-page, immediately below Philanthropos's name, come a series of texts, and at the bottom, "Printed for the good of the Publick, Anno Dom. 1740, and to be had at Mr. Duncomb's in Duck Lane, Little Britain."

The dedication is addressed to "my pious, most learned, ingenious, and worthy friend Prof. Eames, P.S.T., F.R.S." The preface is long, and is printed, as is also the rest of the book, in double columns.

It is almost impossible to give, without trespassing too far on the patience of my readers, an abstract of the contents. The "Friendly Caution," as well as the other Gifts, resemble in many points the revivalist literature of the present day. A great part of the work is taken up by "Examples of Children who have gained Salvation," taken from the "Token for Children" of James Janeway, minister of the gospel.

[James Janeway was a somewhat celebrated Nonconformist divine; he was born in the year 1636, being a son of the Rev. William Janeway, who at one time held the living of Kellshall in Hertfordshire. James was the third of five brothers, several of whom became celebrated for their abilities and strong religious views. James Janeway was ejected in 1655 from his studentship at Christ Church for nonconformity; he subsequently set up a meeting-house in Rotherhithe, and gained great popularity as a preacher. During the Plague he remained at his post when most other ministers had deserted their pulpits. Many of his sermons are printed, and he published several religious works, the best known being his "Token for Children." He wrote also the Life of his elder brother John, who seems to have been a young man of very great learning and ability. James Janeway died in 1674.]

The British Museum has two copies of the "Christian Muse," or second Gift. One is a separate volume, the other is bound up with the copies of the third, fourth, and sixth Gifts.

The second has the same frontispiece as the first Gift, and the title-page is also very similar. After the texts are the two following lines:—

"A verse may find him who a sermon flies,
And turn delight into a sacrifice."

—HERBERT.

On the title-page of the separate copy is printed "Second edition with large additions;" on the title-page of that bound up with other Gifts is "Second edition greatly enlarged." The contents are precisely the same in the two copies, and consist of disquisitions in verse, on the Sabbath; on the fear of want; on wandering thoughts; on marriage; on youth; on the deceitfulness of the heart; on affliction; on envy, malice, and slander; on covetousness; on censure; on profane swearing; a morning hymn in praise of the Creator; on death; on the last day; on hell; on heaven.

The dedication of the second Gift is addressed "To my much esteemed friend the Rev. Mr. Reading, M.A., Keeper of the Library of Sion College."

In the preface Theophilus relates a vision or dream by which his faith was strengthened. He thought that he was in a guest-chamber with our Lord and was afterwards crucified, and on awakening heard a voice saying, "Arise, proclaim thy Master's honour." On falling asleep again the dream was repeated a second time.

The third Gift is called the "Christian Convert; or the Third Gift of Theophilus Philanthropos, Student of Physick." The title-page is very similar to that of the preceding Gifts. "Dominus exaltatio mea et illuminatio est" is placed immediately above the texts. The British Museum copy is the second edition greatly enlarged.

The dedication is addressed to the Honourable Samuel Lessingham, treasurer to St. Thomas's Hospital, and commences by thanking him "for his interposition in preserving this little book in its infancy." A copy (of the first edition, I presume) having been publicly burnt in Anne's Ward, April 21, 1739, the treasurer appears to have interposed his authority and prevented copies in the other wards receiving similar treatment. The preface and the rest of the work is printed, like the first Gift, in double columns.

The preface is long, and in it Theophilus takes a very gloomy view of the state of society. The "Christian Convert" itself is in the shape of a conversation between Philathletes and Philanthropos, who are joined by Theologos.

The frontispiece is curious. On the left the author, kneeling on one knee with a Bible in the left hand, and under the figure "Effigies authoris." On the right the open jaws of a monstrous beast, representing hell. Flames are leaping up from the throat of the monster, and the mouth contains figures of two men being tormented by devils. In the upper part of the plate, in the centre

is a representation of the Crucifixion; on the left an angel and a personage dressed in a square-cut coat are going up to heaven; on the right the devil is taking a man similarly dressed off to hell. Cherubs flit round the word $\Theta\epsilon\omicron\varsigma$ in the right hand top corner, and texts lead from our author's mouth towards the Crucifixion and the word $\Theta\epsilon\omicron\varsigma$.

The fourth Gift, or "Token of Christian Love," is adorned with a very similar frontispiece. The figure of the author is the same; there is the same monstrous beast with his open jaws and flaming throat. The Crucifixion is absent and the landscape altered. The same cherubs appear, but not the word $\Theta\epsilon\omicron\varsigma$. The words "Effigies authoris" are printed at the bottom of the page, instead of immediately below the kneeling figure in the plate.

The title-page resembles those already described. "Vive hodie et nosce te ipsum" is printed immediately above the texts.

The dedication is addressed to Sir John Gonson, Hon. Chairman to the General Quarter Sessions of the Peace, held for the Liberty of Westminster.

At the end of the preface Theophilus signs himself as Philomathes.

The fifth Gift, or "Physical Vade Mecum," is the book to which such frequent reference was made in my paper last year. Its title-page indicates its contents "A Physical Vade Mecum; or Fifth Gift of Theophilus Philanthropos. Wherein is contained the Dispensatory of St. Thomas's Hospital, with a Catalogue of the Diseases and the Method of their Cure prescribed in the said Hospital. To which is also added the Dispensatory of St. Bartholomew's and Guy's Hospitals." Then, as on all his title-pages, come texts, and at the bottom, "London: Printed for and sold by E. Duncomb, in Duck Lane, Little Britain, 1741." This date, as I shall show hereafter, is difficult to reconcile with the date of the sixth Gift.

The "Physical Vade Mecum" has a very long dedication addressed to "The Right Honourable, the Honourable *and* *Worthy* the President, Treasurer, and Governors of St. Thomas's Hospital."

The preface contains a most minute account of St. Thomas's Hospital, with lists of the governors and benefactors, and the rules and regulations for its governance; also estimates of the expenses, and a list of the numbers of in and out patients under the care of each of the physicians of the Hospital.

The preface is of very great interest to those who wish to form an idea of the condition of the Royal Hospitals 150 years ago, as the account of St. Thomas's Hospital is most minute and complete.

The sixth Gift is entitled "Seraphic Love tendered to the Immortal Soul." The British Museum copy is the fourth edition, corrected and enlarged.

The frontispiece is the same as that in the fourth Gift; preceding the texts are the following lines:—

“Object not (reader) against the title-page;
Turn over the leaves, if you be sage:
From whence you may find,
If you have a mind,
True love tendered to our immortal soul,
Which from the gifts of sin will make you whole;
And from the vale of woe and misery
Safely convey you to eternity.”

Following the texts comes “Deo initium, progressum et exitium refer.” The work is dated 1740. The dedication is addressed to the “Honourable Society for the Reformation of Manners,” who are addressed as “Christian monitors,” and is signed by Philomathes Philathletes. There is no preface, but in the place of it a prayer. At the end of the work comes an appendix, particularly addressed to the minors of the age. It is printed, like the others, in double columns, and, notwithstanding that the title and subject might have stimulated Theophilus’s muse, is in prose.

It will be seen from the above descriptions of Theophilus’ works that the dates are somewhat puzzling. The first Gift is dated 1740, and there is no intimation that it is a second edition or a reprint; the second, third, and fourth are also dated 1740, and are stated to be second editions. And the second edition appears to have been printed twice in 1740, as the title-pages of the two copies (see page 233) do not agree. The sixth Gift, which from its title must have come after the fifth, was also printed in 1740, and is stated to be a fourth edition; and yet the “Physical Vade Mecum” or fifth Gift is dated 1741. I have seen three copies of the “Physical Vade Mecum;” they are all dated 1741, and in none is it stated that they are reprints or second editions. It is possible, if not probable, that Theophilus named his works according to the order in which he composed them, rather than as he gave them to the world in print.

One other anonymous work attributed to Robert Poole, the “Benificent Bee; or Traveller’s Companion,” &c., was not published until 1753, and doubts have been expressed by some whether it was the work of the same R. Poole as the Gifts. I think that any one who will take the trouble to read some of the “Benificent Bee,” and compare it with Poole’s writings in the Gifts, will be satisfied that the authorship is rightly attributed to him. I have as yet failed in discovering any further particulars of Poole’s life.

On page 291 I give my reasons for estimating the number of

patients in our hospital at the time of Dr. E. Browne's appointment, 1682, and drew the conclusion that they were about 300 in number. I found in the British Museum a broadsheet dated in MS. April 24th, 1644. The sheet is headed "A True Report of the Great Costs and Charges of the foure hospitals in the City of London, in the maintenance of this great number of poore the present year 1644, as followeth.

"There hath been cured this yeare last past at the charge of St. Bartholomew's Hospitall of maymid souldiers and other diseased persons to the number of 1122, all which have been relieved with money and other necessaries at their departure.

"Buried after much charge in their sicknesse 152.

"Remaining under care this present at the charge of the Hospitall 249."

These numbers in 1644, and the returns given in the early part of the eighteenth century in Strype's edition of "Stowe," make it probable that I am not far wrong in thinking that the hospital contained about 300 beds in 1682, the year of Browne's appointment.

PROCEEDINGS
OF
THE ABERNETHIAN SOCIETY
DURING THE WINTER SESSION 1884-85.

October 9.

First general meeting. Election of members.

Dr. Legg read the Introductory Address.

He began by pointing out that in all education there were two kinds of knowledge to be imparted, first, the mere storing of facts; secondly, the digestion and assimilation of facts; the first, a mere exercise of the memory; the second, the exercise of the higher faculties of the mind. For the first there were the lectures, demonstrations, class examinations, medals, and academical rewards, while for the second there was at St. Bartholomew's the Abernethian Society, in which the student who had learnt his facts was taught to ponder over and reflect upon the ideas that he had gained. The Abernethian Society being, in fact, an intellectual gymnasium, in which the mind was trained and exercised, just as it was in the disputations and exercises of the mediæval universities.

In conclusion, Dr. Legg pointed to the decay of real university training and to the superficial smattering encouraged by what he called dissipation of mind, not progress in knowledge, that had followed of necessity in the wake of the examination system, the introduction of which into England was one of the many evils for which the University of London would have to be responsible.

October 16.

Election of members.

Dr. Collins showed a specimen of a new drug, 'cocaine,' which has the property of causing insensibility of the cornea and con-

junctiva. It dilates the pupil, but does not affect accommodation. It also causes retraction of the upper lid.

Mr. R. J. Collyns then read a paper on 'Optic Neuritis.'

He began by describing the blood supply of the optic disc, and explained that the blood supply may be seriously altered without any appreciable change in the retinal vessels with which it seems to be so intimately connected. He then explained that the tint of the physiological cup and the definition of the outline of the disc are the two points to be observed in congestion of the optic disc. He described the development of optic neuritis, and showed how it was that vision was absent in some cases and present in others.

Mr. Collyns then discussed the relation of the optic nerve to encephalic disease, and considered the question, What is the value of optic neuritis as a diagnostic sign? and decided that in the majority of cases it is worth very little, and certainly that it is impossible to determine the size, form, position, or nature of a cerebral tumour from its consideration. Still he allowed that, as a confirmation of a diagnosis formed on other symptoms, it is very useful. In passing on to the treatment of optic neuritis, Mr. Collyns said that the eyes must be rested, and then the treatment must be that of the causes; and since syphilis is very often the cause, iodide of potassium is indicated.

October 23.

Election of members.

Mr. Moberly showed a child suffering from paralysis of the deltoid and biceps.

Dr. Collins showed an eye with a bony tumour of the choroid.

Mr. T. W. Shore then read his paper on 'Hemiplegia.'

Mr. Shore began by dividing the subject of hemiplegia into two parts—functional and organic. In discussing functional hemiplegia he distinguished (i) hysterical hemiplegia; (ii) epileptic hemiplegia; (iii) uræmic hemiplegia, and (iv) toxic hemiplegia. Of these varieties he gave full descriptions in relation to illustrative cases which he had had under his care and observation. He then entered at some length into the principles of diagnosis between these conditions.

He then passed on to the consideration of organic hemiplegia, and divided the cases into those of sudden and gradual hemiplegia, confining his remarks to the cases in which the paralysis was sudden. Of these cases he distinguished three clinical varieties:—1. Those in which there was *sudden* coma associated with hemiplegia; 2. Those in which the loss of consciousness

was gradual; and 3. Those in which there was no loss of consciousness. He then detailed several cases and discussed the value of the more unusual symptoms in the diagnosis of the seat of the lesion.

He touched upon early rigidity, equal contraction of both pupils, and dwelt fully on the symptoms of conjugate deviation of the eyes, contending that when this symptom occurs the lesion must be in the cerebrum above the corpora quadrigemina.

He considered conjugate deviation of the eyes to depend on co-ordination of the fibres in relation to the nerves of the eyeball in the corpora quadrigemina, and brought forward three cases, in two of which a post-mortem examination had showed the existence of a lesion which would agree with his theory.

He then mentioned the results which he had seen follow hemiplegia.

He concluded by saying that in discussing his subject he had not gone out of the range of his own experience.

October 30.

Election of members.

Mr. Lyndon exhibited a supernumerary toe, which had been removed in the surgery, possessing three articular facets.

Mr. F. Andrewes then read a paper on 'Glycogen.'

He first drew attention to the fact that while nutrition is a constant process, alimentation is an intermittent one, and that hence arose a necessity for the storage of reserves. Comparative physiology sheds much light on the problem of reserves, and especially those of carbo-hydrate food. In the vegetable kingdom the potato and beetroot are familiar examples of such reserves. In the animal kingdom carbo-hydrates are almost invariably stored up as glycogen, and the consideration of this body falls into two stages—that of its synthesis and that of its utilisation. Amongst many of the lower animals these stages are successive instead of contemporaneous, and can be studied apart. But as the liver becomes specialised in ascending the animal scale, the glycogenic function, at first generalised in the tissues, becomes localised in it; and the same is true in the evolution of the individual in higher vertebrates. The placenta and foetal membranes are the earliest seat of glycogenesis in the mammal; the foetal tissues next take up the task; and finally the function becomes localised in the liver.

Normally carbo-hydrates in the liver are the main source of glycogen, while proteids seem to play a secondary part. In all cases living protoplasm is the essential factor in its synthesis. The main agent in the downward phases of its history is an unorganised

ferment, 'diastase,' which converts it into grape-sugar. Hermann's 'mogen' theory of muscular activity furnishes the most satisfactory explanation of the rôle which sugar plays in the nutrition of muscles, namely, as fuel for their energy, the nitrogenous element being not excreted, but retained to enter into new combinations with carbo-hydrate material.

Any phase in the history of sugar in the organism may be interfered with by pathological changes. The only way in which it has hitherto been shown that nervous lesions can cause diabetes or glycosuria is through the vaso-motor system. Many cases of these affections are not, however, explained by reference to the nervous system.

November 6.

Election of members.

Mr. Murray showed a curious round-celled sarcoma situated on the left side of the neck of a young woman.

Mr. Shore showed the cast of a hand of a woman with Heberden's nodes well marked. The bones of the hand of same woman were also shown.

Mr. C. B. Lockwood opened the surgical discussion upon 'Syphilis' by calling attention to the points involved in a correct diagnosis. The period of incubation never being less than three weeks, helped to discriminate syphilitic from soft or filth sores; the later, resembling ordinary poisoned wounds, had a short period of incubation, and ran a course characterised by the usual complications of poisoned wounds, such as inflamed lymphatic vessels and inflamed lymphatic glands. The possibility of the abrasion which had admitted the filth which caused the soft sore having also admitted syphilitic poison was referred to. If a patient presented himself with a sore which had appeared immediately after exposure, it was possible to say that, at the time of the examination, the sore did not appear syphilitic, but it was impossible to say that it would not become syphilitic. Next the question of the induration of the sore was discussed. Cases were mentioned to show that this feature was exceedingly unreliable. The worst case of syphilis the speaker ever saw followed a sore devoid of any induration. Sores typically indurated had not been followed by symptoms of the disease in question even after the lapse of two years. It was pointed out that when a person had had syphilis, induration might recur at the seat of the sore. The history of the case would help to eliminate this source of error. The induration of the lymphatic glands was next considered, and it was said that unless it was present in other glands besides the inguinal, and unless it was

accompanied by general eruption, it could not be accepted as an indubitable sign. The fact that there seemed to be an impression that syphilitic sores were always single was commented upon. Although this was often the case, it was not very rare to see patients with a number of sores in various places. It was pointed out that these must all have been produced at the same moment; in fact, that syphilitic sores were comparable to vaccine vesicles, and might be produced in any number, provided that no interval elapsed between the inoculations. If the characters of the sore and of the lymphatic glands were fallacious, it was necessary to state what constituted satisfactory evidence of the acquirement of syphilis. This was said to be the presence of a sore, indurated gland, general eruption, or lesions in the throat. The delay in commencing active treatment caused by the surgeon waiting for the appearance of the skin eruption did not conduce to a real prolongation of the disease or make it less amenable to treatment. When it was certain that a given patient had acquired syphilis, it was necessary to impress him with the fact that he would have to be under treatment at least a year. Supposing that a case was being treated with mercury, after it had been diagnosed on the strength of an indurated sore and indurated lymphatic glands, if at the end of four months no eruption had appeared, the question would arise whether the treatment had been efficacious in arresting the disease, or whether it never had been syphilis at all, and had got well in spite of the treatment? The speaker said that, owing to the fact that mercury kept the disease in abeyance, he had found that unless patients had seen the eruption it was exceedingly difficult to prevail upon them to submit to treatment a sufficient time to ensure a permanent cure.

The division of syphilitic eruptions into suppurative and non-suppurative was mentioned, because their discrimination was important for purposes of treatment. The former did best under the influence of mercury, the latter under iodide of potash. The curability of gummata by means of iodine was referred to, and was said to lend hope to those who might anticipate that other tumours might be capable of removal by internal medication.

In conclusion, treatment by tonic doses of mercury was advocated; a grain of blue pill thrice daily being enough to produce satisfactory results.

November 13.

Election of members.

Mr. Davis showed a girl suffering from lead colic, with an ulcer on the tongue of a marked blue colour.

Mr. Paget showed a boy with a salivary fistula. He also

showed, in connection with his paper, a man with a large abdominal abscess.

Mr. Lyndon exhibited two microscopic specimens—one a melanotic alveolar sarcoma of the skin, the other lymphosarcoma of liver.

Mr. O. Lankester then read a short paper on 'Infantile Diarrhœa.'

Mr. Lankester's paper treated of simple diarrhœa unconnected with organic diseases of the intestines. He divided the subject into the four varieties of non-inflammatory diarrhœa, inflammatory diarrhœa, choleraic diarrhœa, and dysentery. Of these four he considered only the two first varieties. He mentioned cold, bad feeding, dentition, and worms as the chief causes, and sketched out the diet of infants. He mentioned the complications of diarrhœa, as blood in the stools, prolapse of rectum, and spoke of the use of opium in connection with the latter. Mr. Lankester next alluded to the uncertainty of diagnosis in cases of diarrhœa caused by dentition. With regard to the inflammatory diarrhœa, the causes may be the same as those of simple; also bad smells. In considering the question of diet, he spoke of the necessity of avoiding the use of milk, and advised the substitution of broth, also white wine in cases where collapse is present. He alluded to the use of mustard baths and brandy, and, in antiseptic treatment, washing out the stomach, and small doses of soda benzoates frequently. In cases of chronic forms of inflammatory diarrhœa, the utmost attention should be paid to diet, and pepsin and raw meat are very useful.

Subsequently Mr. Stephen Paget contributed a paper on 'Abdominal Abscesses.'

He divided the subject according to the causes. 1. Injury or disease of the wall itself. (*a*) Contusion; (*b*) Tracking of discharge from a non-penetrating wound; (*c*) Injury or disease of bones or muscles; (*d*) Inflammation of the connective tissues between the muscles. 2. Inflammation of the subperitoneal connective tissue. 3. Injury or disease of internal organs. 4. Deep-seated cancer. Mr. Paget mentioned some extraordinary cases which have from time to time been recorded, and also the frequency of abscesses following necrosis of a rib from scrofula or typhoid fever. He next discussed the nature and appearance of phlegmonous inflammation of the connective tissue, and cases were produced showing its causes and also its course under treatment. He brought forward three cases of pelvic abscesses in young women, treated by puncture or incision through the abdominal wall, and also three cases of deep-seated abscesses of the subperitoneal connective tissue incised above the pubes and drained.

Lastly, six cases were given of abscesses of the abdominal wall due to deep-seated cancer. Mr. Paget, in conclusion, urged the necessity of treating all acute abscesses of the abdominal wall as soon as possible, and by incision rather than by puncture, and impressed upon his hearers the fact that in elderly people the cause is frequently cancer.

November 20.

Mr. E. W. Roughton showed a well-marked case of intra-ocular hæmorrhage.

Mr. Brinton then read his paper on 'Blood-Letting.'

He began by sketching shortly the history of blood-letting. The first-mentioned case was one which occurred at the close of the Trojan war, and the origin of the process was attributed by Pliny to the hippopotamus. The change of practice which has recently taken place was shown to be due to:—

1. The discovery of chloroform, which in very urgent cases does that which before could be only accomplished by copious depletion.

2. By watching the natural history of those diseases which previously had been treated by bleeding.

The author disclaimed any such excuse for its discontinuance as that occasionally brought forward, viz., change of type of disease as well as of mankind. He went on to say that he would discuss blood-letting chiefly in respect to the treatment of mania, puerperal and epileptic convulsions, apoplexy, bronchitis, dilatation of the right heart from valvular disease, pneumonia, and thoracic aneurysm.

The utility of its practice in these diseases was illustrated by cases. In apoplexy it might be called for during the period of reaction—never before. Allowing that in apoplexy there was cerebral anæmia, the only effect which rapidly-increasing effusion of blood would have must be increasing strangulation of the circulation of the parts near it, and limiting the effusion would tend to prevent increase of strangulation. In valvular disease of the heart, leading to a dilated right ventricle, general bleeding, when other remedies failed, was of signal service.

In severe cases of pneumonia, when, about the time of the crisis, there were signs of failing heart, blood-letting should be cautiously tried. Bleeding in bronchitis, with the object of relieving the right side of the heart, was often necessary, and should be done without regard to the irregular action of the heart, as this was due to other causes.

With regard to its use in thoracic aneurysm, Mr. Brinton mentioned a case in which the man had a swelling in the front of the chest absorbing the costal cartilages and ribs for fifteen years. He died at the age of 65, having been bled over 160 times. Local blood-letting by leeches he considered to be indicated when pain was present, as in dry pleurisy.

November 27.

Dr. W. J. Collins read a paper entitled 'Physiognomy and Phrenology—What are they worth?'

Physiognomy, the author said, was the science which seeks to read the mind by the body. It therefore includes phrenology as the whole or part. As a psychological method, it is opposed to introspection; it implies a looking-out, not a looking-in. It necessitates powers of emission on the part of the observed, and implies sensorial and mental power in the observer. Physiognomy is thus far older than man, and had its birth when first a living consciousness became aware of another's consciousness. Indeed, the spirit which it embodied is applicable to all existence, whether animate or not; and the power to comprehend the invisible by the things that are made is but the loftiest evolution of the science. He who is able to read the mind of man aright is also best qualified to interpret the face of Nature.

Dr. Collins then sketched the growth of modern physiognomy, from Della Porta to Lavater and down to Sir C. Bell and Darwin, dwelling at length upon the works of Lavater, and proving that many of his physiognomical rules had a strictly scientific foundation. The invention of phrenology was then touched upon, and the author concluded from a long array of arguments that this, as vulgarly understood, had been from the first an impudent imposture.

From evidence drawn from cranial measurements, weights of brains, size of hats, &c., the conclusion was drawn, that inasmuch as convolution and surface of brain varied with size, while specific gravity was constant, the size of the brain could be ascertained with tolerable accuracy by the size of the head, or even the size of the hat.

Much evidence was then adduced to show that the greater the brain the greater was the capability of the mind. Statistics of various head-measurements were given. Thus the average circumference of the adult male head is 22 inches; the average of twenty-two imbecile heads was 21 inches; of twenty-five medical men $22\frac{1}{4}$. As regards nationality, it is quite true the Scotch

have large heads; Germans, according to the latter's figures, have round heads; Portuguese are small; Spaniards slightly larger; Malays very small; Japanese exceed the English average. As regards occupation, it is asserted that grooms and government clerks, before competitive examinations were introduced, came lowest in the scale.

As to the growth of the brain, it is probable that this continues until much later than is usually supposed. Its maximum weight is reached between 20 and 40. Probably growth of the brain and the cranium take place, as it were, by common consent.

As to the physiognomy of action, the mind, by the law of association, brings together such features and gestures as it has learnt by past experience to associate with mental power, and by observing the presence or absence or amount of these in a given face forms a notion of the mental power of its possessor. Now those features will be most indicative of mind which are the distinctive property of man, as opposed to those of the anthropoid apes, which most nearly approach him. These are: well developed and broad nose and chin, the breadth of the interorbital span, parallelism of the inner walls of the orbits, &c. These translated into the transcendental language of Lavater are practically the same as some of his physiognomical rules.

In conclusion, Dr. Collins held that the science of physiognomy, that of 'finding the mind's construction in the face,' was a perfect induction, backed up by innumerable facts and corroborated by common sense.

December 4.

The house-physicians introduced the discussion on 'Pneumonia.'

December 11.

Mr. Montagu Smith read a paper on 'Ethics of Vivisection.'

January 8.

Mr. Lyndon showed a man suffering from myxœdema.

Mr. C. Percival Crouch then read a paper on 'Mesmerism.'

He began by shortly sketching the history of mesmerism, referring to its probable origin in the East, where it was practised by the Magi, who combined the qualification of priest and physician; while at Delphi it was interesting to read that the oracle uttered

her responses while in the mesmeric trance. In the temples of *Æsculapius* mesmerism was very largely employed in the treatment of disease. He then referred to Mesmer's practice in Paris, which became so notorious that the Government appointed a committee of inquiry, who, however, did not return a report satisfactory to Mesmer, and he was from that time generally looked upon as an ignorant impostor. The various methods of inducing sleep were then discussed, and the reader impressed upon his hearers the fact that it was by no means an easy matter to put any one into the sleep, but often many attempts were necessary before success was attained. He then passed on to discuss the various stages of the sleep. In the first, or 'alert' stage, certain phenomena of an active sort were to be obtained, remembrance of which was retained when the subject returned to the normal waking state; that he was, in fact, in the condition of a will-less though conscious automaton. In the 'deep' stage phenomena were also to be obtained, but the subject had no remembrance of what had taken place when he returned to his waking state. He next spoke of the anæsthetic stage, and reminded his readers that Esdaile practised painless surgery many years before the introduction of ether and chloroform, and some of his operations were quoted. With regard to the various theories put forward from time to time to explain the trance, Heidenhain's was chiefly dwelt upon as being the most scientific; but the reader impressed upon his audience that it would require very considerable modification before it would explain all the phenomena met with. In conclusion, the more unusual phenomena were shortly considered, as transference of tastes and pains, &c.

January 15.

Dr. Roughton showed a case of wounded cornea followed by sympathetic ophthalmia.

Mr. Steedman then read his paper on 'Gangrene.'

He began by briefly discussing the causes of gangrene.

(i.) Deficiency in the supply of arterial blood by occlusion of arteries—(a) By ligature; (β) By embolism; (γ) By thrombosis.

(ii.) Deficiency in amount of blood, due to hæmorrhage, to pressure of new growths, to cold, to ergotism.

(iii.) Complete arrest of the circulation, by strangulation, by acute inflammation, by pressure (as in bedsores), by traumatic injury, by specific poisons (as in the various forms of local gangrene, such as hospital gangrene, noma, charbon, &c.)

(iv.) Specific fevers, *e.g.*, sloughing of the tonsils in some virulent forms of scarlet fever.

(v.) Neuroses.

(vi.) Abnormal conditions of the blood, *e.g.*, relation of carbuncle to diabetes.

The author then proceeded to discuss the following forms of gangrene:—

1. Gangrene of penis and scrotum, following acute inflammation.

2. Symmetrical gangrene of Raynaud.

3. Phagedœna.

4. Senile gangrene.

5. Diabetic gangrene.

6. Traumatic spreading or septic gangrene.

He laid great stress on the treatment of gangrene of penis and scrotum, which he said should be of two kinds—(a) Constitutional; (β) Local; the constitutional consisting in giving the patient nourishing and non-stimulating diet and exhibiting opium in the form of half a grain of the extract twice a day; the local, in giving warm baths for three hours or more at a time at least twice a day, and in the application of charcoal poultices. The gonorrhœa should be treated in the usual way.

In speaking of diabetic gangrene, he stated that he did not believe that gangrene due to diabetes *per se* existed, but that where such cases were said to exist, they were really cases of gangrene (embolic, senile, &c.) complicated by diabetes. The reasons for this conclusion were as follows:—Diabetes is most virulent and of the worst type when occurring in young people; therefore it is in these cases that one would expect to find diabetic gangrene; but we find nothing of the sort. How much less, therefore, would one expect to find it causing gangrene in old people?

Symmetrical gangrene was treated of at some length, and the belief expressed that there are two distinct classes, as shown by the following cases:—

CASE 1.—Case of dry gangrene in a child, slowly spreading and involving the extremities—great debility—recovery.

Mr. Steedman took this to be a case of gangrene due to deficiency in the amount of arterial blood-supply to the parts, the result of mal-nutrition and an enfeebled circulation.

CASE 2.—Moist gangrene in a child, very rapidly spreading, and involving not the extremities, but beginning at the calves of the legs, then spreading above the knees, and finally to the buttocks. Death in two days.

He did not feel certain what explanation should be given of this

case, but suggested a peripheral nerve lesion or vascular spasm as possible causes.

January 15.

Dr. Roughton showed a case in which a wound of the ciliary region had been followed by sympathetic ophthalmia.

Mr. Reginald Combes read a paper entitled, 'Quacks and Quackeries.' He began by defining a quack as 'one who, without a diploma granted by some recognised licensing body, practises medicine.'

Of medical quacks he recognised two sorts—first, the man with no diploma; secondly, the man who, holding a license of some sort, uses it only as a source of gain to himself, caring nothing for the anxieties and sufferings of his patients as long as his fee be forthcoming.

Mr. Combes then pointed out how easy it was under the existing laws to practise without a diploma, since the medical register and the college lists were the only means by which it was possible to ascertain the nature of a man's qualifications.

He then went on to consider the various kinds of quacks, and in speaking of the 'bone setters,' was of opinion that the term 'adhesion breakers' was a more suitable term, for the occasional successful cures were generally to be accounted for by the fact that many sprained joints, from being kept in one position for a length of time, became stiffened by the formation of adhesions, which were broken down by the wrench of the bone-setter.

In asking the question, 'Are they justified in their work since they occasionally have good results?' he emphatically replied in the negative, since in cases where chronic inflammation was present the most disastrous results would be obtained.

Venereal quacks were then fully dealt with, and Mr. Combes showed that their patients included chiefly those suffering from 'venereal diseases' and those from 'sexual hypochondriasis,' and mentioned how not uncommonly suicide, and even murder, followed after prolonged and unavailing treatment by these men.

He then lightly touched upon the qualified quack, who by his meanness and cruelty reflected discredit on the profession. The subject of homœopathy was then briefly discussed, and Mr. Combes went on to consider the cure for quackery.

He showed how nothing but a stern unflinching exposure of the impostors would eradicate this deeply-rooted evil, and thought that through the medium of medical papers, *e.g.*, 'Lancet,' 'British Medical Journal,' was this to be chiefly effected. That no

faltering references must be made to unknown practitioners, but a clear and unhesitating publication of his name and deeds be given to the profession and lay public.

In conclusion, he pointed out the urgent necessity for additional legislation with regard to medical registration.

January 29.

Mr. W. T. H. Spicer read a paper on 'Temperature in Health and Disease.'

February 5.

Mr. Hind showed a case of congenital syphilis in a boy.

Mr. Steedman showed a boy who had suffered from a compound, comminuted, depressed fracture of the frontal bone.

Mr. Lyndon exhibited three microscopic specimens: the first was a melanotic glioma of the cerebellum; the second a melanotic alveolar sarcoma of skin; the third a melanotic alveolar sarcoma of gland (from same case as No. 2). He also showed a case of multiple diverticula of the duodenum.

Dr. Roughton then opened the medical discussion on 'Coma.'

He began by discussing the various current definitions of coma, and showed how vague and inaccurate they were. He thought that the term coma should be limited to loss of consciousness brought about directly by some altered condition of the higher nerve-centres. He then brought forward a classification of the causes of coma, which he had found to be of practical value, and stated his views as to their mode of action. Of the organic causes of coma he mentioned cerebral hæmorrhage, softening, meningitis, tumour, and injury. He believed that cerebral hæmorrhage gave rise to coma by the disturbance of cerebral circulation which it brought about, more than by the amount of actual damage done to the brain substance. He spoke of the somewhat rare condition known as urticaria of the brain. In alluding to the pathology of concussion, he discussed the chief views held, and expressed his opinion that although some definite lesion is always discoverable in fatal cases, yet in many slighter cases there is no lesion other than a molecular one. He considered coma due to various disturbances of the circulation, such as cerebral anæmia, hyperæmia, syncope, &c., and also mentioned that coma may be produced by various toxic conditions of the blood. He spoke of the current views on the pathology of uræmia, dividing the various theories into the mechanical and chemical. The relation of acetonæmia to diabetic coma was alluded to, also the coma of cholæmia, which he believed to be due to the presence of leucin and tyrosiu in the

blood. The coma of alcoholic, narcotic, and other poisons was slightly touched upon. He then passed on to the two varieties of coma occurring in the acute specific fevers, viz., that occurring early in malignant cases and the typhoid condition. In treating of diagnosis Dr. Roughton laid chief stress upon the following points:—The history, mode of onset of the coma, injury, evidence of poisoning, age, previous symptoms of renal disease, history of drink, degree of coma, pulse, pupils, examinations of chest and urine, squint, hemiplegic rigidity, examination of any matter vomited. With regard to treatment he said but little, pointing out that it depended so much upon diagnosis, and he recommended the establishment of a casual ward in connection with all large hospitals which could be used by the house-surgeons for cases of coma in which the diagnosis between drunkenness and disease could not at once be made.

In the discussion that followed, Mr. Shore agreed with Dr. Roughton's definition of coma, but differed from him in his classification of the causes, contending that all causes may be arranged under the heads—Disturbances of blood-supply, toxic conditions of blood, and direct nutritive changes. He believed that cerebral hæmorrhage and cerebral tumour caused coma, not so much by pressure as by disturbance of blood-supply. He alluded to a case of transition-coma, probably due to a form of meningitis allied to urticaria. Mr. Shore believed that cholæmia was due to the overflow of peptones, leucin, and tyrosin produced during digestion into the blood, owing to the failure of the liver, through disease, to act chemically on the bodies, as occurs in the healthy subject. He had seen cases of epilepsy in which every symptom was present except loss of consciousness, and did not consider that this negatived the diagnosis.

Dr. Collins next spoke, and said that doubtless much of the indisposition of medical men and students to discuss subjects like coma bearing on the mental side of medicine was due to the fact that no knowledge of psychology was required of them, and a course of psychological medicine was only voluntary. It was as absurd to expect acquaintance with mental disorders without a prior study of psychology as to look for pathological knowledge without physiological training. It was impossible to say that in coma there was unconsciousness; we could only say there was an abolition of manifestation of consciousness. The same occurred naturally in sleep, yet there were facts to show the sleeper's mind was consciously active. The physical antecedents of coma were structural change, or blood-supply abnormal in quantity or quality, of the brain.

Messrs. Lyndon, Steedman, Hinde, and Crouch also spoke.

February 12.

Election of members.

Mr. Hoyle showed the joints from a case of rheumatoid arthritis.

Mr. Wallis then read his paper on 'Injuries in and about the Knee-joint.'

Speaking of inflamed 'bursa patellæ,' he advocated early and free incisions, suggesting that better results were obtained thus than by waiting until fluctuation could be felt; also that it was better to make two lateral incisions, one at the extreme limit on either side of the cavity, as well as one down the centre, better drainage and better results generally being thus obtained.

In chronically enlarged bursæ he gave his experience of having successfully tapped with an ordinary trochar those bursæ in which the fluid predominated.

Concerning synovial effusions, Mr. Wallis said that they could be diagnosed from blood effusions by the rapid appearance of those latter; effusions of synovia taking much longer.

In cases of original injuries which had become chronic, he related cases which had derived great benefit by wearing a Thomas knee-joint splint for some time, thus giving the joint almost perfect rest.

He then passed on to speak of fractures of the lower end of the femur and into the joint. Here again cases were related where at first absolute rest with cooling lotions were used for some days until the effusion had somewhat subsided; they were then put up, in some cases on a double inclined plane, in others the American anterior splint was used with great advantage.

The various methods of operating on loose cartilages in the knee-joint were then discussed, and a case related in which an undoubted loose cartilage had been absorbed after the limb had been kept at rest for some time.

Finally, the various methods of treating fractured patellæ were explained.

References were made to various papers, statistics, and discussions concerning the operation of wiring the patellæ, and drawing conclusions from these, Mr. Wallis gave his opinion that the means did not justify the end.

February 19.

Mr. Castle showed some microscopical specimens:—

(1.) Of a fungating growth from the breast of a woman. This growth in parts exhibited a sarcomatous structure with well-marked myeloid cells, while in other parts it showed the structure of carcinoma.

(2.) A malignant tumour from the lip showing sarcomatous and carcinomatous structures.

Mr. Lyndon showed the knee-joints from a case of Charcot's joint-disease.

Mr. W. H. Jessop then gave a demonstration on 'Germiculture,' and illustrated his lecture by a large number of apparatus brought from the laboratory of the Health Exhibition, and also by microscopical specimens.

February 26.

Mr. Womack read a paper on the 'Rate of Cooling of the Body after Death.'

The object of the paper was to apply exact physical laws to the subject, and thus to supplement the experiments performed by Drs. Taylor and Wilks in 1863 at Guy's Hospital. The experiments of the two last-named observers extended over several months, under very varying conditions as regards external temperature of medium, and cause of death, and consisted principally of observations of the body temperature taken at irregular intervals after death. The results were consequently very varied, and from the seventy cases which were finally available for investigation the following general conclusion could alone be drawn:—That in the first period, from two to three hours after death, the average temperature was 25° C. (77° F.); in the second period, from four to six hours after death, the average temperature was 23.3° C. (74° F.); in the third period, from six to eight hours after death, the average temperature was 21.1° C. (70° F.); and in the fourth period, from eight to twelve hours after death, the average temperature was 20.5° C. (69° F.) Hence the body cooled more rapidly at first than later, and fell on an average about 1° F. per hour.

Now it is obvious at once that it is useless to attempt to draw means from experiments extending over several months unless a correction is inserted for the varied conditions under which the experiments were performed, especially those relating to temperature of the surrounding atmosphere, and also bearing in mind that in each of the arbitrary periods of time chosen by Drs. Taylor and Wilks the temperature ranged over 10° F., and during the first period over as much as 17° F.

The author decided, therefore, to investigate the subject experimentally, to determine how nearly a well-known physical law applied to the given problem. He had constructed a set of special thermometers, the bulbs of which were of large capacity, flattened, and of very thin glass, and which gave readings to $\frac{1}{40}$ th of a degree centigrade. In all cases where practicable, the temperatures were taken on the surface of the abdomen. At first a series of observa-

tions was taken to determine the average temperature of the abdomen during life, the thermometers being strapped down to the abdominal surface by adhesive plaster, and no reading taken until after the lapse of fifteen minutes. By this means efficient contact with the surface is ensured, the heated air around the thermometer does not escape by convection, and the back of the plaster being white, a feebly radiating surface is substituted for the considerable radiating power of glass and mercury. From a considerable number of observations so taken the mean value of the temperature of the abdomen was found to be 36.2°C. (93.1°F.)—a value considerably higher than that which has been hitherto adopted.

It is well known that a body at a higher temperature than the surrounding medium cools at a rate which is almost directly proportional to the actual excess of temperature at the instant of time considered. Strictly speaking, this law, known as Newton's law of cooling, is applicable only to liquids in which passage of heat from the hottest central portion to the coldest superficial portion takes place through the medium of convection currents. Now in the case of the body, although we are not dealing with a liquid, we are nevertheless dealing with a substance the tissues of which are bathed in liquid, and one in which the excess of temperature over that of the surrounding medium is small. The greatest excess with which we ever have to deal may be put at about 35°C. , and Newton's law holds almost absolutely throughout this excess. It is on this account that Dulong and Petit's more exact law was not applied, according to which the rate of cooling is a function not only of the difference of temperature of the body and that of the surrounding medium, but also of the absolute temperatures of the body and of the surface to which it cools.

The problem may be thus expressed:—

Let S = area of the body surface in square centimetres.

E = thermal emissivity of the surface.

Then ES = heat lost per second from the whole surface if the surface is 1° hotter than the surrounding medium.

Let θ = excess of temperature.

Then in an infinitely short time, denoted by dx ,

$$\text{heat lost} = ES\theta dx$$

Denote by M and C the mass and specific heat of the body, and by $-d\theta$ the infinitely small fall in temperature of the surface accompanying the infinitely small loss of heat. Then we have—

$$-d\theta MC = ES\theta dx$$

$$-\frac{d\theta}{\theta} = \frac{ES}{MC} dx$$

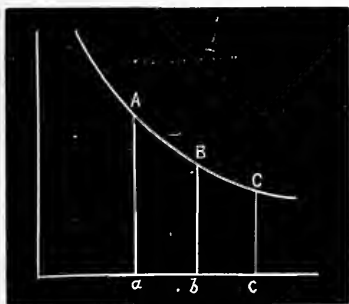
In any experimental case it would be an almost impossible problem to determine separately the values of E , C , M , and S , varying

so largely as they do from one body to another, but we may write $\frac{ES}{MC} = k$, a quantity which is readily determinable for any one body; hence we should have on integration—

$$-\int \frac{d\theta}{\theta} = k \int dx$$

$$-\log_e \theta = kx$$

In other words, if a curve is drawn the ordinates of which, Aa , Bb , denote excesses of temperature, and the abscissæ, ab , bc , denote times, the lengths of successive ordinates equally distant apart will represent the successive terms of a diminishing geometrical progression. Hence, assuming for the moment the simple case of an unchanging temperature of external medium, it will be possible to construct the curve representing the post-mortem fall of temperature, and hence to calculate how long it is since the moment



of death corresponding to a known excess of temperature of the body surface. Or if two careful observations of temperature are made at a few minutes apart, it is possible by means of a mathematical formula or by a geometrical construction to determine within a small error the moment at which the person died, provided only that the body has not yet reached the temperature of the surrounding medium.

The cases in which the investigation might be of special value would be those medico-legal cases of sudden death where the question of murder, homicide, or suicide might have to be decided.

The next questions dealt with in the paper were the methods of calculating the effect produced by certain complicating conditions, viz., (i.) a varying temperature of the external medium; (ii.) the unknown temperature of body surface at death; (iii.) the development of rigor mortis; (iv.) the varying locality in which the body may have been placed; (v.) the varying condition as to covering of the body. It was shown that if this last condition occurred in any medico-legal case it would cause difficulties of calculation well-nigh insuperable. The cases which were investigated by the author were mostly complicated by this condition, but owing to the fact that the times at which the changes occurred were known the calculation was not interfered with. Thus a patient dying in

a ward lies for a certain length of time covered by clothing which very effectually prevents radiation of heat. The body is then perhaps washed, then removed to the dead-house, where the temperature is very different, and is then covered by only a sheet, so that radiation proceeds rapidly. These changing conditions, however, are very easily taken into account, and the reliability of the method is by them only the more certainly tested. One case investigated was as follows :—

Male, age and name unknown, admitted unconscious February 24th. Remained unconscious up to death, with stertorous breathing. Right hemiplegia, vomiting, and bleeding from the nostrils. Probable cause of death, hæmorrhage on to brain.

The body, examined on February 25th, gave the following temperatures :—

At 2.3 p.m.	temperature	= 22.5° C.	} Temperature of mortuary = 8.9° C.
" 2.18 "	"	= 22.05° C.	
" 2.33 "	"	= 21.55° C.	
" 2.48 "	"	= 21.05° C.	
" 3.3 "	"	= 20.675° C.	

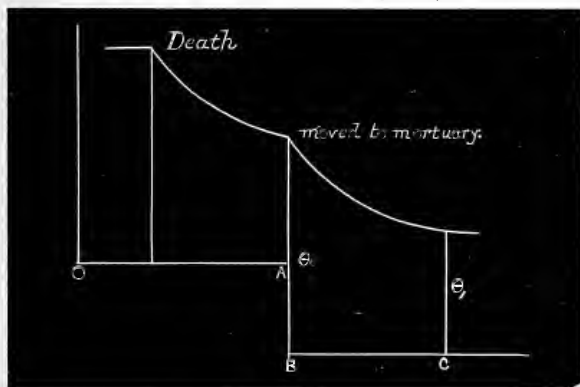
The value of the constant k mentioned above has first to be determined. It will be admitted that during a short interval, such as a quarter of an hour, the temperature would fall uniformly; hence, taking only the first two observations.

$$\left. \begin{array}{l} \text{Average excess of temperature between 2.3 p.m.} \\ \text{and 2.18 p.m.} \end{array} \right\} = \frac{22.5^\circ + 22.05^\circ}{2} - 8.9^\circ = 13.375^\circ$$

Fall of temperature in fifteen minutes = .45°

$$k = - \frac{d\theta}{\theta dx} = \frac{.45}{13.375 \times 15} = .002242$$

The problem has to be worked in two parts. It was ascertained that the body was moved to the mortuary at 9 a.m, that is, practi-



cally 300 minutes before the first observation of temperature. The integral of the equation above gives:—

$$x_1 - x_0 = \frac{1}{k} \log_e \frac{\theta_0}{\theta_1}$$

$$300 = \frac{1}{.002242} \log_e \frac{\theta_0}{\theta_1}$$

$$\log_e \frac{\theta_0}{\theta_1} = .6726$$

Hence

$$\log_{10} \frac{\theta_0}{\theta_1} = .2921$$

$$\frac{\theta_0}{\theta_1} = 1.9593$$

But $\theta_1 = 13.375^\circ \text{C.}$, therefore $\theta_0 = 26.2^\circ$, and the temperature of the body at the time of transfer to the mortuary would therefore be by estimation $26.2^\circ + 8.9^\circ$, that is, 35.1° . Now, when transferred from the ward, the temperature of the latter was 15.5°C. ; hence the body temperature was then higher than that of the ward by 19.6°C. Proceeding in the same way, we find, when the body temperature was higher than that of the ward by 27° —

$$x_1 - x = \frac{1}{.002242} \log_e \frac{27}{19.6}$$

$$= \frac{1}{.002242} \times .32027$$

$$= 143 \text{ minutes.}$$

Hence this man could not have died later than half-past six at most, even upon the assumption that the cooling had been as rapid in the ward as in the dead-house, which was certainly not the case, seeing that the body was more covered in the ward. To avoid this uncertainty, a separate experiment was made, covering the body with several layers of sheeting, and under these circumstances of altered radiating power the temperatures were at

$$\begin{array}{lcl} \text{P.M.} & & \\ 3.12 & \text{temperature} = 20.5^\circ \text{C.} & \} \text{Temperature of} \\ 3.42 & \text{,,} = 20.2^\circ \text{C.} & \} \text{mortuary} = 8.9^\circ \text{C.} \end{array}$$

Hence similarly $\kappa = .000873$, and the time of death previous to

$$9 \text{ o'clock} = \frac{.32027}{.000873} = 367 \text{ minutes.}$$

Hence the latest time at which death could have occurred is about a quarter to three. The actual figures were—

$$\begin{array}{lcl} \text{Feb. 24, admitted 11 a.m. temp.} & = 35^\circ \text{C.} & \} \text{Temperature of} \\ & 6 \text{ p.m.} & \text{,,} = 39.4^\circ \text{C.} & \} \text{ward} = \\ & 12 \text{ p.m.} & \text{,,} = 40.3^\circ \text{C.} & \} 15.5^\circ \text{C.} \\ \text{Feb. 25, death 1.30 a.m.} & \text{,,} & = 42.5^\circ \text{C.} & \} \end{array}$$

This case shows the accord of the calculation with the known times, especially coupled with the observation that the temperature rose just before death, and probably continued to do so for some time after.

Other cases were similarly referred to in the paper, in some of which the result of calculation was strikingly in accord with the known time of death, the problems being less complicated by a high temperature at death. In others, the result of calculation could not be depended on, owing in part to insufficient data as to temperature of ward, and as to varying conditions of covering. One case was also given where the problem was not complicated by pathological temperatures—the sort of case that would be met with in medico-legal investigation. In this case a lad was brought into the hospital dead, with fractured skull, at a quarter past nine. The temperatures were taken at two o'clock, about five hours subsequently. A calculation precisely similar to that given above led to the conclusion that the time of death was 312 minutes antecedent to 2.20 P.M. This would make the time of death eight minutes past 9 A.M. The conditions in this case were favourable to a successful calculation, as the body had been removed at once to the mortuary, where the temperature of the air was almost constant.

Altogether fifteen cases had been examined similarly, with a result which was sufficiently encouraging to lead to further observation, so as to thoroughly test whether the method of determination was reliable.

Allusion was made in the paper to the stated conditions under which the rate of body cooling was affected. Thus a child exposes for a given volume of body a proportionately larger body surface than an adult, and would therefore cool the faster, just as the smaller planets of the solar system have cooled more rapidly than the larger. So, too, it is stated that the body cools more rapidly after death from asphyxia, and more slowly after death from accident, apoplexy, or acute disease. With regard to apoplexy (and other nervous causes), the explanation may be that there is often a marked rise of temperature after death, and this may appear to delay the cooling.

March 5.

Mr. Lyndon showed three intestinal calculi of large size, and in appearance like polished marble, removed from the stomach of a horse.

Dr. Collins showed a new form of eye-irrigator.

The house-surgeons then introduced a discussion on 'Injuries and Diseases of the Spinal Column.'

Mr. Lewis dealt with the subject of caries of the spine. In speaking of the treatment of caries, he drew attention to the fact that Pott treated all his cases by rest in bed. He objected very much to the use of instruments. He says: 'These pieces of mechanism are calculated to obviate and remove what does not exist; they are founded on a supposition of actual dislocation, which is never the case.' Mr. Lewis objected to prolonged rest in bed, because it deprives the patient of fresh air and exercise, and the debility so induced militates strongly against repair, and also the abscesses track backward among the muscles of the back, instead of tracking along the natural drainage tube formed by the sheath of the psoas magnus muscle. He advocated plaster of Paris jackets combined with fresh air and exercise wherever possible.

Mr. Tayler continued the discussion, taking the subject of congenital malformations of the spinal column. Stating briefly that the tails of tailed children usually consisted of fat, but that cases were on record where the tail was formed by an increase of the actual number of the vertebræ, he passed on to consider spina bifida, which, he said, was the most important congenital malformation, as it could be benefited by surgical interference. Having described a spina bifida, he spoke of the various kinds of treatment, recommending the partial evacuation of the cyst and the injection of about half a drachm of Morton's fluid.

Mr. W. T. H. Spicer dealt with lateral curvature of the spine, and directed his remarks mainly to the subject of treatment. After pointing out the general relation which the nutrition of the muscles bears to that of the bones and ligaments, both in hypertrophy and atrophy, he illustrated this by what takes place in the spinal column, the wasting of the muscles in scoliosis going on *pari passu* with a weakening and relaxation of the ligaments. Next the conditions which bring about this wasting, the class of person, and the age at which it occurs, were commented on. These considerations led to the treatment, the first part of which, prophylaxis, was most strongly emphasised; the hygiene of youth, the proper physical training of young girls, the avoidance of all errors in diet, dress, and occupation, were insisted on at length. After condemning as a means of effecting a cure of scoliosis all rigid instruments, supports, or jackets, the fault of which was to impede respiration, and only further induce wasting of the muscles which support the spine, the treatment which in the writer's opinion was most satisfactory was indicated. The removal of any

obvious cause, an inquiry into the kind of clothing worn, should first be made; then the careful practice of certain exercises, the nature of which was explained, calculated to improve the nutrition of the muscles of the body generally and of the spine in particular, was advised. Several mechanical aids, the use of the sloping seat and the wearing of elastic spinal bandages, were spoken of. The combination of these methods with a sufficient amount of rest were relied on as a main basis for the treatment of the deformity.

Mr. Steedman then discussed 'Concussion of the Spine,' including under this heading all injuries to the spine short of fracture and dislocation, accompanied by signs and symptoms of affection of the spinal marrow, such injuries being due to direct or indirect violence. He said that the cord may be affected in three ways, viz.—1. By concussion, causing anæmia or a suspension of its functions, just as in concussion of the brain; 2. By compression, the result of effused blood or inflammatory products in the spinal canal, either outside the membranes, between the membranes, or in the cord; 3. By inflammation, acute or chronic, beginning primarily in the cord or secondarily to a spinal meningitis, the latter being the more common cause. He then illustrated the signs and symptoms of concussion and compression by a case then under treatment in his wards, and spoke at some length on the course of those cases where symptoms come on weeks or months after the accident.

Mr. Vogan discussed 'Fractures of the Spinal Column.'

He said they derive their chief importance from accompanying injury to the spinal cord. The position of the spinal canal being that of least movement on bending of the column, the cord is advantageously placed. There are two great classes of fracture, direct and indirect. Direct injury usually causes fracture of processes; indirect, as a bend of column, crushes the bodies, and is the more serious. Fracture through the laminæ is serious, as the spinal canal is opened. Fractures through the bodies in the cervical region are most serious, and in them there is more likelihood of the cord being injured on account of the small size of the bodies, which are easily crushed. In the lumbar region the cauda equina can be pushed aside or strands separated without being crushed. Diagnosis of the seat of injury may be made by the line of hyperæsthesia between the wound and paralysed parts and by the exaggerated reflexes below the injury. Breathing may be impeded when the fracture is quite in the lower dorsal region by paralysis of abdominal muscles, the intestines becoming inflated and pressing up the diaphragm. The kidneys are sometimes injured in fractures in the lumbar region; early alkaline urine, due to trophic kidney changes, is then met with.

March 12.

Dr. Klein, F.R.S., read a paper on the 'Ætiology of Cholera.'

March 19.

Annual general meeting.

The accounts of the Society were audited.

Messrs. Arnold and Humphry were appointed scrutineers of the ballot. The election of members of the committee for the following year then took place :—*Treasurer*, Mr. Savory ; *Presidents*, Dr. E. W. Roughton, Mr. W. T. H. Spicer ; *Vice-Presidents*, Mr. C. P. Crouch, A. Lyndon ; *Hon. Secretaries*, Mr. F. W. Andrewes, Mr. W. G. Gardiner ; *Additional Committee-men*, Mr. G. Colby, Mr. R. Farrar.

DESCRIPTIVE LIST

OF

SPECIMENS ADDED TO THE MUSEUM

DURING THE YEAR 1885.

SPECIMENS ADDED TO THE MUSEUM

During the Year ending October 1, 1885.

BY

D'ARCY POWER.

SERIES I.

DISEASES OF BONE.

96a. Lower portions of the Radius and Ulna, showing the effects of an injury to the wrist many years before death.

119c. Section of the lower portion of a Femur which has undergone a process of rarefying osteitis owing to the long-continued presence of a sequestrum. The outer and posterior portion of the bone has undergone partial absorption, due to the invasion of an epitheliomatous ulcer which commenced at the opening of the sinus leading to the sequestrum.

M. æt. 43. The sequestrum appeared to have existed 29 years. See *Male Surgical Register*, vol. iii. (1884), No. 2713.

132a. Section through the lower part of the left Tibia and Ankle, showing an abscess in the bone, with some inflammation of the tibioastragaloid joint.

From a man aged 47, who had injured his ankle thirty years previously, and who for ten or twelve years subsequently had sinuses about the part, from which pieces of dead bone came away at different times. Seven years before the amputation the patient suffered from a "gathered ankle," and was laid up for five weeks; the "gathering burst," but no dead bone was discharged. In March 1884 he had rheumatic pains in his ankle, which swelled. On admission to the Bristol Infirmary, the joint was stiff, but not uniformly enlarged. The skin was adherent, glazed, and pigmented. There was a good deal of hard swelling over the tendo-Achillis. No tenderness anywhere above the joint. The abscess may have been secondary to the joint-disease, or else it may have supervened on the long-standing osteitis of the tibia.

Presented by W. Dowson, Esq., M.B.

NECROSIS.

198a. A Sequestrum removed from the thigh four years after a compound fracture.

M. æt. 20. The sequestrum had given no trouble during the four years until about a week before its removal.

See *Male Surgical Register*, vol. iii. (1885), No. 2027.

- 226a. Portion of the Temporal and Occipital Bones, showing the results of necrosis of the mastoid process. The temporal was trephined shortly before death. (In Case F.)

See *Male Surgical Register*, vol. iii. (1885), No. 482.

- 271a. Portions of two Ribs, with their costal cartilages, showing the "beading" characteristic of rickets.

- 296a. A Calvarium which has undergone much thickening. The inner surface is not corrugated. (In Case F.)

For further details see *Post-Mortem Book*, vol. xi. p. 174.

- 296b. Calvarium much thickened, apparently as a result of syphilis (In Case F.)

- 340a. Calvarium showing a Node upon its outer surface. On the inner side of the right parietal bone is a bare patch, corresponding to which there was a dense local thickening of the dura mater, which appeared to be a partially degenerated gumma. (In Case F.)

From a woman aged 46, the subject of visceral syphilis. See *Transactions of the Pathological Society*, vol. xxxv. (1884), p. 233. The intestines are preserved in Series xviii. No. 2007a.

- 340b. Calvarium thickened and ulcerated as a result of long-standing syphilis. (In Case F.)

- 357a. Calvarium which has undergone much ulceration. The outer table is ulcerated over its whole extent, and several pieces of dead bone have fallen away and lie at the bottom of the bottle. The inner table is also ulcerated, but not to so great an extent. The bone is so soft that it can easily be cut with a knife.

M. æt. 42, who denied having had syphilis, and in whose body no evidence of the disease could be found after death. The scalp was entire, but for many months had felt puffy over an extensive area. When it was raised, a quantity of pus was found beneath it. The dura mater was entire, but there was a superficial abscess in the posterior part of the right cerebral hemisphere. The case was shown at the Pathological Society. See *Pathological Society's Transactions*, vol. xxxiv. (1883), p. 209.

- 437a. Sarcomatous growth involving the skull and dura mater.

F. æt. 60. Sarcoma of breast of two years' duration. See *Lucas Ward Book*, vol. ix. p. 48.

- 441a. Sarcoma of Forearm, from a child aged nine months.

A drawing is preserved in Series lvii. No. 31a. A microscopical section is preserved in Series lv. No. 14a.

Presented by C. L. Lockwood, Esq.

- 554a. Lower Jaw of a man presenting an osseous tumour on its right half. The tumour has grown from the interior of the ramus, immediately above the mental foramen. Its upper surface is indented apparently by the action of the teeth in the upper jaw. (In Case G.)

Presented by G. F. Aldous, Esq.

SERIES II.

DISEASES OF JOINTS.

650a. Synarthrosis of the Hip-Joint. (In Case G.)

From a case of morbus coxæ of 28 years' duration. See *Medical Post-Mortem Book*, vol. xi. p. 174, and *Male Surgical Register*, vol. iv. (1885), No. 535.

650b. Synostosis of Hip-Joint.

See *Male Surgical Register*, vol. iv. (1885), No. 535.

673c. Head of a Radius apparently affected with chronic osteo-arthritis. The papillated condition of the synovial fringes is well seen.

From a man aged 26.

Presented by W. Bruce Clarke, Esq.

690a. A Patella showing the changes which take place in the cartilage at an early period of chronic osteo-arthritis.

The cartilage has become in part eroded and is fibrillated.

CHANGES DUE TO OSTEO-ARTHRITIS.

691b. A Right Knee-Joint affected with osteo-arthritis, from a patient who had locomotor ataxy.

The joint is very much enlarged. The enlargement is due to a thickening and development of the various folds and processes of the synovial membrane, and to an alteration in the shape of the bones. When first opened, the joint contained a considerable quantity of thin pus.

The lower end of the femur and the head of the tibia have undergone remarkable alterations in shape. The external condyle of the femur has almost disappeared, its place being apparently taken by two irregular nodules of bone, together about the size of a horse-chestnut, lying in the thickened synovial membrane. The internal condyle is remarkably enlarged, being much flattened from side to side. Near its inner and upper surface is a marked projection caused by the growing out of the bone, and immediately beneath it is a groove formed by the friction of the opposed surface of the head of the tibia. The shape of the lower end of the femur resembles an enormously enlarged external malleolus. At the posterior surface of the internal condyle is a large nodular outgrowth of bone. This latter outgrowth fits into a corresponding cup-shaped surface, formed by an outgrowth from the posterior surface of the tibia.

The tibia has undergone a compensatory alteration. The inner part of the head seems to have been rubbed away by the inner surface of the condyle, whilst the outer side of the head takes the place of the wasted external condyle of the femur. To such an extent has this occurred, that the plane of the tibio-femoral articulation, instead of being horizontal, is almost vertical; whilst the only part of the bones which would serve as a support in standing is the ridge on the femur and the surface on the tibia which corresponded with it.

The patella has undergone less alteration than the other bones, but is irregular in outline. Its articular surface is covered with cartilage in an advanced stage of degeneration, whilst the bone on this aspect is irregular and pitted.

The cartilage has almost completely disappeared from the articular surfaces of the tibia and femur, though patches remain on both bones. The portions of cartilage thus left have undergone fibrous degeneration.

The bone covering the articular surfaces of the tibia and femur is smooth and hard: it forms a continuous layer, but it has disappeared in other parts, and the bone is also pitted and irregular, the cancellous tissue being exposed as in caries.

The development of osteophytes in the soft tissues surrounding the joint has taken place to a remarkable extent.

The osteophytes are infiltrated in the tissues around the ligamentum patella and in various parts of the synovial membrane; they are especially well marked in the portion which covers in and protects the lower edge of the elongated condyle. The edge of the head of the tibia is covered by the overhanging and irregular ridges of bone which are so common in museum specimens of osteo-arthritis.

The inner surface of the synovial membrane has developed villous outgrowths, some of which are calcareous, whilst others are still soft, of the kind ordinarily found in cases of "rheumatoid arthritis."

The shaft of the femur four inches above the condyles, and the tibia at about the same distance below its head, appear to be in all respects normal. See *Male Surgical Register*, vol. v. (1884), No. 2319. See *Transactions of the Clinical Society*, vol. xviii. (1885), p. 50, and plates iv. and v.

Casts of the knee are preserved in Series lvi. No. 20c, and drawings in Series lvii. Nos. 45g—i. A section of the cartilage is preserved in Series lv. No. 53h.

- 696a. A Patella and Knee (right) affected with rheumatoid arthritis. The patella is small; it has been thinned by rubbing to about one-third of its normal thickness, and it is eburnated. Around it, especially beneath the vastus externus muscle, are osteophytes of all sizes; one is as large as the patella; some of the smaller outgrowths are pedunculated. On the external condyle of the femur is an eburnated surface corresponding to that on the patella. An osteophyte is growing in a fringe of the synovial membrane on the head of the tibia.

The specimen came from the dissecting-room. It was presented and prepared by John Gay, Esq.

- 712c. Loose bodies removed from the Knee-Joint. The bodies are synovial fringes thickened with caseating inflammatory material.

See *Male Surgical Register*, vol. iii. (1885), No. 3544.

SERIES III.

INJURIES OF BONE.

- 761b. Calvarium showing gunshot wound. (In Case H.)

Patient survived ten days after injury: a hernia cerebri formed. See *Male Surgical Register*, vol. iii. (1885), No. 1163.

- 796a. Portion of a Tibia which has undergone a comminuted fracture. The fracture has been partially repaired, and during the process the posterior tibial vessels and nerve have become involved.

From the dissecting-rooms.

Presented by F. Swinford Edwards, Esq.

- 807a. The Left Knee-Joint seventeen months after the performance of Ogston's operation of chiselling through the internal condyle of the femur for the relief of genu valgum.

The scar of the operation was visible in the skin and muscles at a point about $2\frac{1}{2}$ inches above the articular border of the internal condyle. The tibio-femoral articulation is more posterior than in a normal limb. The patella has only a single facet upon its under surface; it lies wholly upon the external condyle of the femur, and is loosely connected by a few inflammatory adhesions with the upper part of the external condyle. The adhesions do not interfere with the movements of the joint.

The superior articular surface of the tibia lies in a horizontal line, whilst its shaft is curved to such an extent as to render its convex surface internal. There are two well-marked ridges of bone along its inner border. On raising the patella, the external condyle is alone seen so long as the leg remains extended. The outer margin of the external condyle is lipped as in chronic osteo-arthritis, and the cartilage covering it is pitted in such a manner as to resemble the pearly concretions seen in oyster-shells.

On flexing the leg and raising the patella, the joint moves through an angle of 45° . Its further flexion is restrained by fibrous material in the neighbourhood of the crucial

ligaments, resulting from the matting together of the ligamenta mucosa et alaria. The internal condyle then comes into view. Its articular surface is very much smaller than that of the external condyle, since the latter measures $3\frac{1}{2}$ inches in length, whilst the articular surface of the internal condyle is only $1\frac{1}{2}$ inches. In no part does the internal condyle articulate with the patella; it is covered with smooth articular cartilage. Although the articular surface is small, the condyle is itself hypertrophied. It is united to the shaft of the femur by callus, and at its point of union with this bone there is an abrupt raised line, as if its base had been pushed upwards on to the femur.

The condyles lie almost on the same plane, the external being, if anything, rather the lower of the two. The inter-condyloid notch is very wide, the increased width being apparently due to a new formation of bone, which has filled up a gap formed by a forcible separation of the condyles as a result of the operation. The inter-condyloid notch is occupied by synovial membrane.

After reflecting the quadriceps extensor tendon, the subcrureus muscle is seen to be inserted upon the external surface of the femur in correspondence with the lateral deviation of the patella. The shaft of the femur is bent antero-posteriorly with such a twist that its axis is almost spiral.

The femur of the other leg exhibited the well-marked and typical antero-posterior curve of rickets. The lower extremity appears to have undergone the same changes as in the preceding specimen. The inner condyle is very small, and there is a well-marked line of union showing where it was separated at the operation. The inter-condyloid notch is unusually large, and the external condyle appears by comparison to be of a large size. The patella articulated solely with the outer condyle.

The patient, a girl of 21, died of puerperal mania in December 1884. In June 1883 she was admitted to the Hospital under the care of Mr. Willett. At this time, the knees being placed together, there was an interval of $19\frac{1}{2}$ inches between the two internal malleoli. On July 12, 1883, the left inner condyle was separated from the bone with a chisel; during the following month the same operation was performed upon the right leg. On September 7th, the malleoli were only separated, with the knees now together, by a space of 3-4 inches, and a few weeks before death, eighteen months afterwards, the limbs were practically parallel.

For further details see a paper by Mr. Willett in the *St. Bartholomew's Hospital Reports*, vol. xx (1884), p. 69; and an account of the joint by Mr. D'Arcy Power in the *Transactions of the Pathological Society*, vol. xxxvi. (1885), p. 345.

Presented by C. Gross, Esq.

879a. Left Parietal Bone showing comminuted depressed fracture through both tables. A clot of blood was found between the dura mater and the bone.

From a man who was found unconscious on a railway.

Presented by C. J. Heath, Esq.

881a. Skull of a child showing a large gap in the bones forming the vault. The bones of the skull are much thinned.

From a child aged 8 months, who fell from a window and fractured its skull. During life there was an oval swelling with fluid contents occupying the site of the gap in the skull. It appears probable that the cavity of the tumour communicated with the sac of the arachnoid.

For further details of this case see a paper by Mr. Thomas Smith upon "Traumatic Cephalhydrocele" in the *St. Bartholomew's Hospital Reports* for 1884, vol. xx. p. 233, Case I.

A drawing of the skull is preserved in Series lvii. No. 34b.

892a. Portion of the Orbit of a child showing a small punctured fracture of the orbital plate of the frontal. (In Case H.)

M. æt. 3. Is said to have fallen on the pavement and injured his eye about a month before death. He was admitted with symptoms of paralysis, and died with a cerebral abscess. See *Male Surgical Register*, vol. v. (1884), No. 1844.

898a. An incomplete transverse Fracture of the Sternum, through the gladiolus immediately below its junction with the second costal cartilages.

Patient fell from a second-floor window. See *Surgical Register*, vol. v. (1884), No. 1849.

900b. The Lung and a portion of the Chest Wall of a child. The heads of the third, fourth, fifth, and sixth ribs have been separated from their tubercles. The lung shows two large rents in its posterior lobe.

903a. Apparent fracture through the acromion process. The fracture is united by bone. (In Case H.)

Presented by J. C. Hoyle, Esq.

930a. Hand and part of the bones of the Forearm, showing the condition of parts many years after a Colles' fracture. The upper end of the radius has been impacted into the lower fragment. The impaction, however, has not been quite even, since the outer edge of the radius has been driven farther upwards than the inner, *i.e.*, that next to the ulna. This obliquity of the radius has rendered the ulna unusually prominent. The cuneiform and pisiform bones are situated below the articular surface of the radius.

For a further account of this specimen see *Pathological Society's Transactions*, vol. xxxv. p. 272.

Presented by C. B. Lockwood, Esq.

999a. The lower portion of the Tibia and Fibula with a part of the Astragalus, showing the results of a badly set Pott's fracture which had occurred many years before death. The articular surface of the astragalus is firmly cemented by bone to the tibia. (In Case H.)

From the dissecting-rooms. Presented by J. Berry, Esq.

SERIES V.

DISEASES OF THE SPINE.

1089a. Vertebrae from a case of chronic osteo-arthritis. The two vertebrae are united by processes of new bone which have interlocked upon their left lateral aspect. (In Case H.)

See *Female Surgical Register*, vol. iv. (1884), No. 2319.

1136a. Fracture of the odontoid process of the axis.

From a groom aged 35, who had been exercising a horse, and was found dead in the road without any visible injury except a slight extravasation on the back of the head. Post-mortem examination showed that the odontoid process had been fractured. The lower part of the medulla was destroyed by the pressure, and there was an extravasation of blood into the cord.

Presented by H. Holdrich Fisher, Esq.

SERIES VI.

DISEASES OF MUSCLES AND BURSÆ.

TUMOUR.

1174a. A Tumour of the Biceps.

From a woman aged 62. The tumour was of nine months' duration. It was pyriform and obtuse in shape, situated subcutaneously and growing rapidly. It was of slightly

lobulated and semifluctuating and sarcomatous nature. Sections are preserved in Series lv. No. 57c.

Presented by Dr. George Wilks.

1174b. A Tumour of the Biceps muscle.

INTERMUSCULAR SYNOVIAL CYSTS.

1205a. The Left Knee-Joint and Calf, showing an intermuscular cyst connected with the joint. The knee-joint has been recently inflamed. On the outer side of the spine of the tibia is a passage along which a rod has been passed through the ligamentum posticum into a cyst. The cyst lies beneath the outer head of the gastrocnemius; it is pyriform in shape, and is possessed of a distinct cyst-wall. Its upper border is fused with the tendon of origin of the outer head of the gastrocnemius. The plantaris blends with the inner wall of the cyst. Some fibres of the gastrocnemius are spread out over its superficial surface. The cyst is bounded below by the tendinous arch of the soleus. On the outer side of the leg the cyst has burrowed for some distance, dissecting out the peroneal nerve at the point where it turns round the head of the fibula. At this point the skin had sloughed, and the cyst communicated by a sinus with the exterior. Near the plantaris, at the back of the joint, is a well-marked hernia or pouch of the synovial membrane of the knee.

From a man aged 44, a hawker, who had suffered from pain in his joint for two years before his leg was amputated.

See *Male Surgical Register*, vol. ii. (1885), No. 460, and (1884) No. 3643.

1205b. The Left Knee-Joint and Calf, showing an intermuscular synovial cyst. The joint is completely disorganised, the synovial membrane is thickened and pulpy, and has grown over the articular surfaces of the bones. The cartilages are eroded, and their bones are bare in places. At the posterior surface of the joint two openings are seen. The one situated at the back of the internal condyle of the femur immediately above the inner head of the gastrocnemius has received a piece of brown catheter, which passes directly into the cavity of the cyst. It is part of a channel which led from the cyst into the connective tissue surrounding the muscles at the back of the thigh, and it was cut across during amputation. The second aperture is situated in the tendinous inner head of the gastrocnemius, and a black catheter is passed through it; it puts the cyst into communication with the posterior aspect of the knee-joint. The cyst itself measures 4" x 3". It appears to have taken the place of the popliteus muscle.

From a female aged 22, who had suffered four years from trouble with her knee.

For further history and remarks on the two preceding cases see *Transactions of the Pathological Society*, vol. xxxvi. (1885), p. 337, where No. 1205a is figured in plate xii.(a).

Presented by J. Langton Hewer, Esq.

1205c. The head of a Humerus which is inflamed owing to the suppuration of an intermuscular cyst which was situated beneath the teres minor. The remains of the inflamed cyst are seen as a mass of tissue upon the left side of the specimen.

From a male aged 55. The specimen is described and figured in *Transactions of the Pathological Society*, vol. xxxvi. (1885), p. 337, and plate xii. fig. b. Drawings are preserved in Series lvii. Nos. 45b, c, d.

Presented by William Marrant Baker, Esq.

SERIES VII.

DISEASES OF THE HEART.

- 1219a.** Heart and Lungs with part of the Chest Wall, from a case of pericarditis following upon pyæmia. The parietal pericardium is much thickened in part, and is adherent to the left pleura. The heart is covered with flakes of recent lymph. The left lung is collapsed, and is separated from the lower part of the pleural cavity by firm bands of adhesion.

From a boy aged 9, who fell from a swing and sustained an injury to his shoulder. For further history and notes of the case see *St. Bartholomew's Hospital Reports*, vol. xix. p. 271, "Notes on a Case of Pyæmia with Suppurative Pericarditis," by Dr. R. D. Brinton and R. J. Collings, Esq., and by Dr. Samuel West in the *Transactions of the Pathological Society*, vol. xxxv. p. 104.

- 1359a.** A Heart with commencing aneurysm of the aortic valves. The left ventricle is much hypertrophied and dilated. There is a circular eroded patch about two lines in diameter upon the anterior cusp of the left auriculo-ventricular valve. This patch is surrounded by granulations. There is a commencing aneurysm of this valve. The aortic valves are quite incompetent; they are thickened and adherent at their edges and bases. The edges are jagged.

For further details see *Post-Mortem Book*, vol. x. p. 97.

- 1359b.** First part of the Arch of the Aorta, showing a commencing aneurysm in the sinus of Valsalva. The arterial wall has undergone atheromatous changes at some distance above the sigmoid valves.

SERIES VIII.

DISEASES OF ARTERIES.

- 1512a.** Heart and large vessels, with Tongue, Larynx, and Trachea. The right subclavian artery is dilated into two aneurysmal pouches. The proximal is the larger of the two, and is almost filled with laminated clot. The posterior inferior wall, however, has given way, allowing it to become diffuse. It presses upon the right common carotid artery, and during life simulated an aneurysm of that artery. The trachea is considerably flattened, as a result of the pressure excited by the aneurysm. The distal aneurysm is smaller, and is situated on the posterior wall of the subclavian; it has been nearly obliterated owing to the pressure exerted by the larger aneurysm.

See *Female Surgical Register*, vol. iv. (1884), No. 650.

F. æt. 62. Suffered pain in right arm and shoulder for seven months previous to death. A modified Tufnell's treatment was adopted.

1551a. Iliac and Femoral Arteries, from a case in which the femoral artery had been ligatured in its continuity in Scarpa's triangle. The operation was performed six years and nine months before death, and effected the cure of a popliteal aneurysm. The site of the ligature is apparent just above the second black bristle, and from this point to the first bristle is a clot which is decolourised. Immediately above the aneurysm is another clot which has not yet become discoloured. The aneurysm itself has become converted into dense fibrous tissue. The vessel is throughout calcareous. It is patent between the seat of ligature and the cured aneurysm.

A railway porter. Aneurysm of ten months' duration. It was very large, filling the whole popliteal space so as to bulge out upon the inner side of the thigh. The leg was oedematous, the veins being varicose. Esmarch's bandage and digital pressure having failed to effect a cure, the superficial femoral artery was tied with a carbolised silk ligature. Death resulted from pneumonia.

See *Henry Ward Book*, vol. vi. p. 396, and *Medical Post-Mortem Book*, vol. xi. p. 17.

1551b. Iliac, Femoral, and Popliteal Arteries, from a patient whose superficial femoral was ligatured for the cure of popliteal aneurysm six years before his death. At the seat of the ligature the vessel has become converted for a short distance into a fibrous cord. Between the point of ligature and the origin of the anastomotica magna, however, the femoral artery is pervious and apparently healthy. It gives off several small branches. The aneurysm is converted into dense fibrous tissue. Below the aneurysm the popliteal is patent.

Cf. No. 1407.

A labourer, aged 49, who had syphilis eighteen years previously. The aneurysm was noticed three weeks prior to admission, although he had suffered pain in his knee for two years. An Esmarch's bandage affording no relief, the artery was tied in two places with a catgut ligature, and divided. Pulsation returned five months later, and the aneurysm was cured by flexion. Death resulted from rupture of an intra-pericardial aortic aneurysm.

See *Henry Ward Book*, vol. vii. p. 67, and *Surgical Post-Mortem Book* for 1885, p. 101.

1559b. Portion of the Frontal Lobes, showing plugged anterior and middle cerebral arteries on the left side.

The patient, a woman aged 55, had stenosis of the aortic valves. Her leg was amputated for gangrene, when the main artery was found to be plugged. The kidneys and spleen both contained infarcts.

For further details see *Mary Ward Book* for 1885 (s. v. *Mary Crabb*), and *Surgical Post-Mortem Book* for 1885, p. 12.

1571c. The Aorta and main Arteries of the left upper extremity. It will be seen that the artery is plugged from the commencement of the subclavian to the termination of the radial at the wrist.

F. æt. 48. No history of injury or other cause. Ill three months.

See *Female Surgical Register*, vol. ii. (1884), No. 742.

SERIES IX.

INJURIES OF VEINS.

- 1608a. The Left Kidney and a portion of the Left Lobe of the Liver, from a case in which the right kidney had been removed. A ligature has been passed round the right renal vessels at the point where the right renal vein opens into the inferior vena cava. A portion of the inferior vena cava has been included in the ligature. A thrombus fills the entire vena cava.

SERIES X.

INJURIES OF THE LARYNX.

- 1663a. Tongue and Larynx, showing the common situation in which the throat is cut.

From an old woman who cut her throat with a razor; the wound did not at first extend into the pharynx, though it did so in the course of a week by a process of ulceration. Death resulted from dysphagia.

Presented by H. Lewis Jones, Esq., M.B.

SERIES XI.

DISEASES OF THE LUNGS.

- 1724a. Right Lung of a girl aged 11 months. There is a large cavity in the uppermost lobe. The cavity is lined by a membrane and is crossed by the remains of a vessel.

The right lung contained several smaller cavities. The left was filled with tubercle. The child had suffered from a cough for more than a month before its death. It suddenly developed symptoms of acute tuberculosis, and died with meningitis. The peritoneum, liver, spleen, and kidneys contained masses of tubercle.

Exhibited by Dr. Norman Moore at the Pathological Society. See *Transactions of the Pathological Society*, vol. xxxvi. (1885), p. 108.

- 1724b. Lung showing tubercular cavities in its upper lobe.

See *Male Surgical Register*, vol. iv. (1884), No. 647.

- 1746a. Portions of the walls of an Hydatid Cyst which were coughed up from the lungs of a young woman who was supposed to be phthisical.

After expectorating the hydatid membrane she made a good recovery.

Presented by S. J. Gee, Esq., M.D.

SERIES XII.

DISEASES OF THE TONGUE.

- 1788c. Epithelioma of Tongue.

From a woman aged 35.

Presented by W. S. Savory, Esq., F.R.S.

- 1788d. Tongue and Larynx. The tongue is excavated by a large epitheliomatous ulcer.
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SERIES XIII.

DISEASES OF THE TEETH.

- 1811g. A left upper Wisdom Tooth of curious shape, much destroyed by caries.
- 1811h. A right upper Wisdom Tooth of remarkably small size. Extracted previous to the insertion of artificial teeth.

TRANSPLANTATION OF TEETH.

- 1811i. Three Teeth; two of them, the right upper canine and left upper second bicuspid, had been replanted about six or seven years ago, and when extracted were quite loose in their sockets. The third Tooth; the left upper first bicuspid, extracted at the time of the same operation on account of caries, is included in the preparation to show the amount of absorption the fangs of the first two have undergone.

Presented by William M. Gabriel, Esq.

- 1820a. A Wisdom Tooth on each side of which is an enamel nodule. The tooth has been sawn in half, and in its interior, nearly opposite to the smaller nodule, is a dentinal nodule, the tip of which has been unfortunately taken off in preparing the section. The tooth was extracted for pain of a neuralgic character, which had existed for three or four years.

Presented by William M. Gabriel, Esq.

SERIES XVII.

DISEASES OF THE STOMACH.

- 1919a. A piece of the mucous and muscular coats of the Stomach, showing a small sessile polypus.
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SERIES XVIII.

DISEASES OF THE SMALL INTESTINES.

- 2007a. Portions of small Intestines, showing the cicatrices resulting from syphilitic ulceration. The patches are numerous and thickened; some are ulcerated; some show scar tissue and contraction, and some consist of fresh connective tissue.

An account of the case will be found in the *Pathological Society's Transactions*, vol. xxxv. (1884), p. 233. The skull-cap is preserved in Series i. No. 340a.

- 2020a. A piece of Jejunum, about one foot from the duodenum, having a mass of cancerous material situated opposite the attachment of the mesentery.

From a man who had cancer of the pancreas. For further details see *Medical Post-Mortem Book*, vol. x. p. 93.

- 2032a. A Pin surrounded by a mass of hard faecal matter, which becoming impacted in the vermiform appendix, caused typhilitis, perforation of the intestine, peritonitis, and death.

For further details see *Male Surgical Register*, vol. v. (1885), No. 1311.

SERIES XIX.

DISEASES OF THE LARGE INTESTINE AND ANUS.

- 2046a. Large Intestine and Rectum. The whole extent of the gut is superficially ulcerated, the ulceration terminating abruptly by a transverse line at the lower part of the specimen.

From a woman who had no syphilitic or tubercular history, but who had suffered from symptoms of stricture of rectum for $2\frac{1}{2}$ years before her death. See *Sitwell Ward Book* vol. viii. p. 176.

SERIES XX.

HERNIAE.

- 2099a. A piece of Intestine removed from a hernia. The intestine presents a well-marked stricture, which was situated at a point 3 inches from the ileo-cæcal valve. The mesentery is greatly thickened as a result of chronic inflammation.

From a case of strangulated hernia, in which reduction had been effected by taxis. The patient subsequently died from a rupture of the bowel.

- 2109a. A "spur" of small Intestine, removed by an enterotome from a case of strangulated femoral hernia, which could not be returned at the time of the operation owing to the adhesions which the gut had contracted.

From a woman aged 55, who had been ruptured twenty years. The bowel was laid open April 29. The enterotome was inserted upon September 6. The enterotome, with the piece of intestine in its blades, was removed on October 8. The patient was discharged, faeces passing per anum, on January 20. See *Female Surgical Register*, vol. iv. (1884), No. 453.

- 2140b. The Sac of an Inguinal Hernia. The funicular portion of the peritoneum is closed at the level of the internal ring, but for the rest of its extent remains as an open tube, into which a black rod has been passed. A hernia descending through the internal ring has made its way behind the unclosed funicular portion. The position of the hernial sac (which has been opened in front) is indicated by a white glass rod.

A drawing is preserved in Series lvii. No. 260c.

2140c. An Inguinal Hernia constituting an example of the form described by Hey as "encysted." The funicular portion of the peritoneum is unclosed, except at its upper extremity. A hernial sac has been formed by the gradual invagination of the closed upper extremity into the unobliterated portion of the funicular process of the tunica vaginalis.

2140d. An Inguinal Hernia in many respects similar to the foregoing, but differing in the fact that the sac is lobulated, or divided by a partition into two separate portions.

The preceding specimens were exhibited before the Pathological Society. See *Transactions of the Pathological Society*, vol. xxxvi. (1885), p. 216.

INTUSSUSCEPTION OF THE RECTUM IN AN ADULT.

2188a. The Large Intestine is invaginated for about three inches; it is firmly bound down by a contracted mesenteric attachment; the intussuscepted portion cannot be drawn out; it therefore appears to have been of long standing. Above the intussuscepted portion is a small projection which appears to be the root of a small polypus.

M. æt. 37. Labourer, always in good health. He had an attack of diarrhœa and tenesmus, but subsequently he was found to be suffering from an intussusception, the invaginated portion being within easy reach of the finger after the hand had been introduced into the rectum. On the ninth day vomiting and hiccough commenced; the abdomen was tympanitic. Lumbar colotomy was performed, but the patient died.

Presented by Dr. Lanchester.

SERIES XXI.

DISEASES OF THE LIVER.

2198a. A Liver showing the effects of cirrhosis.

2217a. A Liver affected with diffuse lympho-sarcoma. The gland is uniformly enlarged, and is nearly white. Its surface is smooth. It weighs 40 ounces. There were no isolated growths.

F. æt. 5. In perfect health until six months before death. Tubercle in both lungs. Microscopic examination showed the liver to be infiltrated with small round cells. The glandular destruction was not so great towards the centre as towards the surface, and there was a considerable amount of fibrous tissue in the central part.

A section is preserved in Series lv. No. 901. See *Transactions of the Pathological Society*, vol. xxxvi. (1885), p. 236.

2237a. Numerous small Hydatid Cysts passed per anum by a woman.

2237b. Portions of the wall of an Hydatid Cyst with some of the intracystic growths passed per anum by a lad aged 8 years.

The liver was enlarged to within 1 inch of Poupart's ligament, and the spleen to within 2 inches of the crest of the ilium. The patient suffered from jaundice and general wasting. He recovered.

2239a. Section of a human Liver from a case of actinomycosis.

See *Transactions of the Pathological Society*, vol. xxxvi. (1885), p. 254.

Presented by S. G. Shattock, Esq.

SERIES XXVI.

DISEASES OF THE THYROID GLAND.

- 2311a.** Tongue and Larynx. The thyroid gland is hypertrophied.

Sections are preserved in Series lv. No. 90m.

- 2314a.** Tongue, Larynx, Trachea, and Lungs of a child. A large cystic growth of about the size of half an orange extends along the left side of the larynx. Tracheotomy has been performed. The inner surface of the trachea is ulcerated. The lungs are studded with several small patches of consolidated tissue.

From a child aged 2 years, in whom the swelling had been noticed for twenty-two months. One week before death Morton's fluid was injected. The child died of broncho-pneumonia. During life the tumour extended backwards as far as the pharynx and spine, and it was closely adherent to the lower jaw and trachea.

For further details see *Female Surgical Register*, vol. ii. (1884), No. 594.

- 2314b.** Larynx and Trachea. The trachea is flattened from before backwards by the pressure of a large cystic tumour which was in connection with the isthmus of the thyroid. The cyst is lined with the remains of a partially organised blood-clot. Its walls are composed of encephaloid cancer, which is undergoing colloid degeneration.

From a woman aged 46, who died suddenly of asphyxia. In the few minutes preceding death, the tumour was said to have increased from the size of a walnut to that of an orange. After death it contained about two ounces of recent blood. For further details see *The British Medical Journal*, vol. ii. (1884), p. 20. A section is preserved, Series lv. No. 90i.

Presented by J. S. Hunt, Esq.

SERIES XXVIII.

DISEASES OF THE KIDNEYS.

- 2338a.** Kidney enlarged and in an advanced condition of pyonephrosis. The cavities were filled with inspissated pus of the consistency of cream-cheese.

See *Martha Ward Book*, 1884, No. 329.

NEPHROPHTHISIS IN ANIMALS.

- 2342a.** Portions of the Kidney of an ox affected with tubercular disease. The kidney substance is completely changed into a tuberculous mass, whilst numerous white nodules are seen upon its surface. In some parts of the lower specimen are zones of more or less completely calcified material. The kidneys were greatly enlarged.

Upon microscopic examination, abundant groups of bacilli were found. The bacilli agreed in form, method of staining, and size with the bacilli of tubercle in man. The morbid changes correspond with the descriptions of Perlsucht.

This specimen was exhibited before the Pathological Society.

Sections are preserved in Series lv. No. 93c.

2373a. Kidneys, Bladder, and portion of the Rectum of a child. The pelvis and calyces of the right kidney are dilated, and considerable absorption of the glandular substance has taken place. The left kidney is less altered. The ureters are dilated and pervious. The bladder does not appear to be thickened.

From an infant aged 14 days, who had an imperforate anus. At the autopsy the sigmoid flexure was found to be much distended; it turned across the sacrum to the right side, and ended in a blind dilated rectum. The bladder contained a drachm of healthy urine. The dilated condition of the kidneys may have been due to the distended and abnormal sigmoid flexure impeding the flow of urine along the ureters.

See *Female Surgical Register*, vol. i. (1885), No. 3993.

SERIES XXIX.

DISEASES OF THE URINARY BLADDER.

2404a. A dilated Bladder with a large number of small saccules, into which black bristles have been passed.

See *Male Surgical Register*, vol. ii. (1884), No. 3054.

2410a. A Bladder which presents a well-marked pouch. The viscus is heart-shaped; the left side is thicker and smaller than the right; it is the true bladder. Glass rods have been passed through the prostatic urethra and through each ureter. Between and below the openings of the ureters is a deep *cul-de-sac*, large enough to admit the tip of the little finger. The right portion of the bladder is the larger; it is separated from the left by a strong fibrous band. The mucous membrane of the whole organ is inflamed, and is in some places ulcerated.

From a man aged 54, who had suffered from bladder trouble all his life. Catheters were habitually employed. Two or three seconds after his bladder appeared to have been emptied, an ounce or two of purulent urine with a little blood was expelled violently through the catheter. He had no stone.

His bladder was shown at the Pathological Society. See *Transactions of the Pathological Society*, vol. xxxvi. (1885), p. 283.

Presented by D. Mackinder, Esq., M.D.

2433a. The Urinary Organs of a patient who had numerous calculi. The left kidney contains a branched phosphatic calculus in its pelvis. The bladder is pouched, a glass rod being passed through the aperture of communication. The portion which is in direct connection with the urethra contains a uric acid calculus, whilst the pouch contains two smaller stones of the same nature. The prostatic urethra is blocked by a long round calculus, which appears to be moulded to its shape, consisting chiefly of urates and phosphates.

M. æt. 24. Difficulty in passing water for five years; catheter first passed two years since; admitted with retention of urine; a No. 7 silver catheter was passed. Death from anæmia.

See *Surgical Register*, vol. iv. (1884), No. 1010.

SERIES XXX.

DISEASES OF THE BRAIN.

2468a. A Tumour of the Cerebellum involving the median portion of its under surface. It measured $3\frac{1}{2}$ inches in length, and widely separates the two lateral lobes. Anteriorly it extends as far as the pons, whilst behind it reaches almost to the free margin of the cerebellum. Its upper surface lies on the under aspect of the median lobe, which it much compressed and flattened. It grew from the pia mater. Examined by the microscope, it was found to be a round-cell sarcoma.

F. æt. 9. Suffered from violent attacks of vomiting a year before death. Double optic neuritis, partial blindness, and slight incoördination of muscles in walking occurred in August 1884. In January 1885 complete blindness, but the optic neuritis has not passed into atrophy; vomits once a week; severe frontal headache. Death February 1885.

On opening the skull, the inner table in the region of the occipital protuberance was rough, as if from chronic osteitis, but with no adhesion of the dura mater; on removing the brain, a large quantity of cerebro-spinal fluid escaped. The floor of the third ventricle was translucent and much expanded owing to the quantity of fluid. Lateral ventricles enormously dilated. Foramina of Monro large enough to admit the end of the little finger. Third and fourth ventricles and aqueduct of Sylvius enlarged; the optic thalami about $1\frac{1}{4}$ inches apart. Foramen of Magendie undiscoverable. The venæ Galeni were not pressed upon by the tumour.

A section is preserved in Series lv. No. 103(a).

Presented by J. L. Hewer, Esq.

2530a. Sections through the Cerebral Hemispheres from a case of aphasia, in which the chief lesions were seated in the supramarginal and angular gyri, Broca's convolution being unaffected. On the left side of the brain, corresponding with the whole extent of the supramarginal and angular convolutions, is a large area of softening, which in the recent condition was considerably depressed below the level of the rest of the cortex. The colour was pale yellow, and the surface was speckled with small patches of white and yellow (fatty change).

The softening appears to have been due to embolism of the peripheral branch of the Sylvian artery.

For further details and history of the case see the *British Medical Journal*, vol. i. (1885), p. 1242, and the *Medical Society's Proceedings*, vol. viii. Photographs of the case are preserved in Series lvii. Nos. 353(a), (b), and (c).

Presented by S. West, Esq., M.D.

SERIES XXXVI.

DISEASES OF THE TESTICLE AND ITS COVERINGS.

2745a. Hæmatocele of the left Tunica Vaginalis. The testicle appears to be healthy. The tunica vaginalis is greatly thickened. There is a small cyst just above the testis under the tunica vaginalis.

M. æt. 60. The swelling had existed many years, and had been thrice tapped. After the second tapping there was much pain; after the third tapping blood was drawn off.

Presented by Stephen Paget, Esq.

- 2772a. A Testis which contains a degenerating gumma in its substance. On the left side is a small testicular hydrocele.

Sections preserved in Series Iv. No. 119c.

Presented by C. B. Lockwood, Esq.

- 2796a. Sarcoma of Testis with Hæmatocele.

M. æt. 39. Patient received a blow from a cricket-ball upon his testis $4\frac{1}{2}$ years before his death. The testis swelled, but subsequently appeared to get well. Six months later the organ again swelled and slowly increased in size, but without pain or any impairment of the general health. Three and a half years after the injury the testis began to grow rapidly. It was tapped, and some chocolate-coloured blood was removed, leaving behind a solid mass. Four years after the injury castration was performed; at the time of the operation the glands did not appear to be infiltrated and the cord was not thickened. Two months later the left leg swelled and the iliac glands became enlarged. A mass subsequently formed in the pelvis, and after exhibiting signs of intestinal obstruction for ten days, the patient died. Sections preserved in Series Iv. No. 121b.

Presented by W. Harrison Cripps, Esq.

- 2797c. A Testis infiltrated with a round-celled sarcomatous growth. In many parts the sarcoma has undergone cystic degeneration. It has been partially injected.

SERIES XLI.

DISEASES OF THE OVARIES.

- 2904c. An Ovary showing commencing cystic degeneration.

SERIES XLIII.

DISEASES OF THE UTERUS.

- 2945a. Anterior Perimetritis. A large abscess cavity is situated behind and above the bladder in front of the uterus and right broad ligament. It extends above the right half of the fundus uteri; below it passes between the bladder and vagina to within two inches of the orifice of the urethra, and two inches below the external os. It is bounded above by a pyogenic membrane and by the right ovary, which is seen to be much enlarged. It was suppurating. The peritoneum, which normally lines these parts, has disappeared entirely, and has been replaced by a pyogenic membrane. Some of the structures of the broad ligament are thereby exposed, to wit, the round ligament and a Fallopian tube, which form a band crossing the upper part of the cavity. The abscess cavity measures $5\frac{1}{2}$ by 4 inches. It has no external openings, its walls being everywhere thick. The left ovary is cystic; it is situated above and posterior to the left cornu of the uterus.

Patient had been ill since birth of last child, 20 months previously. At the examination after death the patient was found to have general peritonitis, lardaceous spleen, and an early stage of suppuration of the left kidney, in addition to the condition of the generative organs above described. For further details see *Martha Ward Book*, vol. vi. Case 172, and *President Ward Book*, vol. x. p. 118.

2951b. Retroversion of the Gravid Uterus. The uterus is lined by the decidua vera.

From a woman aged 41, married 19 years, in the eleventh week of pregnancy. During life the retroversion was reduced by the hand in the vagina; but the patient had retention of urine. She aborted three days before death.

2974b. Calcified Fibroid of the Uterus.

Obtained from the dissecting-room. The greater part of the skeleton of the same patient is preserved as a specimen of osteomalacia.

2976b. Uterus, showing the site of a fibroid which had been removed two months previously.

See *Martha Ward Book*, March 1884 (*s.v.* J. Millard).

3015a. A Myosarcoma of the Uterus. The upper part of the body of the uterus is much enlarged by a red vascular, softened, and diffuse growth.

F. æt. 23. Married four years; one child seven months before her death. Menorrhagia, followed by dyspnoea and hæmoptysis, until the patient became very anæmic. She died suddenly. At the autopsy the lumbar glands and lungs were found to be studded with new growths. A small sarcomatous growth was attached to the anterior wall of the vagina, immediately behind the orifice of the urethra.

For further details see *Martha Ward Book*, November 21, 1883 (*s.v.* M. Church).

3015b. Uterus with the placenta *in situ*, removed by the utero-ovarian Cæsarian operation of Porro. The placenta is adherent to the posterior wall of the uterus. The rugæ of the contractions of the peritoneum over the contracted uterus are plainly visible.

F., dwarf, æt. 24, whose pelvis had been smashed when she was four years of age. The conjugata vera measured about $1\frac{1}{2}$ inches. Mother and child survived. Nine months after the operation the mother appeared to be in perfect health. She had not menstruated. The case is published by Dr. C. Godson in the *British Medical Journal*, vol. i. (1884), p. 142.

SERIES XLVI.

DISEASES AND INJURIES INCIDENTAL TO GESTATION AND PARTURITION.

3072b. Uterus and Ovaries, showing an early tubal pregnancy. The right Fallopian tube is seen to be dilated at a point near to the uterus. The sac measures $\frac{3}{4}$ inch in length; it is thinner at its upper and anterior surface, thicker posteriorly. On its posterior surface is a small aperture marking the seat of rupture. The sac contains a little shreddy débris, which may be the remains of the chorionic villi. The uterus measures $3\frac{1}{4}$ inches externally and $2\frac{3}{4}$ inches internally. There is a decidua vera, and the cervix is plugged with mucus. No obstruction was found in the Fallopian tubes.

F. æt. 28, who had missed one menstrual period. She was suddenly seized with great abdominal pain. When seen, she was pallid but conscious; the abdomen was slightly distended and tender; the vagina was inverted round the cervix. The patient died from hæmorrhage into the abdomen fifteen hours after the first symptoms.

Presented by F. W. Strugnell, Esq.

- 3102b.** The Parietal Bones of a child aged $2\frac{1}{4}$ years, showing a well-marked depression of the outer table of the left parietal.

The child was delivered by forceps, and it is supposed that the indentation was caused by this means.

See *Mary Ward Book* (1885), p. 468, and *Post-Mortem Book*, vol. xi. p. 355.

SERIES XLVII.

DEFORMITY OF THE PELVIS.

- 3129a.** A slightly oblique, flattened, rachitic Pelvis, from a woman upon whom Porro's operation was performed. Diameters—Conjugate, 2 inches; transverse, 5 inches; right oblique, $4\frac{1}{2}$ inches; left oblique, $4\frac{1}{4}$ inches; antero-posterior of outlet, $4\frac{1}{4}$ inches; transverse of outlet, 4 inches; posterior spines, 2 inches; crests, $9\frac{1}{2}$ inches; spines, 10 inches. Angle, 100° .

SERIES XLVIII.

DISEASES OF THE MAMMARY GLAND.

- 3159a.** An Adenoma of the Breast. The tumour measures 3×2 inches. It is a fine specimen of a true adenoma. It is completely encapsuled. Its anterior surface is roughly divided by a constriction into two lobes. The larger of these lobes is studded with nodules as in a case of "hobnail liver," whilst the smaller is smooth. On making a section of the tumour whilst fresh, it appeared pearly white like a normal mammary gland. It did not contain any cysts.

The tumour was removed from the pectoral border of the mammary gland of a lady who was four months pregnant. It had been noticed for five months. Three months before excision it was so soft that it appeared to be cystic; it was punctured, but no fluid was withdrawn. The father and father's mother died of cancer. Sections are preserved in Series lv. No. 142a. See *Transactions of the Pathological Society*, vol. xxxvi. (1885), p. 411.

Presented by A. Willett, Esq.

- 3181f.** Scirrhus of the Breast, removed as a slough after treatment by caustics.

The skin was first destroyed by concentrated nitric acid, and a paste of zinc chloride was applied daily to the cancerous mass. The furrows in the slough are the result of incisions made to facilitate the action of the chloride of zinc. The slough came away five weeks after the first application of the nitric acid.

Presented by Howard Marsh, Esq.

- 3185c.** Portion of a Breast affected with colloid cancer.

F. æt. 35. Growth first noticed four years previously. For further details see *Female Surgical Register*, vol. i. (1884), No. 1648. A section is preserved in Series lv. No. 153d.

SERIES XLIX.

ATROPHY OF THE BONE OF A STUMP AFTER
AMPUTATION.

- 3194a. The Head of a Humerus showing an extreme degree of rarefying osteitis.

From a man aged 34, whose arm had been amputated sixteen months previously on account of gangrene. The gangrene followed a Colles' fracture. It was found after amputation that the radial artery had been obliterated owing to a stab received ten years previously.

See *Surgical Registrar's Report* (1883), Appendix, p. 73.

SERIES L.

GENERAL PATHOLOGY.

- 3235d. A Hand affected with moist gangrene, resulting from embolism of the arteries.

See *Male Surgical Register*, vol. i. (1884), No. 3637.

- 3264a. A Tumour removed from the scalp over the left parietal bone by a series of ligatures. The operation of removal occupied over four months. After removal it weighed $2\frac{1}{2}$ lbs.

The tumour consists of fibrous tissue. It is very vascular. A section is preserved in Series lv. No. 116b.

Presented by F. F. Andrews, Esq., M.D.

- 3284a. A large Fibrous Tumour.

- 3294a. A Sarcoma of somewhat unusual shape, which grew beneath the skin of the left side of the neck.

F. æt. 36. First noticed six months previously. Recurrence took place before the wound healed. A drawing is preserved in Series lvii. No. 556a, and a cast in Series lvi. No. 212(a).

For further details see *Female Surgical Register*, vol. iv. (1885), No. 2362.

- 3375b. A multilocular cystic Tumour of Finger. It consists of soft fibrous tissue containing one or two small cysts.

J. W., æt. 7. The tumour extended over the first phalanx and over half the second phalanx of the left ring-finger on its dorsal aspect. It measured an inch in length by half an inch across. It rose about three-quarters of an inch above the finger. It presented an ill-marked sense of fluctuation. It was painless, and had been noticed from birth.

Presented by Stephen Paget, Esq.

SERIES LI.

INSTRUMENTS PRODUCING INJURIES.

- 3385a. Stick which was driven through the left orbit, fracturing the right lesser wing of the sphenoid and passing into the right lateral ventricle of the brain.

See also *Surgical Registrar's Report* for 1883, Appendix, p. 78.

3386a. A Halfpenny which was passed per anum after being swallowed.

J. S., æt. 9, swallowed the coin at 5.30 p.m. on July 27th, passed it at 9 p.m. on July 29th; he was fed on figs and porridge.

Presented by W. T. Strugnell, Esq.

SERIES LIII.

CALCULI AND OTHER CONCRETIONS FORMED IN THE DIGESTIVE ORGANS.

274a. Biliary Calculi. The larger of the two is $1\frac{1}{2}$ inches long and 1 inch in thickness; it is cylindrical, and is faceted at both ends. The smaller one is broken; its rounded extremity fits into the facet in the previous one.

These calculi were passed per anum by a woman who had suffered for ten days previously from constipation. A year before passing these stones the patient had an attack of "congestion of the liver" with intense jaundice, but in the interval she had been free from hepatic trouble. Weight 3 drachms and 28 grains.

Presented by G. H. Fosbroke, Esq., and Montague Smith, Esq.

285a. A Cast in hair of the Stomach of a patient suffering from melancholia. The tape had passed through the pyloric orifice, and lay in the duodenum with the calcareous nodule at its end. The entire mass weighs $12\frac{1}{2}$ ounces.

The specimen was found post-mortem; it was not known that the patient swallowed her hair.

Presented by M. Johnston, Esq.

SERIES LV.

PATHOLOGICAL MICROSCOPICAL PREPARATIONS.

1a. Transverse Sections of the Rib of a lunatic, showing the dislocation of the osseous laminæ.

Illustrating a paper "Upon a Peculiar Condition of the Bones of two Insane Patients who had Fractured Ribs," by E. L. Ormerod, M.D., in the *St. Bartholomew's Hospital Reports*, vol. vi. (1870), p. 65.

2a. Chronic inflammation of Hyaline Cartilage. The section was prepared from the ulcerated articular cartilage of a knee affected with white swelling.

2b. A Section of Carious Bone.

3b. Bone Cells from an ulcerated surface.

Prepared by E. L. Ormerod, Esq., M.D.

5b. Sections of the Femur, showing the repair which takes place in rickets.

5c. Transverse Section of a decalcified Rib.

5d. Transverse Section of a thickened Femur.

Prepared by E. L. Ormerod, Esq., M.D.

14a. Sections of a Periosteal Sarcoma of the forearm.

See Series i. No. 441a.

14b. Sections of an oval-celled Sarcoma of the humerus.

53c. Sections of an Osteophyte, from a case of osteo-arthritis. The cartilage is becoming fibrillated.

53h. Sections of the Cartilage covering the lower articular surface of the femur, from a case of osteo-arthritis in a patient who had symptoms of locomotor ataxy. The cartilaginous matrix is fibrillated.

See Series ii. No. 691b.

55a. Muscle infested with trichina spiralis.

See Series vi. No. 1176b.

57d. Myeloid Sarcoma of the diaphragm.

57e. Muscle undergoing fatty infiltration.

64b. A portion of the Acromio-Thoracic Axis, showing an infiltration of the external and middle coats, with a round-celled sarcoma.

A portion of the axillary artery is preserved in Series viii.

69a. A Section of a Lung affected with croupous pneumonia.

71a. A Lung secondarily affected with scirrhus cancer.

72a. Section of a small Labial Glandular Tumour.

72b. Section of a Rodent Ulcer of the nose.

73h. A Nasal Polypus, consisting chiefly of connective tissue, and containing many blood-vessels; it is covered by a layer of columnar epithelium.

78b. A Nævus of the tongue. The enlarged vessels appear to be situated in the muscular tissue immediately beneath the papillæ.

79a. Sections of a scirrhus Cancer of the œsophagus.

See Series xv. No. 1846b.

DISEASE OF THE PANCREAS.

83b. Carcinoma of the pancreas.

84a. Myeloid Sarcoma of the stomach.

84b. Cancer affecting the stomach secondarily. The primary growth commenced in the pancreas.

Presented by H. L. Jones, Esq.

86a. Section through a Typhoid Ulcer of the lower part of the ileum at the commencement of cicatrisation.

86b. Portion of Intestine invaded by a growth of encephaloid cancer.

See Series xviii. No. 2018a.

- 86d. Intestine infested with the ova of *Bilharzia hæmatobia*.
- 86e. Section through a portion of Intestine affected with syphilitic ulceration.
- 86f. Section through a portion of Intestine affected with tubercular ulceration.
- 87f. Epithelioma of the Rectum.
- 90k. Cirrhosis of the Liver in a patient who suffered from syphilis.
- 90l. Lympho-sarcoma of the liver.
See Series xxi. No. 2217a.
- 90m. Section of Hypertrophied Thyroid from a case of goitre.
See Series xxvi. No. 2311a.
- 90n. Liver from a case of acute phosphorus poisoning.
- 90o. Carcinoma of the liver.
See *Medical Post-Mortem Book*, vol. xi. p. 42.
- 90p. Endothelioma of the Adrenal.
- 91a. Amyloid disease of the Kidney.
- 92a. Section of a Kidney affected with interstitial nephritis.
- 93c. Kidney of an ox affected with bovine tuberculosis. The tubercle bacilli are well seen.
See Series xxviii. No. 2342a.
- 100a. Section of a pigmented Gliosarcoma of the cerebellum.
Presented by A. Lyndon, Esq.
- 103a. A Round-celled Sarcoma of the cerebellum.
See Series xxx. No. 2468a.
- 104d. Sections of the Medulla showing sclerosis.
From a case of crossed paralysis diagnosed as tumour of the pons: the patient had excessive reflex excitability with scanning speech. Post-mortem no gross lesion was found in the nervous tract.
- 107c. Section through the Spinal Cord in the lumbar region, from a patient who had osteo-arthritis associated with locomotor ataxy. The postero-median columns have undergone a process of degeneration.
See Series ii. No. 691b.
- 107d. Sections taken through the cervical portion of the same spinal cord.
- 110a. Tubercle of the Choroid and Sclerotic.
- 112c. Portion of a Glioma from the eye of a child.
The eye is preserved in Series xxxiii., and a drawing in Series lvii.
- 112d. Sections of an Aural Polypus: it consists chiefly of connective tissue with a large number of cells; it proved, however, to be malignant.
- 113g. A Melanotic Sarcoma growing in the region of the umbilicus.

- 115a. Epithelioma of the forehead of a man.
- 116b. Sections of a diffuse Fibroma of the scalp.
See Series l. No. 3264a.
- 119b. Sections from a Testis affected with tubercle.
- 119c. Sections of a Testis affected with tertiary syphilis (gumma).
See Series xxxvi. No. 2772a.
- 121b. Sarcoma of the Testis.
See Series xxxvi. No. 2796a.
- 123a. Sections through the skin of a prepuce affected with elephantiasis.
- 123b. Sections through a papilloma of the penis.
- 124a. Carcinoma of the prostate.
- 130h. Epithelioma of the cervix uteri.
- 130j. A Sarcoma of the uterus.
See Series xliii. No. 3015a.
- 142a. Sections of a true Adenoma of the breast. The tumour is composed of acini scattered irregularly in a matrix of delicate areolar tissue. The acini are separated by a very small quantity of fibrous tissue. In the central portions of the tumour the acini are very numerous, and the amount of areolar tissue is small, whilst towards the periphery the acini are more widely separated. Each acinus consists of a tube with short lateral diverticula. The tubes are lined by low columnar epithelium, their lumina being occupied by polygonal cells. The lining epithelium has not undergone any degenerative change.
The tumour is preserved in Series xlviii. No. 3159a.
- 142b. Sections of a Fibro-adenoma of the breast.
- 142c. Sections from the central portion of an Enchondroma of the female breast.
- 142d. Section of an Enchondroma occurring in the breast of a bitch.
- 146g. Section of a Sero-cystic Tumour of the breast. The epithelium lining the cysts is well seen. The chief structure of the tumour is connective tissue with numerous cells, some of which are probably sarcomatous.
- 146h. Sections of a Chondro-sarcoma of the breast. It consists of round and oval connective tissue cells with some hyaline and fibro cartilage.
Drawings of the microscopic appearances are preserved in Series lvii. No. 525, a, b, c.
- 149b. Scirrhus of the breast. There is an unusually large quantity of condensed fibrous tissue; it is an example of the "hard scirrhus" of Paget.
- 153d. Section of a Colloid Cancer of the breast.
See Series lviii. No. 3185c.
- 154b. A Section through a Nipple affected with eczema (Paget's disease).

- 156a. Section through scar tissue showing the process of repair by first intention (third day).
- 166b. An alveolar Melanotic Sarcoma.
- 171b. A Rodent Ulcer of the nose.
- 171c. A Rodent Ulcer of the eyelid.
- 176d. A Rodent Ulcer from the pinna of the ear.

SERIES LVI.

CASTS OF DISEASED OR INJURED PARTS.

- 2d. Pelvis and Lower Extremities of a girl, showing the deformities resulting from rickets.
See *Female Surgical Register*, vol. ii. (1885), No. 1292.
- 2e. The Leg and Foot, showing the effects of rickets.
See *Male Surgical Register*, vol. iii. (1885), No. 1967a.
- 13d. Casts of Fronts of Right and Left Legs of a case of periostitis following typhoid fever. The nodes appeared on recovery from the fever, five weeks before admission; they were accompanied by shooting pain in the legs. Rest and diet reduced them somewhat in three weeks, and the patient was discharged. A week of poor diet brought the nodes back almost larger than before, and these casts were taken on readmission. There was no history of syphilis. Large doses of iodide of potassium had no effect on the tumours.
- 20c. Cast of Knee from a case of osteo-arthritis in a patient who had tabetic symptoms (Charcot's disease).
The knee itself is preserved in Series ii. No. 691b.
- 20e. Cast of Knee from a case of Charcot's disease.
The knee itself is preserved in Series ii. No. 691c.
- 20f. Cast of Knee affected with Charcot's disease.
See *Female Surgical Register*, vol. ii. (1885), No. 1823.
- 20g. Cast of the Knee of a patient suffering from chronic osteo-arthritis.
See *Male Surgical Register*, vol. v. (1885), No. 1004.
- 23c. Cast of Right Hand of a patient affected with gout.
- 23d. Cast of the Hands of a patient affected with gout.
- 31a. Right Foot and Leg. The seat of an old Pott's fracture. The tendo-Achillis was divided, and osteotomy of the external malleolus was performed. The astragalus was also excised, and the internal malleolus was separated.
See *Male Surgical Register*, vol. iii. (1885), No. 1044.
- 45a. Cast of the Wrist of a patient whose ulna was dislocated, and whose radius was fractured an inch above its carpal extremity.

- 47a. Cast of the Pelvis from a patient with double congenital dislocation of the hip.

M. æt. 24. The cast was taken whilst the patient was in a recumbent posture.

- 68c. The Two Hands of a woman who had a collection of fluid in the sheaths of the flexor and extensor tendons.

See *Female Surgical Register*, vol. i. (1885), No. 849.

- 69a. Cast of a Leg from a man who had a large intermuscular cyst in the calf connected with the knee-joint.

See *Male Surgical Register*, vol. iv. (1884), No. 2247, and *Transactions of the Pathological Society*, vol. xxxvi. (1885), p. 340.

- 70a. Cast of a Knee showing a greatly enlarged bursa patellæ.

- 75a. Cast of a Foot with talipes calcaneus.

See *Female Surgical Register*, vol. iii. (1884), No. 1811.

- 85d. Cast of a Case of Talipes Equino-varus. A portion of the tarsal arch was subsequently removed.

- 94a. Foot of a patient affected with Talipes cavus.

See *Male Surgical Register*, vol. iii. (1885), No. 3739.

- 97b. Casts of the Feet of a patient with Talipes calcaneus before and after section and suturing of the tendo-Achillis.

- 98a. Cast of a case of Aortic Aneurysm pointing through the thoracic wall.

The aneurysm is preserved in Series viii. A drawing in Series lvii. No. 105a.

- 102c. Cast of the Face of a man showing a lateral deviation of the septum of the nose.

- 144a. Cast of Hand from a patient, the fingers of whose right hand were contracted after inflammation. An old wound of the median nerve had been followed by partial ankylosis of the phalangeal joints, with trophic changes in the skin of the nails and muscles.

See *Male Surgical Register*, vol. i. (1884), No. 3336.

- 144b. Cast of Hand from a patient whose ulnar nerve had been divided eight months previously.

See *Male Surgical Register*, vol. iii. (1884), No. 570.

- 172d. Cast of the Hands of a patient suffering from chronic rheumatism.

- 187a. Cast of the Abdomen of a woman who suffered from an ovarian cyst. At the level of the umbilicus the girth was sixty-two inches.

Sixty-four pints of dense ovarian fluid were drawn off: the cyst refilled, and forty-five pints were withdrawn; at a third tapping fifty pints were removed. Death resulted from supuration of the sac.

- 212a. Painted Cast of a Round-cell Sarcoma growing immediately below the lobule of the ear in a young woman.

The sarcoma is preserved in Series l. No. 3294a. A drawing is preserved in Series lvii. No. 556a.

SERIES LVII.

DRAWINGS AND PHOTOGRAPHS.

- 31a. Sarcoma of the Forearm in a child aged 9 months.
The specimen is preserved in Series i. No. 441a.
- 34b. The Calvarium of a child aged 8 months, showing a traumatic cephalhydrocele.
The specimen is preserved in Series iii. No. 881a.
- 39a. A Knee-Joint in a state of acute inflammation, from a puerperal woman.
See *Female Surgical Register*, vol. iii. (1884), No. 2226.
- 39b. A Knee-Joint showing the results of acute suppuration.
- 40a. Pulpy degeneration of the Knee-Joint.
- 45b. The Popliteal Space, showing an intermuscular synovial cyst.
- 45c. The Posterior Aspect of the Leg, showing an intermuscular synovial cyst.
- 45d. The Head and Part of the Shaft of the Humerus from a case of arthritis resulting from the suppuration of an intermuscular synovial cyst.
The three preceding drawings illustrate a paper in the *Pathological Society's Transactions*, vol. xxxvi. (1885), p. 335.
The specimens are preserved in Series vi. No. 1205a, b, and c.
- 45e. The Elbow of a patient showing an intermuscular synovial cyst.
- 45f. Arm showing the deformity produced by osteo-arthritis in a patient with tabes dorsalis.
- 45g. Right Knee-Joint from a patient aged 50, the subject of marked locomotor ataxy.
- 45h. The same Joint laid open to show the changes which have taken place in the bones.
- 45i. Another view of the same Joint laid open.
- 45k. A side view of the same Joint laid open.
The preceding specimen was shown at the Clinical Society. See *Transactions of the Clinical Society*, vol. xviii. (1885), p. 50, iv, and v. pl.
The specimen is preserved in Series ii. No. 691b.
- 45l. The Right Knee-Joint of a patient who suffered from osteo-arthritis, and who had well-marked symptoms of locomotor ataxy.
- 45m. The Left Knee-Joint of the same patient.
The two preceding joints are preserved in Series ii. Nos. 691c and d.
- 45n, o. Drawing of various Joints with deposits of urate of soda.

- 45p, q, r. Knee and Ankle Joints from a case of hæmophilia.
The joints are preserved in Series ii. Nos. 740b, c, d.
- 68a. Back of a Girl showing well-marked lateral curvature.
- 105a. Aneurysm of the Arch of the Aorta which has ruptured externally.
The specimen is preserved in Series viii., and a cast in Series lvi. No. 98a.
- 112b. An unusual form of Nævus.
- 172g. The Gums and Tongue from a case of lead-poisoning.
See *Hope Ward Book*, 1884.
- 175b. Hypertrophy of the Gums.
- 178b. Cancer of the Tongue.
- 187a. Dyspeptic Ulcers of the Tongue.
- 221a. Stomach from a case of poisoning by corrosive sublimate.
- 244b. A Photograph of Dysenteric Ulceration of the Intestine.
- 260b. A Case of Strangulated Hernia into the fossa intersigmoidea.
See *British Medical Journal*, vol. i. (1883), p. 1195.
- 260c. A Case of Obturator Hernia.
- 260d. A second Obturator Hernia occurring in the same case.
See *Transactions of the Pathological Society*, vol. xxxiv. (1883), p. 109.
- 260e. A Case of Encysted Hernia, showing the sac invaginated into the imperfectly obliterated funicular portion of the tunica vaginalis.
See *Transactions of the Pathological Society*, vol. xxxvi. (1885), p. 216. The specimen is preserved in Series xx. No. 2140c.
- 260f. An Ovary laid open. It was found in an inguinal hernia in a woman aged 25.
- 260g. Diaphragmatic Hernia. The greater part of the transverse colon lay in the thorax.
- 260h. Ulceration of the Vermiform Appendix.
See *Male Surgical Register*, vol. iv. (1885), G. Beale.
- 263b. Condylomata round the anus of a child.
- 288a. Lymphangectasis in the Abdomen of a woman who had a large ovarian tumour.
- 292a. Photograph of a recent Splenic Infarct.
- 305g. The Face of a Girl who had Addison's disease.
- 324a. A Kidney showing a condition of acute pyonephrosis. The ureter is blocked by a calculus, and several calculi are seen lying in the sacculi.
The specimen is preserved in Series xxviii.

329b. Four Drawings of the Urine from a case of nitric acid poisoning. The urine (1) was passed about 20 hours after the nitric acid had been swallowed.

M., æt. 29, died in 100 hours after drinking 5i of strong nitric acid.
See *Transactions of the Clinical Society*, 1886.

335b. Acute inflammation of the brain substance.

339a. An unusual form of Cerebral Hæmorrhage. The bleeding has taken place into the right corpus striatum. The straight sinus and the left vena Galeni are plugged.

From a woman aged 25, who was brought to the Great Northern Hospital in a comatose condition, and so continued until her death five days afterwards. There was no history of injury.

353a, b, c. Photographs of the Cerebral Hemispheres from a case of aphasia, in which the chief lesions were seated in the supramarginal and angular gyri; Broca's convolution being unaffected.

The brain is preserved in Series xxx. No. 2530a.

370a. A Section through the Cerebral Hemispheres to show the position of the tumours in a case of multiple sarcoma of the brain.

See *Transactions of the Pathological Society*, vol. xxxvi. (1885), p. 120.

388c. The Hands of a patient whose left median nerve had been divided nine months previously. There are well-marked trophic changes in the left hand. The right is normal.

392a. A Melanotic Tumour growing from the left eye of a child aged 2 years.

395c. Horizontal section of an Eye to show a glioma springing from the optic nerve.

395d. A Melanotic Sarcoma growing from the sclerotic.

See *Eye Wards' Register*, 1884, Case No. 1286.

402b. Acne Keloid in a man aged 47. The disease had existed about four years.

415b. Erythema Multiforme on the arm of a child.

No. 95 in Register of Skin Cases (1880).

423a, b. Two Photographs of a case of Herpes Zoster affecting the flank. The numbers refer to the ribs.

438a. A Syphilitic Ulcer of twenty years' duration, occurring on the radial side of the carpus.

The arm is preserved in Series xxxv.

441a. The Arm of a Man who was supposed to have been vaccinated with lymph taken from a syphilitic child.

441b. Drawing of an Eruption which appeared in a child after vaccination.

465c. Lupus Lymphaticus occurring in the axilla of a young woman.

- 465d. An unusual form of Lupus occurring on the chin of a child.
See *Female Surgical Register*, vol. iii. (1884), No. 2150.
- 470b. Epithelioma affecting the nose of a man.
See *Male Surgical Register*, vol. i. (1885), (s.v. F. Finn).
- 470c. Rodent Ulcer affecting the nose.
M., æt. 70. The ulcer was of 25 years' duration. See *Male Surgical Register*, vol. ii. (1885), (s.v. T. Parsons).
- 504a. Hypertrophic elongation of the Cervix Uteri protruding from the vagina.
- 516b. The Bladder and Uterus from a case of serous perimetritis.
The specimen is preserved in Series xliii. No. 2951a.
- 517a. Prolapse of vagina.
See *Female Surgical Register*, vol. iii. (1885.)
- 525a, b, c. Drawings of the histological appearances presented by a case of chondro-sarcoma of the breast.
A section is preserved in Series lv. No. 146h.
- 531c. Eczema of the left nipple.
- 538d. A Moist Gangrene of the hand.
See *Male Surgical Register*, vol. i. (1884), No. 3637.
- 556a. An unusual form of Round-celled Sarcoma, occurring at the angle of the jaw in a young woman.
A painted cast is preserved in Series lvi. No. 212a. The specimen itself in Series l. No. 3294a.
- 605a, b. Photographs of a Girl aged 15, who had recovered from hip-joint disease, the hip being anchlyosed in a faulty position.
606. Photograph of a Boy who suffered from the effects of infantile paralysis.
607. Photograph of a young Man whose left shoulder and forearm were wasted as a result of infantile paralysis.

TERATOLOGICAL CATALOGUE.

SERIES I.—ABNORMAL CONDITIONS OF AXIS.

CLASS II.—DUPLICITY.

POSTERIOR DICHOTOMY.

- 3408a. A Monstrous Pig. The head and neck and the thoracic organs are single. Two forelegs are normally situated, the other two project upwards from the scapular region. The abdominal organs are double, and there are two backbones. The hind-quarters are distinct.

Presented by Crawford Duncan, Esq.

SUB-CLASS II.

HOMOLOGOUS UNION.

3412a. Portions of an "attached foetus."

The mass was attached to the child, so that it lay with its long axis in the same direction as that of the child. It contains plenty of cartilage and bone, which appear to have grown from the spinous processes of two of the lumbar vertebrae of the child.

When the specimen was fresh, it presented a rounded mass of skin, which appeared to be a head. On each border of this rounded mass was a row of tubercles arranged longitudinally, one set appearing to represent the face, whilst a mass of tissue below the neck might be the lungs.

Presented by J. Mason, Esq., M.B.

TERATOLOGY.

SERIES I. AND II.

ABNORMAL CONDITIONS OF THE AXIS AND LIMBS.

SPINA BIFIDA AND CONGENITAL TALIPES.

- 3480a. The lower half of the body of a foetus at full term, with a sloughing spina bifida in the lumbo-sacral region and extreme varus of both feet. The astragalus of the right foot has been exposed in such a manner as to show that its articulating surfaces have become considerably modified.

The dissection was made by S. G. Shattock, Esq., who has described the specimen in the *Transactions of the Pathological Society*, 1884, Case 6, vol. xxxv. p. 423.

- 3488a. An adult Sacrum in which the spinal canal is unclosed in its whole extent.

Presented by E. V. Hugo, Esq.

SERIES II.

ABNORMAL CONDITIONS OF THE LIMBS.

- 3499a. A Supernumerary Fifth Toe. The base presents three articular facets each covered with cartilage.

Presented by A. Lyndon, Esq.

CLASS I.—VARIATION.

(c.) *In the Pelvic Girdle.*

- 3500a. The Os innominatum. No round ligament existed in either hip-joint; and in place of the usual attachment of the ligament to the head of the femur an elevation of bone existed; in all other respects the bones appear natural. It is believed that the absence of the ligaments was congenital. (Case in top gallery.)

A. 155.

- 3508a. Leg and Foot. The tibia is congenitally absent. The fibula articulates with the outer and anterior aspect of the external condyle of the femur, its head being received into a depression lined by articular cartilage and provided with a distinct synovial cavity which was continuous with that extending between the condyles beneath the patella. Both the external and internal semilunar cartilages were present, and were invested with synovial membrane. The foot is in a condition of extreme equino-valgus.

See *Darker Ward Book*, vol. ix. (1883), p. 108.

SERIES III.

ABNORMAL CONDITIONS OF THE OSSEOUS AND MUSCULAR SYSTEMS.

- 3522a. Skull of an adult European. The right half of the atlas is firmly ossified to the occipital condyle. (Case in top gallery.)

Presented by E. J. Woodward, Esq., per Dr. Duckworth.

- 3524a. Bony nodules in the lineæ transversæ. The small nodules appear to represent rudimentary abdominal ribs.

For further details see a paper by C. B. Lockwood, Esq. in the *Transactions of the Pathological Society*, vol. xxxvi. (1885), p. 359.

SERIES IV.

ABNORMAL CONDITIONS OF THE HEART.

CLASS V.—ARREST OF DEVELOPMENT.

- 3601a. Heart of a Child aged 3 years. The right ventricle is greatly hypertrophied, the left being of normal size. The tricuspid and mitral valves are natural. The pulmonary artery is given off normally. At its root the external measurement is barely a quarter of an inch. Internally the valves are represented by a small cone projecting into the artery, with a perforation at its apex no larger than a medium-sized pin. The aorta is larger than natural, and measures three-quarters of an inch across at its origin. The valves are normal. The orifice of the aorta communicates freely with both ventricles; it is exactly over a circular orifice at the top of the ventricular septum, about three-quarters of an inch in diameter. The foramen ovale is widely open.

From a child who during life was deeply cyanosed, with general dilatation of the superficial veins. When the heart's action was irregular no murmur could be heard, but when it was beating quietly a systolic murmur was audible, which was most distinct between the left nipple and the sternum. The child died with necrosis of all the tissues of the right cheek, including a small piece of the superior maxilla. The fingers and toes were clubbed.

A drawing is preserved in Series lviii. No. 101a, showing the rash of measles modified by cyanosis.

See *Transactions of the Pathological Society*, vol. xxxvi. (1885), p. 176.

SERIES VI.

ABNORMAL CONDITIONS OF THE DIGESTIVE
ORGANS.

CLASS V.—ARREST OF DEVELOPMENT.

- 3638b. Diverticulum in small intestine about three feet from the ileo-cæcal valve. The diverticulum is of unusual size, measuring nearly two inches in length.
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SERIES VII.

ABNORMAL CONDITIONS OF THE URINARY
ORGANS.

CLASS I.—VARIATION.

- 3651a. A Horse-shoe Kidney.
- 3660a. A Malformed Kidney resulting from the fusion of the two organs. The arterial supply remains distinct, and there are two ureters.
- 3660b. A single Kidney, situated lower than the usual position, as it lies between the two common iliac arteries. The kidney possesses two ureters. It derives its arterial supply from a branch of the arteria sacra media. The aorta is extensively diseased.
-

SERIES VIII.

ABNORMAL CONDITIONS OF THE GENERATIVE
ORGANS.

CLASS V.—ARREST OF DEVELOPMENT.

- 3673a. A Uterus Bicornuatus with single cervix.

From a patient aged 40, mother of ten children.

Further details and plate will be found in the *Obstetrical Society's Transactions*, vol. xxvi. (1884), p. 184.

Presented by J. Matthews Duncan, F.R.S.

- 3673a. Deciduous fleshy substance, whole at the time of expulsion, which took place thirty hours after delivery of the patient, whose uterus is preserved in the preceding specimen.

A similar substance had been voided at each of the eight previous labours.

ANATOMICAL AND PHYSIOLOGICAL CATALOGUE.

SERIES VII.

THE TEETH.

- 135a. The Skull of a young Calf, to show the deciduous dentition.

Presented by Norman Moore, Esq., M.D.

SERIES VIII.

(A.) HUMAN OSTEOLOGY.

- 204a. Dried Skull of a New Zealand chief, tattooed.

Presented by George Dunn, Esq.

(B.) OSTEOLOGY OF ANIMALS.

- 331a. Disarticulated Skull of a Cod (
- Gadus morrhua*
-). (In Comparative Osteology Case, first gallery.)

Presented by the Rev. E. C. Russell, M.A.

- 355a. Half the Skeleton of a Pigeon. (In Comparative Osteology Case, first gallery.)

Presented by the Rev. E. C. Russell, M.A.

- 397a. The Os Penis of a Walrus.

xxviii. 173.

- 397b. Sections of the Os Penis of a Walrus (
- Trichechus Rosmarus*
-).

xxviii. 174.

- 534a. Transverse Sections through the Skull of a Rabbit.

Presented by the Rev. E. C. Russell, M.A.

SERIES XXXI.

UNIMPREGNATED FEMALE ORGANS OF
GENERATION.

- 1165a. Uterus and Ovaries with the broad ligaments to show the parovaria, which are stained with carmine.

SERIES XXXII.

- 1251a. Umbilical Cord with an unusually complex knot or series of knots.

Presented by C. B. Gabb, Esq.

SERIES XXXIV.

DISSECTIONS OF VARIOUS REGIONS OF THE
HUMAN BODY.

- 1334a. Four Frozen Sections made through the orbit.

A. Suspensory ligament of the eye seen from above. The red rod is placed in the lachrymal duct. The section was made a little below the level of the canthi.

- B. Vertical section made through the centre of the cornea and the optic foramen. The wedge-shaped process, which consists of the upper part of the sheath of the rectus and underneath part of the sheath of the levator palpebræ, is indicated by a blue rod placed between its layers. A red rod is placed inside the capsule of Tenon just above the suspensory ligament. The process which the inferior rectus sends to the inferior oblique is pinned down.
- C. Horizontal section a little above the level of the canthi. The globe is pulled forward to show the interior of the capsule of Tenon, and the loose areolar tissue, "tunica adventitia," has been left. The blue rods are placed beneath the check ligaments of the internal and external recti.
- D. A vertical section through the centre of the cornea and apex of the orbit. The eye has been pulled out of the capsule of Tenon. The "tunica adventitia" has been removed to show the band of fibres, "intracapsular ligament," which holds the rectus to the wall of the orbit; the muscle, owing to the displacement of the sclerotic, is bent as it passes over the ligament. A blue rod has been placed beneath the slip which the inferior rectus sends to the inferior oblique muscle.

1334b. Two Specimens in long bottle.

Upper.—Part of a frozen section of the orbit. The blue rod is placed beneath the tendinous origin of the external, superior, and internal rectus.

Lower.—Part of an orbit. The red rod is placed beneath the tendon of Zinn.

These specimens illustrate a paper by C. B. Lockwood, Esq., upon "The Anatomy of the Orbit" in the *Journal of Anatomy and Physiology*, vol. xx. (1885), p. 1.

Presented and prepared by C. B. Lockwood, Esq.

SERIES XXXVI.

CATALOGUE OF INVERTEBRATA.

CLASS II.—SCOLECIDA.

- 1479a. Head and Proximal Segments of *Bothriocephalus latus*. The head has a chink-like aperture on either side; there are no hooks or suckers.
- 1483a. *Acephalocyst* hydatids, rolled up and compressed in the cyst which was formed around them. Between their membranes are half-dried portions of the secretions of the walls of the cyst. The changes here shown are such as are commonly observed in connection with inflammation of the adventitious cysts formed around hydatids in the liver and other organs.

B. 4 A.

SUB-KINGDOM IV.

ANNULOSA.

- 1524d. Disarticulated Lobster (*Homarus vulgaris*). (In Comparative Anatomy Case on ground floor.)

Presented by the Rev. E. C. Russell, M.A.

- 1524e. The Chelæ of a Lobster, prepared to show the chitinised tendons of the muscles.

Presented by the Rev. E. C. Russell, M.A.

SERIES XXXVII.

CASTS AND MODELS OF NORMAL STRUCTURES
AND CONGENITAL MALFORMATIONS.

- 42a. A Painted Plaster Cast showing the histological appearance of the healthy skin.

- 70a. Left Hand of a Woman who had congenital absence of the entire little finger with an ill-developed thumb.

- 78a. Cast of the Hand of a patient showing a supernumerary little finger.

- 78b. Cast of the Foot of the same patient showing a well developed sixth toe.

98. Cast of Hand and Forearm showing a congenital malformation of the humerus with absence of the radius. The thumb is undeveloped and the carpal bones appeared to be absent with the exception of the unciform process.

See *Female Surgical Register*, vol. iv. (1884), No. 2365.

99. Cast of a Forearm in which there was a congenital shortening of the radius.

100. Foot of a Cretin.

- 100a. Hand of a Cretin.

See *Luke Ward Book*, 1885, No. 823.

101. A Cast of a specimen of well-marked hare-lip, involving the upper jaw, showing a precanine incisor on the left side of the cleft and an extra incisor above the first left incisor on the right of the cleft.

From a native of India who died during a famine.

Presented by C. W. Cathcart, Esq.

102. Cast of Fœtal Head, showing the result of passing through a deformed pelvis.

See Series xlvii. No. 3129(a).

SERIES XXXVIII.

DRAWINGS AND PHOTOGRAPHS OF CONGENITAL MALFORMATIONS AND NORMAL STRUCTURES.

29. A Virgin Uterus at the period of menstruation.

30, 30a. Front and Back Views of a man who had a remarkable cartilaginous development in his true skin.

See *Male Surgical Register*, vol. iii. (1885).

31, 31a, 31b. Photographs of Cretinous Fœtuses.

The specimens are preserved in the *Teratological Series*, vol. ii. Nos. 3492a, b, and c.

ADDENDA TO BOTANICAL COLLECTIONS, 1885.

Rosaceæ.

POTENTILLA TORMENTILLA (*Tormentil*).—Rhizomes, formerly used for their astringent properties.

Myristicaceæ.

MYRISTICA OFFICINALIS.—The fruit, showing seed (nutmeg) and mace (aril).

Liliaceæ.

LILIUM AURATUM.—Aërial bulbs on the stem, similar to those usually borne by *Lilium bulbiferum*.

Gramineæ.

FLOUR.—White Hungarian flour contains a large percentage of starch with but little gluten, and is the least nutritious. Granular wheat-meal—or whole meal as ground by Dr. Morfit's process—contains the entire ingredients of the grain, excepting the outermost (fibrous) skin, being made from decorticated wheat. This is the most nutritious form of wheat-meal.

APPENDIX.

TULIP with a pistilloid perianth.

CLEMATIS, fl. pl., with petals foliaceous.

ROSE, with foliaceous calyx and proliferous, bearing a central flower-bud in place of the pistil.

PEARS.—Proliferous axes (internodes) only, without a trace of an ovary.

HORSE-CHESTNUT, root with embedded stones.

PICEA LASIOCARPA grafted on *Picea pectinatu* (Silver Fir).

EXAMINATIONS, 1883-84.

Lawrence Scholarship and Gold Medal—

S. H. HABERSHON.

*Brackenbury Medical Scholarship—*Æq. { A. H. GARROD.
G. C. MURRAY.*Brackenbury Surgical Scholarship—*

W. T. H. SPICER.

*Senior Scholarship in Anatomy, Physiology, and Chemistry—*Æq. { W. G. SPENCER.
F. W. ANDREWES.*Open Scholarships in Science—*Æq. { F. M. BROWN.
J. G. C. COLBY.
Æq. { H. G. ADAMSON.
S. BLACKMORE.*Preliminary Scientific Exhibition—*Æq. { J. WILKIE.
H. SYMONDS.*Jeaffreson Exhibition—*

S. WILKIE.

Kirkes Gold Medal—

S. H. HABERSHON.

Bentley Prize—

A. G. FRANCIS.

Hichens Prize—

H. D. ROLLESTON.

Wix Prize—

F. W. ANDREWES.

Harvey Prize—

1. F. W. ERIDGE-GREEN.
2. W. H. HAMER.
3. C. H. HANDS.

4. W. H. R. RIVERS.
5. W. W. L. M'LEAN.
6. R. BALGARNIE.

PRACTICAL ANATOMY.

SENIOR.

*Foster Prize—*F. W. ERIDGE-GREEN.

2. M. C. MOXHAM.
3. O. C. P. EVANS.
4. M. LAING.
5. { W. H. HAMER.
J. R. MACKENZIE.
7. H. DEACON.
8. F. HEASMAN.
9. F. ENGLEBACH.

JUNIOR.

*Treasurer's Prize—*T. J. DABELL.

2. H. HUXLEY.
3. T. J. LISSAMAN.
4. J. J. G. COLBY.
5. A. LUCAS.
6. A. G. HENDLEY.
7. H. B. CARDEW.
8. { W. G. WILLIAMS.
E. L. HAYNES.
10. F. S. J. LULHAM.
11. R. BIRD.

EXAMINATIONS, 1884-85.

Lawrence Scholarship and Gold Medal—

W. G. SPENCER.

Brackenbury Medical Scholarship—

W. J. GOW.

Brackenbury Surgical Scholarship—

L. M. GABRIEL.

Senior Scholarship in Anatomy, Physiology, and Chemistry—

J. WILKIE.

Open Scholarships in Science—

B. PIERCE.

Æq. { R. PICKARD.
E. N. REICHARDT.*Preliminary Scientific Exhibition—*

R. G. ELLIOTT.

*Jeaffreson Exhibition—*Æq. { H. G. COOK.
W. A. MURRAY.*Kirkes Gold Medal—*

W. J. GOW.

*Prox. accessit—*W. G. SPENCER.*Bentley Prize—*

A. M. GLEDDEN.

Hichens Prize—

E. H. HANKIN.

Wix Prize—

M. O. MASON.

Harvey Prize—

1. E. H. HANKIN.
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ST. BARTHOLOMEW'S HOSPITAL REPORTS.

VOLUME XXI.

INDEX.

- ABSCCESS, cerebral, from a fall, with optic neuritis, 228.
 " in thigh after typhoid fever, 115.
 " of liver, with parametritis, 173.
 " parotid in typhoid fever, 112, 114.
Abscesses, abdominal, 242.
Agoraphobia, its cause, 5.
Alum-whey in typhoid fever, 117.
Anæmia of the brain in the insane, 12.
Anatomy, topographical, of the spinal cord, 137.
Andrewes, Mr., on glycogen, 239.
Aneurysm of aorta, abdominal, 220.
 " " dissecting, 215.
 " thoracic, 219.
 " " treated on Tufnell's system, 220, 222.
 " pulmonary, 52, 54, 55, 57.
 " " cure of, 57.
 " " facts connected with, 52.
Ankle-joint, synovial cyst in communication with, 187.
Aorta, aneurysm of. See Aneurysm.
Aortic obstruction, case of, 90.
Ataxia, locomotor, with abnormal symptoms, 97.
- BACILLUS of tubercle in tumours of the larynx, 40, 43, 44.
 " " present in old specimens of lung disease, 45.
Baker, Mr., on abnormal synovial cysts in connection with joints, 177.
Bilharzia, length of life in man, 91.
 " ova and embryo, cases of, 90.
 " situations of the ova, 92.
 " use of santonin in the treatment of, 92.
 " vesical calculi due to, 91.
Blindness following optic neuritis, 225, 228.
- VOL. XXI.

Blood, condition of, in coal-gas poisoning, 78.
 Blood-letting, its utility in various diseases, 243.
 Body, rate of cooling of, after death, 252.
 Bones, metacarpal, with bosses in lead-poisoning, 169.
 Boro-glyceride as a remedy in pruritus, 119.
 Bosses on the metacarpal bones in lead-poisoning, 69.
 Breath sounds in health and disease, 191.
 Brinton, Mr., on blood-letting, 243.
 Bubo, parotid, in typhoid fever, 112.
 Bullar, Dr., on the breath sounds in health and disease, 191.
 Butlin, Mr., on some diseases of the larynx, 145.

CALCULI in cases of bilharzia, 89, 91.

„ of uric acid, 89.

Calculus, renal, 122, 126.

Casualty department, variola in, 131.

Catalepsy in the insane, 20.

Cavities in the lung, effect on the respiratory sounds, 201.

Church, Dr., cases from his wards, 211.

„ note on the Six Gifts of Theophilus Philanthropos, 231.

Coal-gas poisoning, artificial respiration in, 74.

„ „ coma in, 76.

„ „ condition of the blood in, 78.

„ „ „ pupils in, 77.

„ „ inhalation of oxygen in, 74, 78.

„ „ percentage of, in air to produce symptoms, 75.

„ „ three cases of, 73.

Cocaine, its action on the eye, 237.

Collins, Dr., on cocaine, 237.

„ physiognomy and phrenology—what are they worth?
 244.

Collyns, Mr., on optic neuritis, 238.

Coma in coal-gas poisoning, 76.

„ its definition, causes, &c., 249.

Combes, Mr., on quacks and quackery, 248.

Consolidation of the lung, its effect on the respiratory sounds, 200.

Copaiba rash simulating variola, 136.

Crouch, Mr., on mesmerism, 245.

Cysts, abnormal synovial, in connection with joints, 177.

DEATH, rate of cooling of body after, 252.

Decubitus, sacral, 140.

Diarrhoea, infantile, 242.

Diphtheria, method of removing membrane from trachea in, 84.

Duckworth, Dr., clinical contributions to practical medicine, 105.

ELBOW-JOINT, synovial cyst in connection with, 184, 185.

Enteric fever. See Fever, typhoid.

Epileptics, suicide in, 3, 7.

Epithelioma of ala of nose, 151.

„ pelvis of kidney, 127, 129.

Expectoration, its desirability in lung disease, 120.

FARADISATION in typhoid fever, 107.

Fat, free, in urine, 117.

Femur, osteotomy of, 65.

„ re-fracture of, 68.

Ferguson, Dr., on the nature and origin of rodent ulcer, 101.

Fever, enteric. See typhoid.

„ typhoid, abscesses in thigh after, 115.

„ „ faradisation in, 107.

„ „ followed by bacillary phthisis, 115.

„ „ hæmaturia in, 105.

„ „ hæmorrhage in, 109.

„ „ loss of speech in, 106.

„ „ parotid abscess in, 112, 114.

„ „ „ bubo in, 112.

„ „ passage of lumbrici in, 109.

„ „ periostitis, following, 107.

„ „ use of alum-whey in, 115.

„ „ „ malt extract in, 117.

„ „ with special symptoms, 111.

„ „ stools, green, in, 110.

Fright followed by somnambulism, 63.

GANGRENE, its causes, 246.

Garrod, Dr., some cases of sclerosis of the spinal cord, 93.

Gee, Dr., memoir of Francis Harris, M.D., xxxiii.

Glycogen, its synthesis and its utilisation, 239.

HABERSHON, Dr., the after-treatment of tracheotomy, 79.

Hæmaturia in enteric fever, 105.

„ two cases of parasitic, 89.

Hæmoptysis, due to pulmonary aneurysm, 52.

„ „ ulceration of the walls of the pulmonary vessels,

53.

„ intermittent, 54, 56, 57.

„ pathology of, 51.

„ profuse non-fatal, 51.

„ relative frequency of, in the different sexes, 52.

„ remittent, 53, 54, 55, 56, 57.

„ suffocative, 53, 54, 55, 57.

Hæmorrhage in typhoid fever, 109.

„ into spinal cord, 140.

Haig, Dr., variola as seen in the casualty department, 131.

- Harris, Dr., on the presence of the tubercle bacillus in old specimens of diseased lung, 45.
- Heart, weak or irregular action of, in the insane, 16.
- Hemiplegia from cerebral abscess, 230.
- „ functional and organic, 238.
- Herpes zoster, symmetrical, 119.
- Herringham, Dr., a case of mental disturbance after operation, 165.
- „ a case of lead-poisoning with bosses on the metacarpal bones, 169.
- Hip-joint, synovial cyst in connection with, 186.
- Homicide in imbeciles, 4.
- „ in the insane, 2.
- „ „ melancholic, 7.
- IMBECILES, homicide among, 4.
- „ suicide among, 4.
- Impulses, destructive, on the forecast of, in the insane, 1.
- Injuries and diseases of the spinal column, 258.
- Insane, catalepsy in, 20.
- „ general paralysis of, cases resembling, 23.
- „ heart disease in, 12.
- „ the destructive impulses in the, 1, 16.
- Intracranial disease with optic neuritis, 223.
- Jessop, Mr., on germiculture, 252.
- Joints, abnormal synovial cysts in connection with the, 177.
- „ injuries in and about, 251.
- KIDD, Dr., note on tuberculous tumours of the larynx, 37.
- Kidney, epithelioma of pelvis of, 125, 127.
- „ removal of, 121.
- „ „ stone from, 126.
- Klein, Dr., on the ætiology of cholera, 260.
- LANKESTER, Mr., on infantile diarrhœa, 242.
- „ „ re-fracture of the femur, 68
- Larynx, department for diseases of the, 145.
- „ tuberculous tumours of, 37.
- Lead-poisoning with bosses on the metacarpal bones, 169.
- Legg, Dr., introductory address to the Abernethian Society, 237.
- Liver, abscess of, with parametritis, 173.
- Lockwood, Mr., on syphilis, 240.
- Locomotor ataxia. See Ataxia.
- Lumbrici, passage of many, in typhoid fever, 109.
- Lung disease, desirability of expectoration in certain forms of, 120.
- „ old specimens of, containing tubercle bacilli, 45.

- MALLEOLUS, external, ganglionic swelling over, 187.
 Malt extract, use of, in typhoid fever, 117.
 Mania after injury to the hand, 166.
 Medicine, clinical contributions to practical, 105.
 Melancholia, suicide and homicide in, 7.
 Meningitis, chronic, with optic neuritis, 223, 225, 228.
 Mental disturbance after operations, 165.
 Mesmerism, 245.
 Moore, Dr., *The Book of the Foundation of St. Bartholomew's*, xxxix.
 " two cases of parasitic hæmaturia, 89.
 Morton, Mr., notes of three cases of coal-gas poisoning, with remarks
 on the symptoms, as illustrated by these and other cases, 73.
 Muscles, electrical condition of, in sclerosis, 95, 96.
- NARES, sarcomatous polypi of, 148.
 Naso-pharynx, adenoid vegetations in, 152.
 Nephrectomy for calculous pyelitis, 121.
 Nephro-lithotomy in calculous pyelitis, 125.
 Nervous disorder, five cases of, 59.
 Neuritis, optic, cases of, 223, 238.
 " " followed by total blindness, 225, 228.
 " " with cerebral abscess, 228.
 " " with chronic meningitis, 225, 228.
 Nose, epithelioma of ala of, 151.
 Nose, feeding through, in tracheotomy, 81.
 " papilloma of septum of, 150.
 Nostril, osseous outgrowth of, 147.
- OPERATIONS, mental disturbance after, 165.
 Optic neuritis. See Neuritis.
 Ormerod, Dr., cases resembling general paralysis of the insane, 23.
 Osteotomy for mal-union of the femur, 65.
 Outgrowths, osseous, of the nostril, 147.
 Oxygen, inhalation of, in coal-gas poisoning, 74, 78.
- PAGET, Mr., on abdominal abscesses, 242.
 Papilloma of the septum of the nose, 150.
 " " trachea, 147.
 Paralysis agitans, tremors of legs and arms resembling, 61.
 " cases resembling general paralysis of the insane, 23.
 Parametritis with abscess of the liver, 173.
 Paraplegia and paranæsthesia, 140.
 " sacral decubitus in, 140.
 " with jumping movements after shock, 62.
 Parotid abscess, 114.
 " bubo in typhoid fever, 112.
 Periostitis following typhoid fever, 107.

- Philanthropos, Theophilus, his Six Gifts, 231.
 Phrenology and physiognomy—what are they worth? 244.
 Phthisis, bacillary, after typhoid fever, 115.
 Physiognomy and phrenology—what are they worth? 244.
 Pneumonia, local, in tracheotomy, 80.
 Poisoning by coal-gas, three cases of, 73.
 Polypi, sarcomatous, of nose, 148.
 Pruritus, boro-glyceride in, 119.
 Pulsus paradoxus, 87.
 Pupils in coal-gas poisoning, 77.
 „ irregularity of, with external strabismus and hysterical stupor,
 59.
 Pyelitis, calculous, nephrectomy for, 121.
 „ „ nephro-lithotomy in a case of, 125.
- QUACKS and quackery, 248.
- RE-FRACTURE of the femur, 68.
 Renal surgery, two contributions to, 121.
 Rodent ulcer, its nature and origin, 101.
 „ „ microscopical characters of, 102.
 Roughton, Dr., parametritis and abscess of the liver, 173.
 „ „ on coma, 249.
- SACRAL decubitus in paraplegia, 140.
 Santonin, its uses in cases of bilharzia, 92.
 Sclerosis of spinal cord, 93.
 „ with unilateral tremors, 94.
 Shaw, Dr. Claye, on the forecast of destructive impulses in the insane, 1.
 Shock followed by paraplegia and jumping movements, 62.
 Shore, Mr., on hemiplegia, 238.
 Shoulder-joint, synovial cyst in connection with, 180, 183.
 Somnambulism following fright, 63.
 Sounds, respiratory, the place of their origin, 192.
 Speech, loss of, in typhoid fever, 106.
 Spicer, Mr., osteotomy of the femur, 65.
 Spinal column, injury and disease of, 258.
 Spinal cord, cases of sclerosis of, 93.
 „ „ crushing of, 140.
 „ „ hæmorrhage into, 140.
 „ „ method of microscopical examination of, 141.
 „ „ mixed tract of, 138.
 „ „ topographical anatomy of, 137.
 „ „ symptoms in typhoid fever, 111.
- Spine, concussion of, 259.
 „ fracture of, 259.
 „ „ with dislocation, 140.

- Strabismus, external, with hysterical stupor, 59.
 Steedman, Mr., on gangrene, 246.
 Stupor, hysterical, with external strabismus, 59.
 Stools, green, in typhoid fever, 110.
 Styan, Dr., cases from Dr. Church's wards, 211.
 Suicide among epileptics, 3, 7.
 ,, in imbeciles, 4.
 ,, ,, melancholia, 7.
 ,, ,, the insane, 2.
 Surgery, renal, two contributions to, 121.
 Synovial cysts in connection with joints, 177.
- THEOPHILUS PHILANTHROPOS, his Six Gifts, 231.
 Theory of the respiratory sounds, 196.
 Thorax, the artificial, 191, 207.
 Tooth, Dr., a contribution to the topographical anatomy of the spinal cord, 137.
 Trachea, method of removing membrane or mucus from, 84.
 ,, papilloma of, 147.
 Tracheotomy, cases illustrating the after-treatment of, 81-87.
 ,, cause of local pneumonia in, 80.
 ,, feeding through the nose in, 81.
 ,, the after-treatment of, 79.
 Trance, condition of, after an operation for hernia, 166.
 Tremors, hysterical, 61.
 ,, of the legs and arms resembling paralysis agitans, 61.
 ,, unilateral, in sclerosis, 94.
 Trismus after nephro-lithotomy, 125.
 Tubercle bacillus. See Bacillus.
 Tumours, tuberculous, of larynx, 37.
 Typhoid fever. See Fever, typhoid.
- ULCER, rodent, microscopical characters of, 102.
 ,, nature and origin, 101.
 Ulceration of the pulmonary vessels, 53, 58.
 Uric acid calculi, 89.
 Urine, charts of the, in calculous pyelitis, 124, 127.
 ,, free fat in, 117.
- VARICELLA, distinction of the rash from variola, 136.
 Variola as seen in the casualty department, 131.
 Vegetations, adenoid, of naso-pharynx, 152.
 Vertebrae, dorsal, fracture and dislocation of, 140.
 ,, eroded by aneurysm of aorta, 219.

- WALLIS, Mr., on injuries in and about joints, 251.
Walsham, Mr., two contributions to renal surgery, 121.
West, Dr., profuse non-fatal hæmoptysis, 51.
 ,, five cases of functional nervous disorder, 59.
Willett, Mr., cases from his wards, 65.
Womack, Mr., on the rate of cooling of the body after death, 252.

THE END.



STATISTICAL TABLES

OF THE

Patients under Treatment

IN THE WARDS OF

ST. BARTHOLOMEW'S HOSPITAL

DURING 1884.

BY

THE MEDICAL REGISTRAR,

SAMUEL WEST, M.D. (Oxon.)—F.R.C.P.;

AND

THE SURGICAL REGISTRAR,

ANTHONY A. BOWLBY, F.R.C.S.



London:

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P R E F A C E.

The Classification of Diseases in the Medical Tables
is that adopted by the College of Physicians in their
Nomenclature of Diseases.

CONTENTS.

	PAGE
PREFACE	iii
Number of Beds	vii
General Statement of the Patients under Treatment during the Year. .	vii
Patients brought in Dead	vii
Number of Post-mortem Examinations	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 1884, with the Results	12
Abstract of Table I.	28
Appendix to Table I.	30

SURGICAL REPORT—

	PAGE
TABLE I.—Showing the Total Number of Cases under Treatment during the Year 1884, with the comparative frequency and mortality of each Disease at different ages	40
Abstract of Table I.	72
Appendix to Table I.	73
Table showing the Surgical Operations performed	83
Statistics of Anæsthetics.	94
Appendix to Table of Surgical Operations performed	95
Sub-Table, showing the Number of Cases of Erysipelas, Pyæmia, &c. .	100
Appendix to the Sub-Table of Erysipelas, Pyæmia, &c.	101
Table of Amputations, with the Percentage of Deaths during the Ten Years from 1875 to 1884 inclusive	102

ST. BARTHOLOMEW'S HOSPITAL.

1884.

Number of Beds in Medical Wards (including 14 for Diseases of Women)	236
" " " Surgical " { including 6 for Diseases of Women and 26 for Ophthalmic Cases }	395
" " " Unassigned	41
	<u>672</u>

(Radcliffe Ward was closed for the last six months of the year.)

GENERAL STATEMENT OF THE PATIENTS UNDER TREATMENT DURING THE YEAR 1884.

Patients remaining in January 1st, 1884 :—

Medical	221	} ... 571	} ... 7,640	
Surgical	...	...	...	...	350
During the year 1884 :—								
Medical	2,888	} ... 7,069		
Surgical	...	...	...	...	4,181

Discharged :—

Medical	2,389	}	... 6,346	}	... 7,640
Surgical	...	...	...	...	...	3,957
Died :—										
Medical	519	}	... 756		
Surgical	...	...	...	...	...	237
a January 1st, 1885 :—										
Medical	201	}	... 538		
Surgical	...	...	...	...	...	337

Patients brought in Dead	27
Number of Post-mortem Examinations	445
or about 4 out of 5.	

OCCUPATIONS OF MALE PATIENTS.

Attendants 3	Cloth worker 1	Gardeners 15
Accountants 4	Coach makers 10	Gasfitters 13
Actor 1	Coachmen 14	General dealers 11
Agents 9	Coal heavers 8	Gilders 2
Artists 3	Charcoal worker 1	Glass cutters 3
Auctioneer 1	Collar makers 3	Glass fitters 2
Asphalte worker 1	Colourmen 2	Glass workers 5
	Commercial travellers 15	Gravedigger 1
Bailiff 1	Commission agents ... 3	Greengrocers 7
Bakers 14	Compositors 18	Grocers... .. 7
Banker 1	Confectioners 4	Grooms... .. 8
Bargemen 4	Cooks 8	Gunsmiths 2
Barmen 14	Coopers 4	Gutta-percha makers... 2
Basket makers 3	Custom-house officers 2	
Bath chairman 1	Cutlers... .. 2	Hairdressers 7
Bill posters 3	Cork cutter 1	Hatters... .. 4
Billiard marker 1	Cricketer 1	Hawkers 42
Blacksmiths 11		Horse keepers... .. 9
Blind makers 2	Decorators 2	Horse-hair dressers ... 3
Boat makers 23	Distiller 1	Housekeepers 16
Boatmen 4	Drapers 17	
Boiler makers... .. 7	Draymen 5	Ink maker 1
Bonnet-shape makers 3	Drovers 5	Instrument makers ... 2
Bookbinders 22	Dustmen 2	Iron workers 10
Boot finishers 17	Dyer 1	Ivory turner 1
Boot-last makers 2		
Boot makers 25	Electro plater... .. 1	Jam maker 1
Box makers 18	Engine drivers 14	Japanners 2
Brass finishers... .. 7	Engineers 31	Jewellers 8
Brewers 10	Engine fitters 11	Joiners... .. 3
Bricklayers 40	Errand boys 31	Jockey 1
Brick maker 1	Engravers 2	
Brush makers 5	Envelope makers 3	Knife grinders 2
Butchers 13		Lawyers 6
Builders 5	Factory hands... .. 7	Law writers 3
Butler 1	Farmers 8	Labourers 391
Bottle makers... .. 6	Farriers... .. 12	Lamplighters 2
Button makers 3	Firemen 3	Last makers 2
	Fishermen 3	Lath renders 2
Cabinet makers 19	Fishmongers 11	Leather cutters 3
Cabmen 42	Fitters 3	Leather dresser 1
Cardboard makers ... 2	Florists 2	Lightermen 6
Card maker 1	Footmen 7	Lithographers 6
Carmen 136	Foremen 4	Locksmith 1
Carpenters 50	French polishers 6	Looking-glass makers 4
Carpet workers 4	Fruiterers 5	
Carriers 6	Furniture makers ... 2	Machinists 3
Carvers... .. 3	Furriers 5	Machine rulers 8
Cellarmen 9		
Chair makers 5	Gamekeepers 3	
Chemists 5		
Clerks 72		
Clock makers 9		

OCCUPATIONS OF MALE PATIENTS (*continued*).

Maltsters 2	Publicans 11	Stokers... .. 9
Masons... .. 15	Pupil teachers... .. 2	Students 12
Mechanics 8	Postmen 5	Surgeons 6
Messengers 17	Poulterer 1	Sweeps 8
Milkmen 4		
Miller 1		
Musicians 7	Ragmen 3	Tailors 25
Match makers... .. 2	Railway porters 13	Tent maker 1
	Rope maker 1	Telegraph clerks 4
		Timekeeper 1
News vendors 5	Sadlers... .. 6	Tin-plate workers 5
Night watchmen 3	Sail makers 2	Tobacconists 3
	Sailors 31	Trimming makers 3
Oilmen... .. 22	Salesmen 2	Turners 10
Omnibus conductors 5	Sawyers 3	Typefounders 3
Ostlers 11	Scavengers 7	
	Schoolboys 401	Umbrella makers 3
	Schoolmasters... .. 2	Undertaker 1
Packers 11	Servants 42	Upholsterers 2
Packing-case makers... .. 4	Sewermen 8	
Painters 50	Shepherds 2	Van boys 18
Paper hangers... .. 2	Shirt maker 1	
Paper folders 3	Shoeblocks 4	Waiters 18
Paper stainers... .. 7	Shopboys 8	Warehousemen 15
Park keeper 1	Shopmen 27	Washermen 3
Pensioners 8	Showman 1	Watch makers... .. 6
Photographers... .. 3	Signalmen 3	Watchmen 2
Pianoforte makers 3	Slaters 3	Waterproofer 1
Picture-frame makers 2	Smiths 5	Weavers 5
Plasterers 7	Soldiers 5	Wheelwrights 4
Platelayers 5	Solicitors 2	Whip makers 3
Plumbers 8	Sorters 3	Writers... .. 7
Policemen 21	Stationers 3	
Polishers 5	Station masters 4	Zinc workers 2
Porters... .. 105	Steel-rail maker 1	
Potmen 9	Stereotypers 3	
Printers 63	Stevedores 10	
Printers' boys 8	Stick makers 5	

OCCUPATIONS OF FEMALE PATIENTS.

Attendants 2	Fish curers 2	Needlewomen 3
Artificial-flower makers 15	Flower makers 2	Nurses (hospital) ... 16
	Flower sellers 3	„ (monthly) 6
	French polishers 2	Nursemaids 5
Bag makers 2	Furriers 2	
Barmaids 9	Fur sewer 1	Paper sorter 1
Bible readers 2		Packers 2
Bookbinders 3	Governesses 6	
Bookfolders 12	Glove makers 2	Rag sorters 4
Bookkeepers 5		Rug maker 1
Boot makers 4	Harlots 91	
Bottlers 3	Hawkers 9	School girls 248
Box makers 12	Housekeepers 9	Sempstresses 17
Broom makers... .. 2	Housemaids 8	Servants 317
Brush drawers... .. 2	Hairdressers 2	Shirt makers 2
		Shopwomen 14
Cabinet maker 1	Ironers 5	
Cap makers 2		Tailoresses 9
Charwomen 22	Lace maker 1	Teachers 8
Cigar makers 3	Laundresses 29	Telegraphist 1
Collar makers... .. 5	Ladies' maids 9	Tie makers 4
Cooks 19	Letter sorter 1	Trimming makers ... 2
Corset makers... .. 3		
Clerks 4	Machinists 18	Umbrella makers ... 4
	Mantle makers 4	Upholstresses 3
Dressmakers 24	Match makers... .. 3	
	Midwives 5	Waitresses 3
Envelope folders ... 4	Milkwomen 3	Ward maids 4
	Milliners 7	White-lead workers ... 2
Factory girls 8	Musicians 3	
Feather makers 3		

MEDICAL REPORT.

TABLE I. (continued).

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TABLE I. (continued).

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TABLE I. (continued).

DISEASE.	Total.	Discharged.		Died.		Under 5.		— 10.		— 15.		— 20.		— 30.		— 40.		— 50.		— 60.		Over 60.	
		M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
DISEASES OF THE CIRCULATORY SYSTEM.																							
Pericarditis ⁽³⁶⁾ ...	4	1	...	2	1	...	1	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...
Morbus Cordis ⁽³⁷⁾ —																							
(a) Congenital ...	4	2	1	1	...	1	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
(b) Aortic ...	31	16	3	11	...	...	...	...	...	1	...	1	...	4	1	3	...	3	1	2	1	...	...
(c) Mitral ...	99	30	43	19	7	1	...	1	2	5	...	5	7	5	14	4	2	7	4	3	1	...	...
(d) Aortic and Mitral ...	23	9	8	5	1	...	...	1	3	1	...	1	...	2	2	1	...	4	2	1	...	...
(e) Dilatation ...	4	2	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(f) Unspecified ...	9	2	2	3	2	...	...	...	...	...	...	1	...	1	...	1	...	1	...	2	1	...	...
Displacement of Heart ...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cardialgia ...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Aneurism ⁽³⁸⁾ —																							
(a) Thoracic Aorta ...	16	5	5	6	...	...	...	...	...	...	...	...	...	...	...	2	2	...	3	4	1	...	1
(b) Abdominal Aorta ...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...
Dilated Aorta ...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Palpitation ...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Exophthalmic Goitre ⁽³⁹⁾ ...	4	...	3	...	1	...	...	...	...	...	...	...	...	2	1	...	...	...	...	1	...	...	...
Thrombosis ...	3	...	3	...	...	...	...	...	...	...	...	1	...	1	...	...	1	...	...	...	...	...	...
Mediastinal Tumour ...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...
	204	74	69	47	14	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

18

[illegible]

DISEASE.	Total.	Discharged.		Died.		Under 5.			— 10.			— 15.			— 20.			— 30.			— 40.			— 50.			— 60.			Over 60.			
		M.	F.	M.	F.	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
						M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
DISEASES OF THE DIGESTIVE SYSTEM.																																	
Stomatitis ⁽³⁶⁾	3	1	1	1	1					1	1																						
Glossitis	1	1	1	1	1																												
Epistaxis	1	1	1	1	1																												
Ozena	1	1	1	1	1																												
Tonsillitis	32	15	17			3	1	1	1	1	2	2	3	2		2	1																
Pharyngitis	1	1	1																														
Stricture of Oesophagus	2			2																													
Dyspepsia	23	10	13	2				1					1	1			1	4		1	3		1	3		3	2						
Vomiting	6		6											3																			
Haematemesis ⁽³⁷⁾	3			1	2																												
Gastritis	10	2	8											1			1	6															
Gastric Ulcer	20	5	15											1			1	2		1	6												
Cancer of Stomach ⁽³⁸⁾	13	2	2	6																													
" of Duodenum ⁽³⁸⁾	1			1																													
Constipation	12	7	5																														
Diarrhoea	19	11	7					2	2		1		2	2			2	1															

TABLE I. (continued).

DISEASE.	Total.	Discharged.		Died.		Under 5.		— 10.		— 15.		— 20.		— 30.		— 40.		— 50.		— 60.		Over 60.	
		M.	F.	M.	F.	Discharged.	Died.	M.	F.	M.	F.	Discharged.	Died.	M.	F.	M.	F.	Discharged.	Died.	M.	F.	Discharged.	Died.
DISEASES OF THE FE- MALE GENERATIVE SYSTEM.																							
Menstruation	1	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Dysmenorrhœa	3	...	3	...	...	...	...	...	...	...	...	2	...	1	...	...	...	...	...	...	...	...	...
Menorrhagia	9	...	9	...	...	...	...	...	...	...	...	...	...	3	...	4	...	1	...	...	...	...	1
Leucorrhœa...	2	...	2	...	...	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...
Cyst of Vulvæ	1	...	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Pruritus Vulvæ	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...
Inflamed Vestibule...	1	...	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Abscess of Labium...	1	...	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Lupus Vulvæ	9	...	9	...	...	...	...	...	...	...	...	...	...	1	...	...	...	5	...	1	...	2	...
Caruncle of Urethra	2	...	2	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...
Urethritis ..	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...
Vaginitis	6	...	6	...	...	...	...	...	...	...	...	...	...	4	...	2	...	...	...	...	...	...	...
Vaginismus ...	4	...	4	...	...	...	...	...	...	...	...	...	...	2	...	1	...	1	...	...	...	...	...
Cervical Catarrh	3	...	3	...	...	...	...	...	...	...	...	...	...	...	...	3	...	...	...	...	...	...	...
Erosion of Cervix ...	1	...	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Hypertrophy of Cervix	2	...	2	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...

TABLE I. (continued).

DISEASE.	Total.		Discharged.		Died.	Under 5.	— 10.	— 15.	— 20.	— 30.	— 40.	— 50.	— 60.	Over 60.
	M.	F.	M.	F.	M.	F.	Discharged.	Died.	Discharged.	Died.	Discharged.	Died.	Discharged.	Died.
DISEASES OF THE FEMALE GENERATIVE SYSTEM (continued).														
Metrorrhagia	1	...	...	...	...	...	...	...	...	1	...	...	...	...
Proidentia	2	...	...	...	...	...	...	...	...	1	...	...	...	...
Metritis	2	...	...	...	...	...	...	...	...	...	...	...	...	...
Parametritis (33)	25	...	...	...	...	...	...	...	1	15	...	...	...	...
Perimetritis	21	...	...	...	...	...	...	...	...	15	...	...	...	...
Fibroid of Uterus (34)	43	...	...	...	...	...	...	...	1	10	...	...	...	...
Polyp of Uterus	8	...	...	...	...	...	...	...	...	...	...	...	...	...
Carcinoma Uteri	21	...	...	...	...	...	...	...	...	2	...	...	...	...
Ovaritis	12	...	...	...	...	...	...	...	...	10	...	...	...	...
Prolapse of Ovary	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Ovarian Tumour (see Surgical Tables)	8
Pelvic Haematocle	2
" Tumour	1
" Abscess	2	1

24

24

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ABSTRACT OF TABLE I.

28

DISEASES.		Total Number of Cases completed during the Year.	Number of Cases discharged.		Deaths.		Remaining in the Hospital at the end of the year 1884.
			M.	F.	M.	F.	
GENERAL DISEASES, A	...	282	141	106	18	17	
Do. B	...	410	217	177	9	7	
LOCAL DISEASES—							
Diseases of the Nervous System	...	295	119	115	42	19	
" Circulatory System...	...	204	74	69	47	14	
" Respiratory System...	...	455	216	123	79	37	
" Digestive System	...	775	349	252	114	60	
" Urinary System	...	137	62	40	19	16	
" Female Generative System	...	230	...	221	...	9	
" Cutaneous System	...	15	8	6	1	...	
CONDITIONS NOT NECESSARILY ASSOCIATED WITH GENERAL OR LOCAL DISEASES—							
POISONS—	...	44	23	11	8	2	
Various	...	60	24	35	1	...	
		2,908	1,233	1,156	338	181	201
			2,389		519		
			2,908				

TABLE II.—*Showing the Prevalence of Certain Diseases during the different Months of the Year.* 29

DISEASE.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Typhus ...	...	...	...	...	...	...	1	...	...	...	...	...
Typhoid ...	14	16	8	6	4	10	17	18	11	20	17	6
Measles ...	...	1	1	2	3	...	1	...	...	1	...	1
*Scarlet Fever ...	7	6	7	7	5	7	1	...	...	4	3	8
Febricula ...	3	2	...	1	3	6	1	9	5	...	...	2
Diphtheria...	...	4	...	5	...	5	1	...	1	3	3	2
Rheumatic Fever...	16	14	23	14	18	9	16	14	25	26	13	17
Chorea ...	2	3	4	2	1	2	2	4	4	7	2	2
Pneumonia...	7	9	10	18	5	8	4	8	8	4	10	6
Tonsillitis ...	5	3	3	3	3	7	4	4	5	3	7	5

* The Scarlet Fever Ward was closed from July. The cases which are in the November and December columns remained in from last year. Those in the October column were admitted into the General Wards.

APPENDIX TO TABLE I.

1. *Diphtheria*.—A student, aged 25, had a severe attack, and suffered in the 4th week from slight paralysis of the palate, and of the muscles of accommodation. He was apparently going on well, when he was seized suddenly with convulsions, became cyanosed, and died. No post-mortem.

A second case, M 46, died of cellulitis of the neck.

2. *Typhoid Fever*.—(1) M 36 : Developed phthisis. (1) F 31 : Attack commenced like rheumatic fever with joint pains. (1) F 3 : Had double parotid bubo, bursting into external auditory meatus. (4) F 17, F 50, M 20, M 19 : Had thrombosis of femoral vein. (1) F 17 : Had periostitis of both tibia. In 6 post-mortems perforation was found 6/20. (1) F 21 : The larynx was ulcerated. (1) F 11 : Had phagedænic ulceration of labium, but died of perforation.

4. *Purpura*.—(1) M 19 : Was in Hospital with mild attack, and one week after discharge came back much worse with epistaxis and melæna, and bleeding from gums. (2) M 47 : With simple purpura had wrist-drop on both sides; no history of lead poisoning. (3) Two cases (M ?, F 26) had swelling and pain in joints. (4) F 19 : Came on 7 weeks after confinement. (5) M 21 : Had "rheumatic" pains. Died with hæmorrhage into peritoneum. (6) F 22 : Came in for hæmorrhage from stomach, and developed purpura later. Died. No post-mortem.

5. *Hæmophilia*.—Was in twice in year. In second time for bleeding from nose and bowels, and purpura spots.

6. *Addison's Disease*.—(1) F 15 : Deep colour 12 months; languor and palpitation 6 months; loss of appetite and flesh 3 months. Another child in family, 3 years old, pigmented. (2) F 26 : Losing strength 13 months, but pigmentation noticed only for 2 months. (3) F 29 : In December, 1883, had giddiness and pain in vertex; in January, 1884, discoloration of skin, with dyspepsia and sickness; legs pigmented soon after. On admission short systolic apex murmur and enlarged gland under jaw; temperature varied from normal to 102° and 103°; patient died of gradual exhaustion. Post-mortem both suprarenal capsules reduced to fibrous masses; the left formed a cyst. (*Cf. Lancet*, June 5th, 1883.)

7. *Myxædema*.—F 47 : This case was described in *Clin. Soc. Trans.*, vol. 1880. (2) M 53 : Noticed for 4 years. Thyroid gland not felt.

8. *Lymphadenoma*.—(1) M 50 : In neck 2 years; dyspnoea and dysphagia lately. (2) M 49 : Had pleuritic effusion, which was tapped.

9. *Leucocythæmia*.—(1) F 40 : "Splenic"; white corpuscles equal red in number; spleen reached to pubes.

10. *Adenitis*.—M 7 : General adenitis; was attributed to drains.

11. *Hydrocephalus*.—(1) M 6 months: Chronic hydrocephalus with spina bifida. Spina bifida tapped—i. $\bar{3}iv$; ii. $\bar{3}xxii$; iii. $\bar{3}xlx$ —with relief. (2) M 4 : Acute hydrocephalus, but no tubercles or meningitis found post-mortem; some superficial hæmorrhage in posterior part of left lobe of cerebellum.

12. *Apoplexy*.—(1) M 49 : Had hæmorrhage into pons and left crus. (2) M 39 : Had granular kidney, and died from rupture of a vessel and hæmorrhage on surface of brain.

13. *Hemiplegia*.—(1) (2) Two cases (M 52, F 49) : Had hemianæsthesia; both left-sided paralysis. (3) M 24 : Had right hemiplegia, aphasia, and hemianæsthesia, with optic neuritis, probably syphilitic. (4) F 62 : Left; great rigidity. (5) M 35 : Excessive reflexes after hemiplegia $4\frac{1}{2}$ years before. (6) M 62 : Associated with glycosuria. (7) M 44 : Coming on gradually after blow 4 years before; optic neuritis. (8) M 9 : Spastic right-sided hemiplegia since birth; delivered by forceps.

14. *Cerebral Tumour*.—(1) F 32 : Small tumour (pea) in posterior part of left corpus striatum; cyst filled with serum in left side of cerebellum. (2) F ? : Glioma in right opt. mal. (3) M 27 : Vomiting, giddiness, and pain in back of head; double optic neuritis; tumour in left side of cerebellum.

15. *Epilepsy*.—(1) M 6 months : Died after having 136 fits in 3 days. (2) M 54 : Died in fit, and was found to have a ruptured bladder.

16. *Chorea*.—19/44 had morbus cordis (16 F, 3 M) = 43·2 per cent.; all systolic apex murmur except 2, who had pericarditis only; one other had both mitral disease and pericarditis. In 2 cases the chorea commenced 3 weeks after rheumatic fever, and in 2 more 3 months after. Of these cases, in 3 the attack was the second, in 4 the third, in 1 the fourth, and in 1 the seventh; one had urticaria just before the attack; one, F 12, had choraic movements for 3 years, and had melasma; one, F 10, had sugar in urine, which had not quite disappeared on leaving.

Hemiplegic chorea (M 42) : 14 years before had injury to back of head and neck; was "unconscious 6 months"; the movements began in the right arm 7 years afterwards.

17. *Sunstroke*.—F 6 months: Had cervical opisthotonus, and died a few days after being removed from Hospital.

18. *Hysteria*.—(1) F 19: Spasmodic contraction of both legs and of jaw. (2) F 22: Spasmodic contraction of right hand and arm. (3) F 11: Paraplegia after a fall 7 weeks previously. (4) F 22: Excessive patella reflexes; no anaesthesia. (5) F 23: Vomiting. (6) F 23 and F 20: Hystero-epilepsy.

19. *Paraplegia*.—(1) M 36: Spastic paraplegia, secondary to transverse myelitis after exposure to cold. (2) M 56: After fall and blow on neck. Later developed rigidity in right arm and leg.

20. *Locomotor Ataxy*.—(1) M 40: Had perforating ulcers on both feet, and arthritis both left great toe joints. (2) M 45: Dislocation of shoulder and many other joints; admitted for examination and report to Clinical Society.

21. *Myelitis*.—M 32: On post-mortem had also hydatid of liver.

22. *Pseudohypertrophic Paralysis*.—(1) M 10: 12 months difficulty in going up stairs; calves, thighs, pectoralis major, biceps and triceps, trapezius, affected; 8 sons in family; 1, 5, 6, 7, well; 2, 3, 4 affected with pseudohypertrophic paralysis; 8 died infant. (2) M 8: Only boy; 2 sisters well. In 1882 in Luke, and could walk then; calves very large; infrapinatus large, but arms not affected. Now, legs flabby and soft; pectorals and biceps atrophied, and some of muscles of left palm. (3) M 11: Only noticed for 3 years, *e.g.*, since 8 years of age.

23. *Diphtheritic Paralysis*.—(1) M 7: Of palate. (2) F 26: Of legs, arms, and hands. (3) M 31: Diphtheria 7 weeks before; paralysis of legs, of accommodation, and palate. (4) M 28: Diphtheria 3 months before; paralysis of fauces 4 weeks after, and some dyspnoea, and defective vision; legs and hands weak; during last month sensation impaired in both; constipation.

24. *Sciatica*.—M 43: Nerve stretched three times by forcible flexion.

25. *Hemiidrosis*.—M 43: Unilateral left facial sweating, said to be congenital.

26. *Pericarditis*.—(1) F 34: Aortic with albuminuria, probably granular kidney. (2) M 15: Exploratory incision made in fourth space near sternum. Death on table.

27. *Morbus Cordis*.—

Congenital.—M 3: Pulmonary stenosis and patent septum; gangrene of fingers and toes.

Aortic Stenosis.—Three cases—M 20, 18, and 62: The last died with dropsy, and had cirrhosis of liver; one suffered with angina.

Mitral Disease.—

(a) *Stenosis*.—12 M, 5 of whom died; 16 F, 2 of whom died.

(β) *Stenosis* (with regurgitation).—6 M, 1 of whom died; 9 F, with no deaths.

Mitral Stenosis.—Total 28—discharged, 7 M, 14 F; died, 5 M, 2 F. Under 15—discharged, 1 M; died, 1 M. Under 20—discharged, 1 M, 2 F. Under 30—discharged, 2 M, 6 F; died, 3 M. Under 40—discharged, 3 M, 3 F. Under 50—discharged, 1 F; died, 2 F. Under 60—died, 1 M. Over 60—discharged, 2 F.

Mitral Stenosis (with regurgitation).—

(1) F 29: Mitral stenosis; had tricuspid constriction as well. (2) M 12: Post-mortem had also adherent pericardium. (3) M 28: Ditto; post-mortem had also phthisis. (4) M 26: Ditto; post-mortem

had embolisms in lungs, spleen, and kidneys; during life irregular temperature and rigors. (5) M 17: Ditto; developed left hemiplegia at Highgate. (6) F 36: Ditto; had hemiplegia May, 1883; and at present time rigidity of paralysed side. (7) F 46: Ditto; was admitted for inflamed fibroid; had effusion in pleura, pericardium, and peritoneum. (8) F 10: Double apex murmur; had had chorea on and off for 4 years. (9) M 24: post-mortem had vegetations on tricuspid, mitral, and aortic, with adherent pericardium; only mitral murmur heard during life. (10) M 49: Mitral regurgitation; had a fit in Hospital; developed purpura; had pleurisy and wrist-drop (not lead); readmitted with delirium and fresh purpura, and died. (11) M 30: Had stenosis of mitral, tricuspid, and aortic orifices. (12) F 65: With aortic and mitral disease had also cirrhosis of liver post-mortem. (13) F 9: With mitral regurgitation developed small-pox; and another (F 8) developed typhoid fever; both recovered. (14) Two cases developed pneumonia. F 29: Of both bases with aortic regurgitation. M 21: Of right base with mitral regurgitation; both recovered. (15) F 47: Died with embolism of pulmonary artery. (16) F 27: Had deep jaundice, thought to be due to gall-stones. (17) F 20: Mitral regurgitation; had gangrene of end of right great toe.

28. *Aneurism*.—Of 4 cases treated on Tuffnell's plan, one, M 40, could not stand treatment, and left; of the other three, M 45, M 45, F 40, two were greatly relieved. M 50: Died of œdema of glottis. M 38: Suffered from angina-like attacks, and died in one.

29. *Exophthalmic Goitre*.—(1) F 26: Had double aortic and systolic mitral murmur. (2) F 50: Had had palpitation 10 years, exophthalmos 6 years, but thyroid was not enlarged. (3) F 24: After fit 2 years previously eye became prominent; has systolic apex murmur, aphonia; catamenia absent 2 years; bronzed skin. (4) F 24: Fits for 2 years; throat swelled 7 months; eye prominent and palpitation for 6 months; pulse very rapid. Patient died suddenly; pulse running up to 200 before death. No post-mortem.

30. *Bronchitis*.—F 45: Much œdema; legs punctured; gangrene of punctures, and death.

31. *Pneumonia*.—

Right Apex.—5 M, 3 F; no deaths. Ages of males, 6, 9, and 3 at 14; one had temperature of 106°; ages of females, 2 at 6, 1 at 14.

Left Apex.—4 M; ages 2½, 6, 2 at 7; no death. 2 F, aged 7 and 28; one death; 2 (M 6, M 7) developed empyema, which was aspirated, and recovered.

Right Base.—22 M, with 5 deaths; 10 F, with 2 deaths. 1 F 8 developed afterwards necrosis of inguinal phalanx of left thumb; 1 M 33 had double pleuritic effusion.

Left Base.—29 M, with 6 deaths; 1 M 17 had double pleurisy and pericarditis. 8 F, no deaths; 1 F 5, had empyema; tapped and recovered.

Double.—5 M, with 2 deaths, all double base. 7 F, with 2 deaths (4 double base, 2 died; the remaining 3 crossed, none died; all left base and right apex.)

Unspecified.—11.

32. *Phthisis*.—(1) M 35: Died with gangrene of right apex. (2) M 34: Had epileptiform convulsion, and became comatose.

33. *Pneumothorax*.—(1) M 22: In and out of hospital several times; at first hydro later pyo-pneumothorax; tapped but not opened, with relief. (2) M 24: Of latent origin; patient noticed gurgling in chest; no hectic or constitutional symptoms for 2½ months, then temperature began to rise; phthisis developed at opposite apex, and

advanced rapidly. (3) F 26: In Hospital 4 months before with typhoid fever; 3 weeks afterwards arm became weak; extensors and supinators of both forearms atrophied; later patient became hemiplegic; pneumothorax developed, and patient died next day.

34. *Pleurisy*.—Paracentesis in 8 cases; in 6 cases only once, 32, 38, 51, 63, 136 oz. of serum; once, twice 70 and 56 oz.; once, three times 50, 4, 1; all recovered; one had pericarditis; one had adherent pericardium, and fluid removed was hæmorrhagic (no new growth).

35. *Empyema*.—

A. *Recovered*.

- (a) Aspirated only. (1) F 2½: Developed after whooping-cough; 10 oz. removed; recovery. (2) M 6: Tapped once; recovery. (3) F 24: Spat through lung; recovery.
- (b) *Free Incision*.—(4) F 24: tapped once previously; recovery; tapped twice previously. (5) F 3: Left with incision quite closed. M 5: Left with a little discharge. M 40: Left still discharging; had also pus in urine. M 4½: Tapped 3 times previously; left with slight discharge. M 23: Tapped many times previously; left with slight discharge. M 8: Old case; had fistula 18 months.

B. *Died*.

F 5: Twice tapped; incision. M 13: Had peritonitis. F 20: Twice tapped; last time pus fetid. M 33: Pleuritic effusion (serum) after rheumatic fever; one month later purulent; incision; died 3 months later. M 42: Died with amyloid disease. M 47: Dry tapping; burst suddenly into lung, and suffocated patient.

36. *Stomatitis*.—M 7½: Gangrenous; recovered. M 54: Gangrenous, in a case of granular kidney and morbus cordis; death sudden.

37. *Hæmatemesis*.—(1) F 49: Had mitral regurgitation and gastric ulcer. (2) F 49: Had mitral regurgitation, and developed hemiplegia in Hospital; granular kidney and cirrhotic liver found post-mortem.

38. *Cancer of Duodenum*.—M 44: Died of thrombosis of pulmonary artery.

39. *Cancer of Stomach*.—M 45: Had been under treatment as a case of pernicious anæmia, and was transfused without permanent benefit; on death cancer of stomach found, which was not suspected during life.

40. *Intestinal Obstruction*.—(1) M 28: From band. (2) M 48: Volvulus and band. (3) F 43: Carcinoma uteri.

41. *Jaundice*.—F 22: Due to cancer of liver, with cancer of peritoneum and glands and mediastinum; had perforated spinal cord at first lumbar vertebra.

42. *Cancer of Liver*.—M 61: Started from gall-bladder.

43. *Peritonitis*.—

Tubercular.—(1) F 16: Ascites 12 months before; cured. Second attack 8 months later; legs swelled, and abdomen later, 3 weeks before admission. Post-mortem, tubercular, pleurisy and peritonitis.

Perforation.—(1) F 62: Simple stricture of large intestine (sigmoid flexure), vagina just above. (2) M 26: Cancerous stricture of large intestine. (3) M 17, (4) M 17: From ulcer of vermiform appendix. (5) M 64: After perityphlitis. (*cf.* Typhoid Fever.)

44. *Ascariides*.—F 4: Patient admitted with head retracted; when worms cured retraction passed off.

45. *Hydatid of Liver*.—Three cured by single tapping; in one fluid was bile-stained; one required to be tapped twice, and one was freely opened and cured.

46. *Acute Nephritis*.—5 M, with one death; 5 F, with two deaths, after scarlet fever. M 6: Died with double pleuritic effusion. F 1½: Died with meningitis. (1) M 11: Acute nephritis associated with purpura. (2) F 14: Has also umbilical abscess.

47. *Chronic Nephritis*.—One case after an acute attack 4 years ago, from which patient never recovered completely; had also mitral constriction; died with pericarditis. 4 M and 1 F had uræmia before death; one of these, M 46, had cancer of stomach also.

48. *Granular Kidney*.—(1) F 37: Had pericarditis shortly before death. (2) F 50: Subject of gout; found post-mortem to have also hydatid of liver. (3) F 30: Had leadline; convulsions before death. (4) M 49: Had pericarditis, and died with uræmia; found post-mortem to have also malignant disease of urinary bladder.

49. *Hydronephrosis*.—M 67: Right kidney was a sac containing muddy fluid with abundant cholesterin crystals; the left contained a small cyst also.

50. *Hæmaturia*.—M 48: Came on after taking turpentine.

51. *Diabetes Mellitus*.—Two cases, F 62, F 69, had also eczema valva. M 31: 3 years history; oxalate of lime calculus removed 12 months before with recovery; wasting for 6 months. Died comatose. M 37: Symptoms noticed 12 months, but carbuncle 2 years before. M 26: Died with phthisical albuminuria, and œdema of feet. F 43: Daxæro myxœdema and lupus vulvæ.

52. *Bilharzia*.—M 25: Says he caught it by drinking water fouled by cattle suffering from the disease called "red water"; those which recover from it fetch three or four times their value, and are called "salted"; first discovered in August, 1882, in Transvaal Gold Fields.

53. *Parametritis*.—F 26, F 39: Psoas abscess. F 21, F 27: Burst into bladder and rectum. F 22, F 24: Burst into bowel. F 35: Burst into bladder.

54. *Fibroid*.—F 49, F 50: Weighed 1 lb. 1 oz. F 42: 2½ lb. removed; death from peritonitis. F 62: Many times in Hospital; supposed fibro-cystic disease; much removed from time to time by uterus.

55. *Premature Birth*.—F 6 weeks: A seven months' child, and weighed only 2 lb. 10 oz. in clothes.

56. *Retroversion*.—F 30: Replaced. F 34: Produced severe cystitis.

57. *Extra-uterine Fœtation, Tubal*.—F 27: Incised per vaginam; fœtus removed.

58. *Abortion*.—F 34: Had hydatid in peritoneum tapped.

59. *Puerperal Septicæmia*.—F 24: Peritonitis. F 20: From peritonitis. F 35: From retained placenta.

60. *Placenta Prævia*.—F 22: Flooding; died under chloroform.

61. *Lead*.—F. 25: Had, as well as wrist-drop, paralysis of peronæi and extensors.

62. *Phosphorus*.—M 35: November 11, eat bread and butter spread with phosphorus paste; 1 hour later felt drowsy and giddy; November 12, vomiting and pain in epigastrium; November 15, vomiting every day, drowsy, slight jaundice; eructation with phosphorous taste, epigastrium tender, liver and spleen not palpable. Died on November 20th, collapsed, the jaundice and drowsiness having increased during the preceding days. Temperature, 15th, 99°; 16th, 100°; 17th, 102.2°; 18th, 99.8°. Post-mortem, small hæmorrhage into nearly all organs; liver about normal size. No microscopical examination.

63. *Belladonna*.—(1) Took liniment. (2) F 1½: Eat atropia ointment, "as much as would cover a sixpence;" 2 hours later vomited; lips swollen and dry, and fingers swollen; pupils widely dilated. Pulse = 128°; delirium at night. Recovered next day.

64. *Opium*.—F. 24: 10.30, found by police; 11.45, stomach washed out in surgery; atropia injected; 1.30, gave name and address, and sat up; 3.0, suddenly became comatose, and died in about three-quarters of an hour, in spite of artificial respiration.

65. *Delirium Tremens*.—The one case that died had albuminuria.

SURGICAL REPORT.

TABLE I.

Showing the Total Number of Cases under Treatment during the Year 1884, with the comparative Frequency and Mortality of each Disease at different Ages.

DISEASE.	Total.		Died.		Under 5.		— 10.		— 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.
GENERAL DISEASES.																				
Erysipelas—	105	48	2	3	5	3	3	6	6	8	10	17	1	5	9	1	11	4	5	4
(a) Simple	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(b) Pilemonous	14	9	4	1	2	...	...	...	1	...	8	4	1	4	3	...	2	...	1	...
(c) Cellulitis	51	36	3	1	...	...	...	...	1	...	...	...	...	7	3	...	9	2	1	...
Pyæmia	2	...	6	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...
Asciæ	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...
Convulsions	1	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Pertussis	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Collapse after Immersion	1	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...
Purpura	1	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Hysteria	4	1	...	...	...	...	...	...	...	...	1	...	...	2	...	...	1	...	...	...
Mania	2	2	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...
Rheumatism	5	5	...	...	...	...	...	...	1	...	...	...	...	1	...	...	1	...	...	...
Gout	2	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...
Trichinosis	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Varicella Gangrenosa	3	1	...	...	1	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tetanus	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Hydrophobia	3	...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Diabetes	2	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...

DISEASE.	Total.	Discharged.		Died.		Under 5.		— 10.		— 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.	Died.	Discharged.	Died.	Discharged.	Died.	Discharged.	Died.	Discharged.	Died.	Discharged.	Died.	Discharged.	Died.	Discharged.	Died.	Discharged.	Died.	Discharged.	Died.
TUMOURS (<i>continued</i>).																					
Sarcoma—																					
(a) Bones—																					
Skull ...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...
Lower Jaw ...	4	1	2	1	...	...	...	...	1	...	...	1	...	1	...	...	...	...	...	...	...
Upper Jaw...	3	...	3	...	...	...	...	...	...	...	...	...	...	2	...	1	...	...	...	...	...
Humerus ...	2	1	1	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...
Femur ...	3	2	...	...	...	...	...	...	2	1	...	...	...	...	...	...	...	...	...	...	...
Tibia ...	2	1	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...
(b) Testis ...	3	2	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...
(c) Breast ...	10	1	9	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...
(d) Subcutaneous Tissue	11	8	3	...	...	...	...	...	...	2	1	...	...	2	1	...	...	...	...	...	...
(e) Recurrent...	4	...	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(f) Melanotic ...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(g) Parotid ...	8	4	4	...	...	...	...	...	1	3	2	...	...	1	...	2	...	...	...	...	...
(h) Naso-Pharynx	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(i) Bladder ...	2	1	1	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...
(j) Muscle ...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Angioma—																					
Nævus—																					
Capillary and Venous	19	8	10	1	...	2	7	...	...	2	...	1	3	1	2	...	...	1	...	...	...
Arterial ...	2	1	1	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...
Adenoma ...	2	...	2	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...
Papilloma—																					
Larynx...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...
Tongue...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...

TABLE I. (continued).

[illegible]

TABLE I. (continued).

DISEASE.	Total.		Discharged.		Died.		Under 5.		— 10.		— 20.		— 30.		— 40.		— 50.		— 60.		Over 60.			
	M.	F.	M.	F.	Died.		M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.		
					Discharged.	Died.																	Discharged.	Died.
TUMOURS (continued).																								
Polypi—																								
(a) Nasal ...	5	...	...	...	...	...	...	...	1	...	...	...	2	...	...	...	...	...	...	...	...	...
(b) Rectum ...	4	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	1	...	...	...	...
(c) Uterus ...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(d) Auditory Meatus ...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...
MALFORMATIONS AND DEFORMITIES.																								
Cleft Palate ...	29	11	...	...	...	...	...	4	4	...	4	6	...	2	8	...	1	...	...	...	...	...
Hare Lip ...	20	13	...	...	...	...	...	12	6	...	1	...	...	...	...	...	...	...	...	...	...	...
Contracted Lip... ..	1	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...
Meningocele ...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Imperforate Anus ...	3	1	...	...	...	...	...	1	1	...	1	...	...	...	...	...	...	...	...	...	...	...
Contracted Anus ...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Spina Bifida ...	3	2	...	...	...	...	...	2	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Penis—																								
(a) Congenital Phimosis	65	65	...	...	...	...	...	32	...	12	...	14	...	2	...	3	...	1	...	...	...	1
(b) Paraphimosis ...	1	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
(c) Hypospadias ...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Genu Valgum ...	18	16	...	...	...	...	...	2	1	...	6	...	8	...	1	...	...	...	...	...	...	...
Wry Neck ...	4	2	...	...	...	...	...	...	...	1	1	...	1	...	...	...	...	...	...	...	...	...
Deformed Pelvis ...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Deformed Hand ...	2	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Deformed Thorax ...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Congenital Dislocation of Hip	2	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...
Extroversion of Bladder ...	1	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...

TABLE I. (continued).

DISEASE.	Total.	Discharged.		Died.	Under 5.		— 10.		— 20.		— 30.		— 40.		— 50.		— 60.		Over 60.		
		M.	F.		Discharged.	Died.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
DISEASES OF THE NERVOUS SYSTEM (continued).																					
Spinal Meningitis	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...
Epilepsy	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Lunacy	...	2	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...
DISEASES OF THE EYE.																					
A. Ophthalmia—Conjunctiva																					
Catarrhal	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Rheumatic	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Phlyctenular	...	4	2	...	2	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...
Purulent	...	5	3	...	1	1	...	...	...	...	1	...	2	...	...	...	...	...	...	...
B. Cornea—																					
Keratitis	...	11	4	7	...	2	...	...	2	1	...	2	...	1	2	...	...	...	1	...
Interstitial Keratitis	...	8	4	4	...	...	...	...	2	1	...	2	3	...	...	...	...	...	...	...
Ulcers	...	13	6	7	...	1	...	1	2	...	2	...	...	...	...	...	...	1	2	...
Opacities	...	9	2	7	...	1	...	1	...	1	3	...	2	...	1	...	...	...	...	...
Staphyloma	...	9	4	5	...	2	...	1	...	1	...	1	...	...	...	...	...	1	...	2
Fistula	...	1	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
C. Iris—																					
Iritis	...	9	3	6	...	...	...	...	...	1	...	1	2	...	1	2	...	...	...	...
D. Lens—																					
Cataract, Hard	...	62	35	27	...	2	...	2	...	2	...	...	...	1	3	...	3	6	...	6
" Soft	...	13	8	5	...	1	1	4	2	1	1	2	...	1	...	...	...	...	...	19

DISEASE.	Total.		Discharged.		Died.		Under 5.				— 10.		— 20.		— 30.		— 40.		— 50.		— 60.		Over 60.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
DISEASES OF THE EYE (continued).																								
D. Lens (continued)—																								
Cataract, Zonular	1	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...
" Traumatic	13	1	1	...	...	...	2	...	...	...	...	...	1	...	3	...	5	1	...	...	...	...	1	...
Dislocation of Lens	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Aphakia ...	3	2	1	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...
Opaque Capsule ...	8	6	2	...	...	...	1	...	...	...	...	...	1	...	1	...	1	...	2	1	...	...	1	...
E. Retina, Optic Nerve, and Vitreous Humour—																								
Optic Neuritis	3	3	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	1	...	...	...	...	...
" Atrophy	2	2	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...
Hemorrhage	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Detached Retina ...	2	1	1	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	1	...
F. Diseases of the Choroid, &c.—																								
Choroiditis...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Melanotic Sarcoma	2	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...
G. General Affections of the Eye—																								
Glaucoma ...	14	4	10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2	...	2	...	6
Panophthalmitis	2	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...
Sympathetic Ophthalmia	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...
Ophthalmoplegia Interna...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...
Anaerosis ...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...
Inflamed Stump ...	1	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...

DISEASE.

	Total.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.		Dis.	
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[illegible]

TABLE I. (continued).

DISEASE.	Total.		Died.		Under 5.	— 10.	— 20.	— 30.	— 40.	— 50.	— 60.	Over 60.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
DISEASES OF THE DIGESTIVE SYSTEM												
(continued).												
Month, Tongue, and Pharynx (contd.)—												
Tonsils Enlarged	4	2	...	...	1	...	3	1	...	...	...	...
Ulcerated Throat	1	1	...	...	...	...	...	1	...	...	...	...
Cancerum Oris	1	1	...	...	1	...	...	...	...	...	...	...
Perforation of Palate... ..	1	1	...	...	...	...	...	...	1	...	...	...
Salivary Calculus	1	1	...	...	...	...	...	...	...	1	...	...
Salivary Fistula	1	1	...	...	...	...	...	...	...	...	1	...
Tongue—												
Chronic Superficial Glossitis	1	1	...	...	...	...	...	...	1	...	...	...
Tubercular Ulceration	1	1	...	...	...	...	...	...	...	1	...	...
Pharyngeal Fistula	1	1	...	...	...	...	...	...	...	1	...	...
Fibrous Stricture of Oesophagus—												
Stricture of	3	2	1	...	...	...	1	...	1	...	...	1
Dysphagia	1	1	...	...	...	...	...	...	...	...	...	...
Ulcer of Pharynx opening Internal Carotid Artery	1	1	1	...	...	1	...	...	...	...	...	...
DISEASES OF THE INTESTINES.												
Intussusception	4	1	2	1	1	2	1	...	...	...	...	...
Constipation	2	1	...	...	...	...	...	1	...	...	...	...
Ulcer of Intestine, followed by Perforative Peritonitis	1	1	1	...	...	...	...	...	...	1	...	...

TABLE I. (continued).

DISEASE.	Total.	Discharged.		Died.		Under 5.		— 10.		— 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.
DISEASES OF THE GENITO-URINARY ORGANS (<i>continued</i>).																					
Bladder (<i>continued</i>)—																					
Calculus in Bladder ...	17	14	2	1	...	2	...	1	...	4	...	1	1	...	1	...	1	...	...	4	1
Tubercular Disease of Genito-Urinary Tract ...	3	3	...	...	...	...	...	...	...	...	...	3	...	...	...	...	...	...	...	...	...
Hæmaturia ...	11	8	...	3	...	...	...	2	...	1	...	2	1	...	1	...	2	...	1	...	...
Prostate—																					
Hypertrophied ...	19	15	...	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Inflamed ...	2	2	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	2	...	13	4
Urethra :																					
(1) Stricture ...	86	77	1	8	...	...	...	1	...	1	...	12	...	28	1	22	2	12	2	1	2
(2) Fistula ...	3	3	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	1	...	...
(3) Calculus ...	2	2	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...
(4) Vascular Carbuncle ...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...
(5) Polypus ...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...
Retention of Urine ...	4	3	1	...	...	1	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...
Incontinence of Urine ...	8	3	5	...	...	...	...	...	...	2	2	...	...	...	...	3	1	...	...	...	...
Scrotum—																					
Oedema... ..	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...
Tunica Vaginalis—																					
(1) Hydrocele... ..	12	12	...	...	...	...	...	...	...	3	...	4	...	1	...	...	...	3	...	1	...
(2) Suppurating Hydrocele... ..	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...
(3) Hæmatocoe of Tunica Vaginalis ...	6	6	...	...	...	...	...	...	...	2	...	...	...	...	...	1	...	...	...	1	...
(4) Suppurating Hæmatocoe ...	1	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...

TABLE I. (continued).

DISEASE.	Total.	Discharged.		Died.	Under 5.		— 10.		— 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.	
DISEASES OF THE GENERATIVE SYSTEM (Female) (<i>continued</i>).																					
Breast—																					
Abscess...	33	...	33	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Inflammation ..	4	...	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Eczema of Nipple	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
DISEASES OF THE ORGANS OF LOCOMOTION.																					
Bones—																					
Periostitis—																					
(1) Acute—																					
(a) Femur	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(b) Humerus	1	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(c) Tibia	3	1	1	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(d) Inferior Maxilla	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(2) Subacute and Chronic—																					
(a) Jaw...	1	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
(b) Humerus	2	2	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...
(c) Femur	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(d) Tibia	10	5	4	1	...	1	...	3	1	1	2	...	1	...	1	...	...	...	...	...
Osteitis...	3	3	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...
Abscess in Bone	6	4	2	...	...	...	...	...	3	1	...	1	...	...	...	...	...	...	...	...
Suppuration in Antrum	2	1	1	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...
Caries—																					
Spine	42	22	17	3	3	5	7	8	1	3	3	4	2	...	3	1	...	...	...	...

TABLE I. (continued).

[illegible]

TABLE I. (continued).

[illegible]

INJURY.

	Total.	Discharged.		Died.		Under 5.		— 10.		— 20.		— 30.		— 40.		— 50.		Over 60.	
		M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
<i>Injuries of Nerves</i> ...	15	12	3	...	...	...	...	...	...	5	2	1	...	4	...	1	1	...	...
<i>Injuries of the Eye—</i>																			
Contusions ...	2	2	...	...	...	...	...	...	...	2	...	...	...	4	...	1	...	2	...
Wounds ...	23	23	...	...	...	...	...	3	...	6	...	...	...	...	...	...	...	...	...
Injuries by Caustics ...	3	3	1	...	...	...	...	...	...	...	...	2	...	1	...	...	...	...	...
" by Explosions	1	1	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...
Gunshot Wound ...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ruptured Globe ...	4	3	1	...	...	...	...	...	...	1	1	...	...	2	...	...	...	...	...
Foreign Body ...	1	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...
<i>Injuries of Neck—</i>																			
Contusions ...	5	5	...	...	...	...	...	...	...	...	...	2	...	1	...	2	...	...	...
Wounds ...	9	4	2	...	...	...	...	1	1	...	...	...	...	2	...	1	...	3	...
Scald of Larynx	2	...	2	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...
Teeth impacted into Pharynx	1	...	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...
Fracture of Cervical Spine	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Gunshot Wound in Neck	1	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...	1
Hæmorrhage into Spinal Cord	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...
Partial Dislocation of Axis Vertebra	1	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...
<i>Injuries of Back—</i>																			
Contusions ...	13	11	2	...	...	1	...	1	...	...	...	4	1	...	...	1	...	1	...
Wounds ...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Fracture of Spine	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...
Concussion of Spine	3	3	...	...	...	...	...	...	...	...	...	...	...	2	...	1	...	...	...

TABLE I. (continued).

	Total.	Under 5.						— 10.		— 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>Injuries of Thorax—</i>																					
Contusions	13	9	4	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..
Wound of Thoracic Wall ...	2	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Punctured Wound of Thoracic Cavity	1	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
Bullet Wound of Chest Wall	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Fracture of Sternum...	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
" of Ribs	13	11	1	1	..	1	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..
" of Ribs with Injury to Lung	7	4	..	3	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..
<i>Injuries of Abdomen—</i>																					
Contusions	23	22	1	..	3	..	..	3	..	11	..	..	..	2	..	1	..	..	..	..	..
Contusion, with Injury to Viscera ...	3	..	..	3	..	..	..	..	..	..	..	1	..	1	..	1	..	..	..	..	..
Wound—																					
(a) Non-Penetrating	1	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
(b) Penetrating	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Gunshot Wound—																					
Penetrating	2	2	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..
<i>Injuries of the Pelvis and Genitals—</i>																					
Contusions	4	4	..	..	..	..	..	..	..	2	..	1	..	..	..	..	..	..	..	..	..
Hæmatoma	1	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
Lacerated Wound of Scrotum	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Wound of Perineum	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Wound of Vulva	5	..	5	..	..	..	..	..	1	..	..	1	..	..	..	2	..	..	..	..	..
Urethra Lacerated	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Fracture of Pelvis	6	5	1	..	..	..	..	..	..	..	..	1	..	1	..	2	..	..	..	1	..
Compound Fracture of Pubic Bone	1	..	..	1	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
Fracture of Coccyx	1	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..

INJURY.

INJURY.	Total.	Discharged.		Died.		Under 5.		— 10.		— 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.
<i>Injuries of the Upper Extremity—</i>																						
Contusions	7	6	1	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..
Hæmatoma	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Wounds—																						
(a) Arm	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
(b) Forearm	15	11	4	..	..	..	..	..	..	4	..	..	..	..	..	..	..	..	..	..	..
(c) Hand	43	34	8	1	..	2	..	..	3	2	11	1	..	..	3	1	2	1	..	..	..
Gunshot Wound of Hand	2	2	2	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..
Avulsion of Tendon	1	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
Wounds of Joints—																						
(a) Elbow	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
(b) Wrist	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Needle in Forearm	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Fractures—																						
Clavicle	5	1	4	..	..	..	..	..	..	1	..	..	..	..	1	..	1	..	..	..	..
Scapula—(Acromion Process) ..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Humerus—																						
(a) Simple	15	10	5	..	..	..	..	..	1	2	..	..	..	..	1	..	2	..	2	..	4
(b) Compound	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
(c) Ununited Fracture of Humerus ..	1	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1
(d) Separation of Epiphysis	1	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..
(e) Old Fracture with Vicious Union ..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Radius—																						
(a) Simple	6	2	4	..	..	..	..	..	..	1	..	..	..	..	1	..	1	..	1	..	1

TABLE I. (continued).

[illegible]

[illegible]Dislocations (*continued*)—
(2) (Compound)—

Injuries of Lower Extremity—

Leg
Foot
Gunshot Wound
Wound of Joint--

Needle in Foot

TABLE I. (continued).

[illegible]

Injuries of Lower Extremity

Fractures (continued).												
(<i>f</i>) Pott's Fracture—												
	36	29	4	3	...	...	1	4	...	5	2	1
(1) Simple ...	...	1	...	...	...	...	...	...	...	...	...	...
(2) Compound ...	1	1	...	...	...	...	...	...	...	...	...	...
(3) With bad Union ...	...	...	1	...	...	...	...	...	...	...	...	...
(<i>g</i>) Os Calcis ...	1	1	...	...	...	...	...	...	...	...	...	...
(<i>h</i>) Compound Fracture of Bones of Foot	5	4	...	...	1	...	...	...	...	2	...	1
Dislocations—												
(<i>a</i>) Hip—												
(1) Dorsal ...	1	...	1	1	...	...	...	...	...	...	...	1
(2) Sciatric ...	1	1	...	...	...	...	...	...	...	...	...	1
(<i>b</i>) Knee ...	...	1	...	...	...	...	...	1	...	...	...	...
(<i>c</i>) Astragalus (Forwards) ...	1	1	...	...	...	...	...	...	...	1	...	...
(<i>d</i>) Toes... ..	1	1	...	...	...	...	...	1	...	...	...	...

APPENDIX TO TABLE I.

GENERAL DISEASES.

Trichinosis.

A showman, aged 29, recently returned from America, was admitted suffering from acute phlegmonous inflammation of the arm and forearm, with muscular pains and high temperature. He died 7 days after admission. A post-mortem showed a general infiltration of all the voluntary muscles with trichinae.

Varicella Gangrenosa.

Case 1.—A male infant, of 10 months, had varicella 14 days before admission. On examination six gangrenous patches were found—one in front of the right ear, one behind the left, three on the scalp, and one on the neck. The cranial bones were rough and bare. Temperature 99° to 102° . Convalescence was rapid, and the child was discharged in good health 13 days after admission. Fourteen hours after discharge it died in a convulsion. No post-mortem allowed.

Case 2.—Female, aged 8 months, a vesicular eruption 10 weeks before admission. Six weeks later a fresh crop of vesicles. One month later another fresh crop. Some of the vesicles on the head pustulated and left ulcers. On admission had a vesicular and pustular eruption with two ulcers exposing the cranial bones. Whilst in Hospital fresh vesicles appeared, but quickly healed, and the child was discharged well in a fortnight. Seen a month later quite well.

Case 3.—Female, aged 13 months. Three weeks ago had chicken-pox. Mother noticed that some of the spots did not get better like the rest, but became red and painful. On admission child pale and ill. Temperature 98.5° to 100.5° . Three small, circular, punched out ulcers with gangrenous edges and base on back. Convalescence rapid. Discharged well in a fortnight.

Tetanus.

A boy, aged 14 years, received a lacerated flap wound of right buttock on August 6th. The flap sloughed. Erysipelas set in on August 10th. Tetanus supervened August 16th. He died August 21st. A post-mortem examination showed much sloughing and a good deal of retained and very foul pus. The spinal cord and the nerves were natural.

Hydrophobia.

Case 1.—Male, aged 27. Two months before admission bitten in the thumb by a mad dog. Two days before admission he noticed a sudden catch in his breath, shortly followed by inability to swallow, and spasm. On admission he was in a very excited state, but talking was interrupted by frequent spasms. He was treated with morphia, pilocarpin, and chloroform, but died in 10 hours.

Case 2.—Male, aged 37. Bitten by a mad dog 6 weeks before admission. Admitted to Hospital August 25th. He had been quite well until 12 hours before admission, and then was seized quite suddenly with pharyngeal spasm whilst drinking. He was treated with morphia and chloroform, but convulsions supervened, and he died 8 hours after admission. No post-mortem allowed.

Case 3.—Male, aged 21. Bitten by a cat 6 weeks before admission on

March 31st. Well two days before he came to Hospital. On March 29th felt sick. March 30th could not swallow. On admission great dread of being made to swallow. Occasional convulsions. Treated with morphia and pilocarpin, and, as respiration suddenly stopped after a spasm, tracheotomy was performed, though without beneficial results. He died 24 hours after admission.

Gangrene.

(1) *Idiopathic*.—An infant, aged 3 weeks, vaccinated 6 days after birth, was attacked by gangrenous inflammation of the neck and back, which proved fatal 12 days after admission.

(2) *Dry Gangrene of Hand and Arm*.—An anæmic woman, aged 48, was admitted with dry gangrene of the left hand and forearm. No pulse in any of the arteries of the affected extremity. She gradually sank and died a fortnight after admission. A post-mortem examination showed that the left subclavian, axillary, brachial, and radial and ulnar arteries were filled with clot. There was no evidence of arteritis or of embolism.

A man, aged 63, with morbus cordis was admitted with dry gangrene of the hand, and absence of pulsation in the vessels of the whole extremity. He died 4 weeks after admission. A post-mortem examination showed embolism of the axillary, brachial, radial, and ulnar arteries, and advanced morbus cordis.

(3) *Spreading Traumatic Gangrene.*

Case 1.—A very stout, unhealthy-looking man, aged 31, suffered a compound fracture of the left radius with a good deal of laceration of the soft tissues. His urine was loaded with sugar. Three days after the accident moist gangrene commenced at the edges of the wound, extended rapidly over the whole arm, then to the shoulder and thorax, and caused death 6 days later.

Case 2.—A healthy man, aged 49, sustained a compound comminuted fracture of the left radius and ulna with much damage to the soft tissues. Two days after the accident the temperature rose to 103°, and the arm became painful and swollen. On the next day diffuse gangrene set in and rapidly extended. Amputation was then performed immediately below the shoulder joint, and the patient made a rapid recovery.

Case 3.—A child, aged 6 years, sustained a large lacerated and contused wound of the leg, with much bruising of the tissues, through being run over by a cart. Thirty-six hours later gangrene supervened and rapidly extended. Amputation through the lower third of the thigh was at once performed, and the patient made a good recovery.

TUMOURS.

Colloid Carcinoma.

Three cases of colloid carcinoma of the breast in women aged respectively 35, 45, and 35.

Sarcoma.

Of the sarcomata of the breast, one was a solid round-celled recurrent growth in a man aged 22, six were instances of fibro-sarcoma of the female breast with cysts, and two were specimens of alveolar sarcoma.

A myeloid sarcoma of the head of the tibia was treated by local gouging in a girl, aged 17. Suppuration in the knee joint ensued and the patient very nearly lost her life, amputation being refused. She recovered with a stiff limb. The growth recurred some months later.

Arterial Nævus.

In a girl, aged 12, the tumour was situated on the scalp and left temporal region. It was successfully removed by the knife.

In a man, aged 30, the tumour was situated on the thigh. It was improved but not cured by galvano-puncture.

A man, aged 22, died of hæmorrhage, resulting from an attempt to remove a nævoid growth behind the superior maxilla (*see* Table II, page 96).

SYPHILIS.

A man, aged 24, who had contracted syphilis 3 years previously was admitted to the Hospital June 26th. He had gummata in the lips and face and chest, periostitis of the superior maxillary bone, albuminuria, and disease of the right knee joint. He died 6 weeks after his admission. A post-mortem showed numerous gummatous deposits in the viscera, and extensive syphilitic affection of the knee joint. The synovial membrane was infiltrated with gummy products, as was also the periosteum of the femur. The shaft of the femur was the seat of periostitis.

DISEASES OF THE NERVOUS SYSTEM.*Neuralgia.*

A man, aged 73, was admitted suffering from epileptiform neuralgia of 10 years duration. Four previous operations had failed to give permanent relief. The inferior dental nerve was stretched, and the patient left the Hospital 12 days later. At the time of his discharge the pain had not recurred.

A blacksmith, aged 55, applied for relief for severe epileptiform neuralgia of 4 years duration; various operations had previously been performed. The inferior dental nerve was stretched, with the result that, so long as the patient remained in the Hospital, he was free from pain. A fortnight later the pain had returned in the lower jaw.

A man, aged 52, was admitted for epileptiform neuralgia. The inferior dental nerve was stretched. The patient suffered no more pain during his stay in the Hospital.

A woman, aged 53, had epileptiform neuralgia, accompanied by lacrymation and abnormal dryness of the nasal mucous membrane. The mucous membrane over the turbinate bones was cauterised, but the patient did not receive material benefit.

A man, aged 49, who had suffered much pain in connection with cancer of the tongue, and who was not much benefited in this respect by excision, underwent the operation of stretching of the gustatory nerve, and expressed himself as much relieved.

Neuritis.

A man, aged 44, whose shoulder joint had previously been excised on account of great pain and immobility, returned to the Hospital with radiating pain over the whole upper extremity. The brachial plexus was stretched in the axilla, but without relief to the patient.

DISEASES OF THE CIRCULATORY SYSTEM.*ANEURISM.**Of Sterno-mastoid Artery.*

A man, aged 33, a drunkard, was admitted with a small aneurism of an artery which entered the sterno-mastoid muscle about its centre. The patient discharged himself before any treatment was adopted.

Popliteal.

(1) A man, aged 28, of healthy appearance, a fireman in an aerated water business, and accustomed to much standing, was admitted with an aneurism of the left popliteal artery. He had suffered from syphilis 9 years previously. The superficial femoral was tied in two places with a kangaroo tendon ligature, and the vessel divided between. The patient made a good recovery.

(2) A woman, aged 36, had noticed a swelling in the right ham for 5 weeks. She had a well-marked aneurism with a very thin sac. After rest in bed an Esmarch's bandage was applied and retained for one hour; pressure by a tourniquet was then maintained for two hours, but without causing any improvement; digital pressure was then applied for several days, but without success. The superficial femoral was then ligatured in Scarpa's triangle. The vessel was tied in two places with catgut, and divided between the ligatures. Recovery was rapid.

Subclavian.

A woman, aged 62, was admitted with a pulsating swelling on the right side of the neck, in the course of the carotid artery. The swelling extended downwards beyond the sterno-clavicular articulation, and its lower margin could not be felt. The pulse in the temporal and facial arteries was diminished, and a sphygmographic tracing showed that the blood current in them was very feeble. The radial pulse also was feeble and not synchronous with that of the opposite arm. The patient had occasional attacks of aphonia and giddiness. The swelling had been noticed for 3 months. Pain was referred to the arm and head. The case was thought to be one of carotid and innominate aneurism, but no operation was deemed advisable. The aneurism progressed with great rapidity, the trachea was compressed, and the patient died 5 weeks after admission. A post-mortem examination showed that the aneurism was situated in the first part of the subclavian, and that it had extended beneath the sterno-mastoid muscle, and compressed the carotid. The latter vessel and the innominate were quite healthy. On the third part of the subclavian was another aneurism the size of a large walnut, evidently of long standing, and completely consolidated.

Recurrent Pulsation in Aneurism.

A messenger, aged 37, whose external iliac had been ligatured in 1878 for aneurism of that vessel, and who had been in the Hospital in August, 1883, with recurrent pulsation in the sac, was readmitted with marked pulsation at the site of the previous aneurism. He had led a very active life since the operation. After a few days rest in bed pulsation entirely ceased.

A hawker, aged 38, whose femoral had been ligatured in January, 1883, for popliteal aneurism, and who had returned to the Hospital with recurrent pulsation in October of the same year, was readmitted in February, 1884, with pain and distinct pulsation which had supervened after a 20-mile walk. Under treatment by careful bandaging the pulsation much diminished, but had not quite ceased when the patient left the Hospital.

Traumatic Aneurism.—(a) Radial.

A clerk, aged 21, cut his wrist 3 weeks before admission to Hospital; hæmorrhage, which was slight, was arrested by pressure. A swelling soon appeared, and proved to be a small circumscribed aneurism. Pressure resulted in a rapid cure.

(b) External Iliac.

A carman, aged 45, of healthy appearance, suffered from a very severe wrench of his leg on December 11th. The next day he noticed a swelling in the right groin, and felt a dull aching pain in the same situation. He continued at work until December 28th, not suffering much pain, but the swelling gradually increasing in size. On the 29th he came to the Hospital. He was then found to have a large, oval, pulsating swelling in the right iliac fossa, extending from Poupart's ligament below up to the level of the anterior superior spine of the ilium. The right leg and foot were oedematous; there was pulsation in the femoral and posterior tibial arteries. The circumference of the right thigh measured 6 inches more than that of the left; urine showed a trace of albumin. On December 29th the external iliac was secured above the site of the aneurism with a kangaroo tendon ligature, under antiseptic precautions; the wound did not heal by first intention, but the sac diminished in size and ceased to pulsate. The wound granulated healthily, and all went well until, on February 14th, slight oozing occurred from a sinus at one end of the wound. On February 21st sudden and copious hæmorrhage occurred from the same situation. The wound was at once opened up, the peritoneal cavity also being freely exposed, but the tissues were so matted by the inflammation that it was not possible to recognise the exact seat of the hæmorrhage. Two ligatures were, however, successfully placed upon the external iliac. Hæmorrhage however continued, and was finally arrested by clamp forceps placed on what appeared to be the bleeding point, and by plugging with lint steeped in perchloride of iron. The patient lost a considerable quantity of blood; for a time he

rallied, but then again became weaker; he had copious expectoration and troublesome cough; the pulse became small, rapid, and running, but the temperature rose to 101.5°. He died at 9.30 in the evening of February 23rd, without any further recurrence of the hæmorrhage. A post-mortem examination showed commencing peritonitis. The tissues were so matted and discoloured by perchloride of iron that it was not possible to ascertain accurately their condition. The original ligature was not found; the sac of the aneurism was almost obliterated, as was also the external iliac on its distal side. The sac was situated about half an inch below the bifurcation of the common iliac, but that part of the external iliac on which the ligature had originally been placed was completely destroyed, and an irregular aperture closed by a pair of forceps communicated with the termination of the common iliac.

LYMPHATIC SYSTEM.

Lymphangiectasis.

This condition was found in a boy, aged 16, who applied to the Hospital on account of a warty growth on the buttock, which was said to be congenital. On removal, the growth was found to be composed of numerous distended lymphatics.

DIGESTIVE SYSTEM.

(1) TONGUE.

Chronic Superficial Glossitis.

This occurred in a woman, aged 30, and had existed 4 years in spite of treatment. No cause could be assigned

Tubercular Ulceration.

In a woman, aged 44, who died of phthisis after being transferred to a medical ward.

(2) SMALL INTESTINES.

Intussusception.

A female child, aged one year and nine months, was admitted with well-marked symptoms of intussusception. After the failure of taxis and injection of the rectum, abdominal section was performed, and the invaginated gut reduced without much difficulty. The child at the time of operation was in a condition of severe collapse, and died of shock within a few hours. There was no peritonitis.

In a child, aged one year and a half, an intussusception of considerable size was reduced by injection with warm milk. It again descended the next day, and was again returned by similar treatment. The child made a good recovery.

An infant, aged 4 months, admitted with a very large intussusception, and in an almost moribund condition, died after attempts at reduction by injection of warm water. A post-mortem examination showed a rupture of the descending colon, and a large intussusception commencing at the ileo-cæcal valve.

An infant, aged 7 months, died a few hours after admission to the Hospital. It had suffered from an intussusception for 8 days. Reduction apparently followed injection of warm milk, but the patient did not rally. A post-mortem examination was not permitted.

Ulcer of Intestine followed by Perforative Peritonitis.

A porter, aged 43, was admitted with a view to amputation of a diseased finger with necrosed bone. He was found to have albuminuria, and operation was postponed. Eight days later he had symptoms of peritonitis; sickness supervened, and he died on the fourth day after the symptoms commenced. A post-mortem examination showed a small ulcer of the small intestine 12 inches from the cæcum, about the size and shape of a date-stone, lying transversely to the long axis of the bowel, with no thickening or induration of either base or edges, and opening into the peritoneal cavity by a longitudinal slit. Remainder of intestines quite healthy. General peritonitis.

Hernia.

(1) *Traumatic*.—In a man, aged 22, a scrotal hernia resulted from an assault, during which a man jumped forcibly on his belly.

Strangulated Inguinal.—Of 22 cases taxis was successful in 11; all the patients were males. In one case the sac was cut away at the time of operation. Three patients died after herniotomy.

A tram-driver, aged 42, was admitted on January 28th with strangulated right inguinal hernia of 24 hours' duration. After taxis he was relieved and the symptoms subsided. Until the third day after this he had no sickness whatever, and no sign of peritonitis. He took liquid food well, but his belly became gradually greatly swollen. On January 31st he became suddenly worse, had great pain with sickness and collapse. Herniotomy was performed, and several inches of almost gangrenous gut were found in the inguinal canal; the small intestines above were distended almost to bursting, and in many places the peritoneal coat had split. He died a few hours after the operation. A post-mortem examination showed that he had been the subject of an "encysted" hernia on the right side, and of an "infantile" one on the left; the sac of the latter was empty.

A Jew, aged 41, was admitted with a strangulated inguinal hernia which had been irreducible for 72 hours. Reduction was effected without the aid of anæsthetics, but without affording any relief to the symptoms; 12 hours later an exploratory operation in the inguinal region was undertaken, but nothing abnormal was discovered. Vomiting continued, and the patient died exhausted. No post-mortem examination was permitted.

An imbecile, aged 52, was admitted with a large irreducible scrotal hernia. There were no local signs of strangulation, but vomiting was continuous, and there was no passage of wind or fæces. The operation of herniotomy was performed, but no strangulation was discovered. The patient died the following day. A post-mortem examination showed a distinct volvulus with constriction of the gut and general peritonitis.

Strangulated Femoral.—All the patients were women; out of 19 cases taxis was successful in only 2; of 17 cases operated upon, 6 died. In 3 of the 6 who died, the sac was excised at the time of operation, as well as in 7 of those who recovered.

One patient, aged 44, died the same day she was admitted, 6 hours after operation. A post-mortem showed general peritonitis with perforation of the gut at the seat of stricture, and fecal extravasation.

A feeble old woman of 59 died 6 weeks after herniotomy with bed-sores and gangrene of the great toe.

A woman of 72 died with general peritonitis 48 hours after operation. The gut at the site of strangulation was simply congested.

A woman of 52 died with general peritonitis 48 hours after operation. The gut was congested.

A woman of 65 who had suffered from symptoms of strangulation for 4 days, and whose intestine at the time of operation was almost gangrenous, died with general peritonitis 36 hours after operation.

A woman of 65 died apparently of collapse on the second day after herniotomy. There was no peritonitis; the kidneys were granular.

Strangulated Umbilical.—A married woman, aged 40, was admitted with an umbilical hernia strangulated for 48 hours. Herniotomy was successfully performed, and a large mass of omentum removed.

A woman, aged 45, died with general peritonitis about 14 hours after herniotomy had been performed. The post-mortem examination showed that the gut was ulcerated through at the seat of stricture. Strangulation had existed 5 days.

A woman, aged 64, made a good recovery after operation for a hernia which had been strangulated some days.

A woman, aged 61, made a good recovery after herniotomy and removal of a large mass of omentum; the sac also was cut away and its neck stitched up.

Strangulated Ventral.—A woman, aged 46, who had undergone the operation of ovariectomy 5 years previously, and who had suffered from a hernia at the site of the wound ever since the latter had closed, was admitted with symptoms of strangulation. She was extremely stout; reduction was comparatively easily effected by taxis, but the patient died 3 hours later. A post-mortem examination showed general peritonitis, with very extensive adhesions of the coats of intestines to one another, as well as to the cicatrix; part of the gut was gangrenous, and fæces had escaped into the abdominal cavity.

(3) RECTUM.

Fibrous Stricture.

Eleven cases of fibrous stricture were treated; all the patients were women. In 3 cases proctotomy was performed.

Cancer.

Colotomy was performed upon a woman, aged 35, for obstruction; she made a satisfactory recovery.

A woman, aged 39, was admitted with a fœcal abscess in the abdominal wall, and cancer of the rectum and uterus; she died 12 days after admission. A post-mortem showed that there were ulcerated apertures in the small intestines and in the colon.

An emaciated woman of 43 died 2 days after admission with symptoms of peritonitis. A post-mortem examination showed extensive cancerous ulceration of the rectum, and an abscess situated between the rectum and anus, which had burst into the peritoneal cavity.

In a man, aged 29, too far advanced for operation.

A man, aged 37, who had previously been a patient in the Hospital, returned in September. In March, 1882, colotomy had been performed on account of intestinal obstruction, the cause of which was not at the time ascertainable. On readmission he was found to have extensive cancerous growth in the sigmoid flexure and rectum.

Excision of the rectum was performed twice. In the first case on a man, aged 62, for a cancerous growth of the nature of cylindrical-celled epithelioma. The patient died on the third day with symptoms of collapse. Post-mortem, no peritonitis, kidneys granular, lungs œdematous.

In the second case the operation was undertaken for a soft growth, partly pedunculated, about 2½ inches in diameter, which on removal was found to be fibrous. The patient died of peritonitis.

DISEASES OF THE URINARY SYSTEM.

Removal of Enlarged Prostate.

A man, aged 65, who had previously been operated on for calculus vesicæ, was admitted with fresh symptoms of calculus. Median lithotomy was performed; the prostate was found to be very greatly enlarged, and was therefore removed. The patient made a good recovery. A year later he died after another operation for removal of a calculus. A small cavity marked the site of the excision, a thin capsule of prostatic tissue alone remaining.

Lithotripsy.

In a woman, aged 24, for a uric acid stone, weighing 1 ounce.

In a lad, aged 15, for a uric acid stone, measuring ¾-inch in its greatest diameter.

In a man, aged 71, for a phosphatic stone, averaging 1 inch in diameter.

In a man, aged 59, for a small uric acid stone.

In a man, aged 64, for a small phosphatic stone. This patient had a lad. stricture of the urethra.

All these operations were done at a single sitting.

Lithotomy.

Nine operations; 7 by the lateral, and 2 by the median incision. All the patients recovered.

DISEASES OF THE ORGANS OF LOCOMOTION.

Bones.

Acute Periostitis of the tibia proved fatal in a girl aged 8 a fortnight after admission; death resulted from pyæmia. A post-mortem examination showed purulent periostitis and multiple abscesses.

A lad, aged 12, died, 6 weeks after admission, of pyæmia following acute periostitis of the femur. No post-mortem was allowed.

Joints.

Syphilitic Disease (see also "Syphilis").

A woman, aged 27, the subject of inherited syphilis, had suffered pain in the knee for 14 months. On admission the left knee was found swollen and partly flexed; there was an excess of fluid in the synovial cavity, and thickening of the synovial membrane; nodes on tibia and radius; ulcer on foot; iritis. Under treatment by pot. iod. and mercury the thickening and effusion subsided.

Charcot's Disease.

In a man, aged 42, well-marked symptoms of tabes. Knee-joint affected for 5 years; has had perforating ulcers of the foot.

A man, aged 50, died of blood-poisoning after amputation of the great toe for perforating ulcer. He had disease of the knee-joint and tabes dorsalis.

A man, aged 46, had well-marked disease in the right knee and commencing trouble in the left; he had also tabes dorsalis.

In a woman, aged 51, for 25 years the subject of tabes dorsalis, the knee-joint had become completely disorganised during the 12 months previous to her admission to the Hospital.

[For further accounts of these cases, see the discussion at the Meetings of the Clinical Society in November and December, 1884, and in January, 1885.]

Suppurative Arthritis of the Knee after Puerperal Fever.

Two cases, each in women aged 36. Both patients were in a very bad state on admission, and both died a few days after amputation had been performed. In neither was there any evidence of pyæmia or other form of blood-poisoning following the operation. In each patient the kidneys were found enlarged and fatty.

DISEASES OF SKIN.

Malignant Pustule.

In a man, aged 42, who had been employed in currying hides. He had noticed a swelling on the neck for about a fortnight; on admission he was found to have a typical malignant pustule below the right ear; after complete excision he made a rapid recovery.

INJURIES.

Head—Punctured Fracture of Skull.

In a child, aged 3. On June 11th fell on the pavement and bruised his right eye; on June 13th had convulsions. Admitted June 14th with paresis of left half of body and limbs, and muscular twitchings; semi-comatose. Cheyne-Stokes' respiration; pupils equal; no strabismus. After ice-bag to head, and calomel, gr. ij, the paresis and twitching passed off, and the child became sensible. June 17th, chemosis of conjunctiva; 19th, rigor; 20th, abscess pointing in upper eyelid opened. Temperature ranged from 102° to 105°. From this time forwards convulsions were frequent; much pus was discharged from the abscess above-mentioned. Temperature remained high until the child died on July 7th. A post-mortem examination revealed a small scar of a punctured wound at the upper reflexion of the conjunctiva. Corresponding to this a punctured fracture of the roof of the orbit, and an orbital abscess communicating with a large collection of pus in the frontal convolutions.

Neck—Fracture of Cervical Spine.

In a man, aged 63, who died the day after admission. The injury was caused by a fall from a height of 12 feet. There was a fracture-dislocation at the level of the 5th and 6th cervical vertebræ; the spinal cord was torn. The 2nd and 3rd ribs on the right side, and the 3rd and 4th on the left were fractured.

A similar accident proved fatal in a man, aged 52. Injuries of a similar character were found post-mortem, and, in addition, the sternum was fractured.

Hæmorrhage into Spinal Cord.

A strongly built man, aged 29, plunged into a swimming-bath containing 4 feet of water from a height of 4 feet. He struck his head against the bottom and was immediately paralysed; he had complete paraplegia, and died 2 days after admission. There was no displacement of the vertebræ nor laceration of the spinal meninges, but a copious hæmorrhage had taken place into the cord itself opposite the 5th cervical vertebra, the tip of whose spinous process had been torn off. There was a fissured fracture of the skull.

Injuries of Thorax.

A man, aged 24, was admitted shortly after receiving a punctured wound in the side with a dinner-knife. The wound was situated in the 6th interspace, just outside the nipple line; there was much hæmorrhage, but no evidence of wound either of the lung or the heart. Two days later his breathing became difficult, and his temperature raised; the following day he developed symptoms of pericarditis, and a day later had effusion in each pleura. Temperature continued high, and in spite of tapping of the pleuritic effusion the patient died 12 days after the receipt of the injury. A post-mortem showed that the knife-blade had glanced forwards, missing both the pleura and the pericardium, and entering the anterior mediastinum; diffuse suppuration had ensued in the mediastinal cellular tissue, and had extended to both the pleura and pericardium.

Injuries of the Abdomen—Punctured Wound.

A woman, aged 36, made an uninterruptedly good recovery after a stab with a chisel just outside and below the level of the umbilicus.

Gunshot Wounds.

A police constable, aged 34, was shot by a burglar. The weapon was a revolver. The bullet entered $1\frac{1}{2}$ inches above the pubic spine to the right of the tinea alba, and tracked downwards and outwards towards the great trochanter. The bullet was not discovered, but the man made a good recovery.

A police constable, aged 32, was shot by a burglar in the abdomen. The weapon in this case also was a revolver. The bullet entered just below the cartilages in a line drawn from the right nipple to the umbilicus, and passed out opposite the 3rd lumbar vertebra on the outer edge of the erector spinæ. There were no symptoms of injury to any important viscus, and the patient made a good recovery.

Injuries of Pelvis.

A woman, aged 36, died of pyæmia 2 months after a compound fracture of the pelvic bone, with laceration of the vagina. There was extensive necrosis of the fractured bone.

A woman, aged 32, fractured her coccyx 5 months before admission to the Hospital. Four months later she was confined. For a fortnight before admission had had rigors; she was in a very weak state; temperature was high, and during a rigor rose to 105° and 106° ; she had an abscess in the coccygeal region. She died 9 days after admission, having had numerous rigors. A post-mortem examination showed fracture of the coccyx with necrosis of the separated portion; the broken fragment lay in a sloughy cavity. Numerous abscesses in the lungs; purulent pericarditis.

Injuries of Upper Extremity.

In two cases of compound fracture of the bones of the forearm, spreading gangrene supervened. (*See "Gangrene."*)

A dislocation of the metacarpo-phalangeal joint of a fortnight's duration was found to be quite irreducible, in spite of free subcutaneous incision of the structures which appeared tense. The patient had been under treatment at another hospital immediately after the accident, and all attempts at reduction had failed.

TABLE II.
SURGICAL OPERATIONS PERFORMED.

OPERATIONS.	AGE AND SEX.																	
	Total.		Discharged		Died.		Under 5 Years.		— 10.		— 20.		— 30.		— 40.		— 50.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
OPERATIONS ON THE EYE.																		
Strabismus ...	20	24	...	...	...	...	2	3	9	10	5	7	1	4	3	2	...	...
Iridectomy ...	5	11	...	...	...	...	1	...	...	2	...	...	...	2	1	...	...	...
Cataract—																		
Extraction ...	29	19	29	19	...	...	...	...	...	...	2	...	...	...	...	...	...	...
Needle Operation ...	12	3	12	3	...	...	2	1	...	...	2	1	...	...	...	...	...	...
Suction ...	1	2	1	2	...	...	...	...	1	1	...	1	...	...	...	...	...	...
Abcession ...	...	2	...	2	...	...	...	1	...	...	...	1	...	...	...	...	...	...
Extirpation of Globe	10	10	10	10	...	...	...	1	...	...	...	1	...	...	...	...	...	...
Ectropion ...	1	3	1	3	...	...	...	1	...	...	...	...	1	...	...	...	...	...
Tattooing Cornea ...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Slitting the Canaliculus	...	4	...	4	...	...	...	1	...	...	...	...	...	2	...	...	...	...
Removal of Opaque Capsule	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Needle Operation on Opaque Capsule	3	...	3	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...
Sclerotomy ...	3	1	3	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...
Trichiasis ...	...	2	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...
PLASTIC OPERATIONS.																		
Harelip ...	12	7	12	7	...	...	11	6	...	1	1	...	...	...	...	...	...	...
Contracted Lip ...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cleft Palate...	9	14	9	14	...	...	2	4	4	6	2	4	1	...	...	...	...	...

TABLE II. (continued).

OPERATIONS		AGE AND SEX.													
		Total.		Discharged.		Died.		Under 5 Years.		— 10.		— 20.		— 30.	
		M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
PLASTIC OPERATIONS (cont.).															
Pharyngeal Fistula	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...
Salivary Fistula	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...
Rhinoplasty	...	1	1	1	1	...	...	...	...	...	...	...	...	...	...
Webbed Fingers	...	4	...	4	...	...	...	...	...	...	...	...	...	...	...
Contracted Gaitrices	...	3	5	3	5	...	...	...	...	...	...	...	...	...	...
Penile Fistula	...	2	...	2	...	...	...	...	...	...	...	...	...	...	...
Urethro-Vaginal Fistula	...	...	3	...	3	...	...	...	...	...	...	...	...	...	...
Ruptured Perineum	...	...	12	...	12	...	...	...	...	...	...	...	...	...	...
Extroverted Bladder	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...
EXCISION OF BONES AND JOINTS.															
Shoulder	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...
Elbow	...	2	...	2	...	...	...	...	...	...	...	...	...	...	...
Wrist...	...	2	...	2	...	...	...	...	...	...	...	...	...	...	...
Hip	...	6	2	4	1	2	1	...	...	4	2	2	...	...	...
Knee	...	1	2	1	2	...	...	...	...	1	2	...	...	...	...
Re-excision of Knee	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...
Os calcis	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...
Astragalus	...	2	...	2	...	...	...	...	...	...	...	...	...	...	...
Superior Maxilla	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...
Inferior Maxilla—	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(a) Lateral Half...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...
(b) Body ...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...
OPERATIONS ON BONES.															
Osteotomy—	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(a) Genu Valgum	...	10	1	10	1	...	...	2	...	4	...	4	1	...	...

TABLE II. (continued).

OPERATIONS.	AGE AND SEX.																							
	TOTAL.		Discharged		Died.		Under 5 Years.		— 10.		— 20.		— 30.		— 40.		— 50.		— 60.		— 70.		Over 70.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
OPERATIONS ON BONES (<i>cont.</i>)																								
Osteotomy (<i>continued</i>)—																								
(<i>b</i>) Neck of Femur for	1	2	1	2	..	..	..	..	..	1	1	..	..	1	..	..	..	..	..	..	..	..	..	..
Anchylolysis ..	2	..	2	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
(<i>c</i>) Tibia for Curvature	1	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
(<i>d</i>) Tarsus for Talipes	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Refraction of Femur	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Wiring—																								
(<i>a</i>) Old Fractured Patella	1	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
(<i>b</i>) Humerus ..	1	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
(<i>c</i>) Fractured Jaw	1	..	1	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..
Linear Osteotomy ..	2	2	2	2	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
Trephining—																								
(<i>a</i>) Femur ..	2	..	2	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..
(<i>b</i>) Tibia ..	1	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Perforation of Antrum	..	2	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Removal of Carious Bone	2	3	2	3	..	1	..	..	..	..	..	..	..	2	..	..	1	..	..	..	..	..	..	..
Removal of Sequestra—																								
(<i>a</i>) Jaw Bones ..	3	5	3	5	..	..	..	..	1	..	2	1	1	1	2	..	..	..	..	..	..	..	..	..
(<i>b</i>) Humerus ..	4	3	4	3	..	1	..	..	1	..	2	2	..	..	..	1	..	..	..	..	..	..	..	..
(<i>c</i>) Carpals ..	2	..	2	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
(<i>d</i>) Metacarpal Bones and Phalanges ..	5	5	5	5	..	3	2	..	..	..	..	3	2	..	..	..	..	..	..	..	..	..	..	..
(<i>e</i>) Pubic Bones ..	2	1	2	1	..	..	..	..	..	..	2	1	..	..	1	..	..	..	..	..	..	..	..	..
(<i>f</i>) Femur ..	5	3	5	3	..	..	..	..	..	..	2	1	..	..	..	..	..	..	..	..	..	..	..	..
(<i>g</i>) Tibia ..	4	1	4	1	..	..	..	..	..	..	3	1	..	..	..	..	..	..	..	..	..	..	..	..
(<i>h</i>) Bones of Foot	3	3	3	3	..	..	..	..	2	1	1	1	..	..	..	1	..	..	..	..	..	..	..	..
(<i>i</i>) Stumps ..	..	2	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..

TABLE II. (*continued*).

OPERATIONS.	AGE AND SEX.															
	Total.		Discharged		Died.		Under 5 Years.		— 10.		— 20.		— 30.		— 40.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
OPERATIONS ON BONES (<i>cont.</i>)																
Resection of Stump ...	1	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...
Osteoplastic Section of Superior Maxilla ...	1	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...
OPERATIONS ON JOINTS.																
Reductions of Old Dislocations—																
(a) Shoulder ...	3	1	3	1	...	...	...	...	...	...	...	...	1	...	...	...
(b) Elbow ...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	2	...
Removal of Loose Bodies in Joints—																
Knee ...	2	...	2	...	...	...	...	...	...	...	...	...	2	...	...	...
Joint Incised and Drained...	1	1	1	1	...	...	...	1	...	...	1	...	...	...	...	...
AMPUTATIONS.																
Primary—																
(a) Forearm ...	3	1	3	1	...	...	...	...	...	...	...	...	1	...	...	...
(b) Wrist Joint ...	1	1	1	1	...	...	...	...	...	...	...	...	...	...	...	...
(c) Fingers ...	10	1	10	1	...	...	1	...	...	...	5	1	4	...	...	...
(d) Thigh—																
(1) Upper Third ...	1	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...
(2) Middle Third ...	1	1	1	1	...	...	1	...	...	...	...	...	...	...	...	1
(c) Leg ...	1	1	1	1	...	...	...	...	...	...	...	...	...	...	...	...
(f) Pirogoff's ...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
(g) Chopart's ...	1	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...
(h) Toes ...	4	...	4	...	...	...	...	...	...	...	2	...	1	...	1	...

TABLE II. (continued).

[illegible]

16

[illegible]

TABLE II. (continued).

OPERATIONS.		AGE AND SEX.															
		Total.		Discharged.		Died.		Under 5 Years.		— 10.		— 20.		— 30.		— 40.	
		M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
RECTAL OPERATIONS (cont.).																	
Hemorrhoids—																	
(a) Ligatured ...	15	10	15	10	...	...	...	...	...	...	...	1	...	2	4	5	1
(b) Canterised ...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...
(c) Crushed ...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Proctotomy ...	...	...	1	5	...	...	...	1	...	...	...	...	...	4	...	...	...
Excision of Rectum	...	2	1	1	1	...	...	...	...	...	...	...	...	1	...	...	1
For Imperforate Anus	...	1	2	...	1	1	2	...	...	...	...	...	...	...	...	...	...
Ligature of prolapse of Rectum ...	2	...	2	...	...	...	...	...	...	...	...	...	...	...	1	...	...
MISCELLANEOUS OPERATIONS																	
Removal of—																	
(a) Enlarged Tonsils ...	4	3	4	3	...	...	...	...	...	1	...	3	1	...	2	...	...
(b) Salivary Calculus	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ranula Incised ...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Removal of—																	
(a) Bronchocele ...	...	3	...	3	...	...	...	...	...	...	...	...	...	...	2	...	1
(b) Lupus ...	3	15	3	15	...	...	...	...	...	...	...	2	7	...	4	1	...
(c) Malignant Pustule ...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(d) Ingrowing Toe Nails	29	8	29	8	...	...	...	...	...	...	...	17	4	11	3	1	...
Spina Bifida Tapped	...	1	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...
Circumcision for—																	
(a) Congenital Phimosis	63	...	63	...	...	...	...	30	...	15	...	14	...	2	...	1	...
(b) Acquired Phimosis ...	47	...	47	...	...	...	...	...	...	...	...	12	...	34	...	...	...
HERNITOMY.																	
Femoral—																	
(a) Opening of Sac ...	...	16	...	10	...	6	...	...	...	...	...	...	...	...	1	...	...

STATISTICS OF ANÆSTHETICS.

During the year 1884 Anæsthetics were administered 3,404 times.

Chloroform was administered	...	..	...	1,244	times.
Nitrous Oxide Gas (alone)	...	...	...	437	„
Ether (alone)...	...	...	...	1,016	„
Ether, preceded by Nitrous Oxide Gas	...	...	...	704	„
Methylene	...	...	...	3	„
				<u>3,404</u>	

No Death.

APPENDIX TO TABLE II.

PLASTIC OPERATIONS.

Rhinoplasty was performed on a girl, aged 11, whose nose had been destroyed by a ferret some years previously. The flap, which was taken from the arm, on account of the destruction of the skin of the forehead, did not unite.

In one case for extroverted bladder with a very satisfactory result.

EXCISIONS.

Of the shoulder, in the case of a man whose arm had been amputated at the juncture of the middle and upper third, and who had neuralgia of the stump.

Of the elbow in two cases for strumous disease.

Of the wrist in two cases for strumous disease.

Of eight cases of excision of the hip, five patients recovered. In two of these amputation was also performed, after failure to obtain a good result by excision. Of the three patients who died one also underwent amputation.

Excision of the knee was successfully performed on three occasions. In one case the limb was the seat of infantile paralysis.

Re-excision was performed with satisfactory result in a child, aged 11, whose limb had become distorted after a previous operation.

The astragalus was twice excised, once for caries and once for necrosis following upon dislocation of the bone forwards.

The superior maxillary bone was twice removed, once for epithelioma and once for sarcoma. Both patients recovered.

One lateral half of the inferior maxilla was excised for periosteal sarcoma.

The body of the lower jaw was excised in another case for a similar disease.

OSTEOTOMY.

In eleven cases of genu valgum, double osteotomy after McEwen's method was performed on four occasions, in each with good result. In two cases one leg alone was operated on by the same method. In one of these, suppuration of the wound and of the knee joint ensued, but the patient after a prolonged illness recovered with a stiff articulation. In one case McEwen's operation was performed with good results on a limb which had on a previous occasion been operated on after Ogston's method. In one case Ogston's operation was performed on one side only; in another case on both sides. In a patient, aged 16, Ogston's operation was performed for genu valgum on the right side, and osteotomy of the femur was attempted for genu varum of the left extremity. This operation, however, was not completed on account of the extreme laxity of the ligaments allowing the leg to be brought into good position without division of the bone.

WIRING OF BADLY UNITED FRACTURE OF THE PATELLA.

This was undertaken in one case. Much difficulty was experienced in bringing the fragments into good opposition, and suppuration of the joint ensued. The patient recovered with a stiff articulation.

OSTEOPLASTIC SECTION OF SUPERIOR MAXILLA.

This operation was undertaken on account of a tumour in connection with the nasal cavities, accompanied by frequent and copious hæmorrhage. The superior maxillary and malar bones were pushed forward, but not apparently infiltrated by the growth. No difficulty was experienced in wrenching the superior maxilla aside after the usual incision had been made. The removal of the tumour, however, was not feasible. There was no definite tumour, but the whole of the mucous membrane and periosteum covering the palate bones, lining the left nostril, the anterior fossa of the base of the skull, and the sphenoidal and ethmoidal sinuses was the seat of a nævoid growth (which on microscopic examination showed an almost erectile structure) from which the hæmorrhage was exceedingly profuse. A considerable mass of the tumour was removed, and the hæmorrhage arrested by pressure. The patient died half an hour after getting back to bed, never having rallied from the time of the first gush of blood.

AMPUTATIONS.

Primary.

Thigh.—In one case amputation in the upper third proved fatal from shock. The operation was undertaken for a compound fracture of the femur opening the knee joint with much laceration of the muscles. The other femur was also fractured. No post-mortem examination was permitted.

An old woman, aged 72, died of shock 29 hours after amputation of the thigh, performed for a compound fracture of the tibia and fibula.

Secondary.

Arm.—For spreading gangrene. (*See "Gangrene,"* page 74.)

For diffuse cellulitis following crushed fingers in an old man of 72. Amputation was performed 10 weeks after the injury, the humerus being found necrosed in parts. Eleven days later rigors with high temperature supervened, and the patient died exhausted 18 days after operation. No post-mortem allowed.

Thigh.—For gangrene. (*See "Gangrene,"* page 74.)

AMPUTATIONS FOR DISEASE.

Shoulder Joint.—In one case for periosteal sarcoma of humerus. In another for subclavian aneurism. (For details of latter case, *see* Surgical Report for 1883.)

Forearm.—In three cases for strumous disease of wrist. In one case for epithelioma of the back of the hand.

Hip Joint.—In three cases after the failure of excision. Two patients recovered, one died.

Thigh—Upper Third.—In one case for sarcoma of the femur with good result. In another for epithelioma occurring in the site of an old sinus leading down to dead bone. In this case a large portion of the flap sloughed, and the patient gradually became very weak. The evening before his death, which occurred very suddenly, he had a rigor. A post-mortem examination showed large fatty kidneys, but no evidence of blood poisoning.

Middle Third.—In a man, aged 27, on account of suppurative arthritis following an operation for the removal of a bursal cyst, which was within the capsule of the joint. In three cases for joint disease. In one for syphilitic ulcer of the leg.

In two cases for suppurative arthritis following puerperal fever. (*See "Joints"* page 80.) Both patients died.

In one case for periosteal sarcoma of femur. In the latter case the patient, a lad of 20, died with double pleurisy 12 days after operation. The viscera generally were found healthy, and there was no other evidence of blood poisoning.

Lower Third.—In thirteen cases for diseased knee joint. Twelve patients recovered, one died. In the latter case the patient was a woman, aged 53. Pyrexia set in the day after operation; the patient died 18 days later. A post-mortem showed numerous abscesses in the lungs and advanced kidney disease.

In a girl, aged 11, for fibro-sarcoma of the popliteal space.

In a girl, aged 17, for diseased ankle and infantile paralysis.

In a girl, aged 11, for diseased ankle with necrosis of tibia.

In one case for myeloid sarcoma of tibia. The patient, a man, aged 25, had previously undergone another operation for the local removal of the tumour, during which it was found necessary to open the knee joint.

In a man, aged 26, for periosteal sarcoma of the femur.

Knee Joint.—A man, aged 57, died after a sharp attack of secondary hæmorrhage ensuing on the 7th day after operation, and treated by ligature of the femoral in Hunter's canal. A post-mortem showed the popliteal artery to be widely open at the seat of section, and extensively atheromatous.

Leg.—In a lad, aged 20, for a large ulcer on the leg, with caries of the tibia, resulting from a burn.

In a woman, aged 56, for disease of ankle joint. At the time of operation the patient was in an unsatisfactory condition, the limb being much inflamed as the result of an operation undertaken a week previously for the removal of some dead bone from the astragalus and internal malleolus. The amputation was performed because the patient appeared to be rapidly going down hill on account of the constant pain and profuse suppuration. No material benefit resulted; the patient became weaker, and diarrhœa with inability to retain any food followed. The patient left the hospital against advice, and died 3 days later.

A woman, aged 29, was admitted with much swelling of the leg, and pain about the ankle joint. The case was found to be one of necrosis of the shaft of the fibula. The course of the case was by no means acute, but rather sub-acute. The patient was in a very weak and anæmic condition, and after prolonged attempts to save the limb, amputation in the upper third of the leg was performed. The patient died of exhaustion 2 days later.

Syme's.—In four cases for disease of the ankle joint.

In three cases for disease of the tarsus.

All the patients recovered.

Breast.—Of thirty-four cases, thirty-two recovered and two died. One woman, aged 50, of erysipelas contracted 5 days after removal; the other of pleurisy and congestion of the lungs, found after death to be due to secondary deposits in the lungs and pleura.

A woman of 54 died 3 months after removal of a recurrent growth, from exhaustion due to secondary growths in the viscera and from recurrence in the wound.

REMOVAL OF TUMOURS.

Tongue.—The whole tongue was twice removed by scissors; five times by the whipcord ecraseur; once by Kocher's submental operation; and once, together with the body of the lower jaw, by scissors and the ecraseur. Of these cases two died. One patient, whose tongue had been excised with scissors, died of septic pneumonia; and the patient on whom Kocher's operation had been performed died 5 days later with inflammation extending from the larynx to the smaller bronchi, the lungs being much congested.

The lateral half of the tongue was three times excised with scissors; twice with a whipcord ecraseur. In one case a small epitheliomatous growth was cut out with scissors. All these patients recovered. One patient, half of whose tongue was excised, was a woman, aged 32. The disease recurred shortly after she left the hospital.

REMOVAL OF CARCINOMA OF PROSTATE.

The operation of perineal section was done on a man, aged 51, and a portion of a carcinous growth was removed from the region of the prostate. The patient died of an extension of the growth some months later.

NERVE SUTURE.

In one case primary suture was done for a recently divided ulnar nerve.

In three cases the divided ends of the ulnar nerve were resected and secondary suture was performed. In one case a similar operation was performed on the median nerve. In one on both the median and ulnar, and in one on the peroneal. (Although some of the patients were improved by operation, in none had the nerve entirely united at the time of the patient leaving the Hospital.)

NERVE STRETCHING. (See also "Neuralgia," page 75.)

An engineer, aged 31, was shot in the leg in 1875. In October, 1880, he was operated on by Mr. Holden on account of epileptiform fits, which had supervened since the injury, 4 inches of the posterior saphenous nerve being excised, with the result that the patient had no return of the fits until March, 1884. He came to the Hospital on April 17th. There were several shots near the surface of the leg on its outer side, and there was pain and tenderness along the peroneal nerve. The shots were excised and the patient improved. After discharge the fits again recurred, and on July 9th the sciatic nerve was stretched. The patient had no more fits, and was discharged well on September 12th. The operation was followed by much suppuration in the course of the sciatic nerve.

EXCISION OF MECKEL'S GANGLION.

This operation was performed on a man, aged 59, for the relief of epileptiform neuralgia, which had resisted other operation procedures. While in the Hospital the patient had no return of the pain.

OPERATIONS ON TENDONS.

In two cases the tendo achillis, and in one the peronei tendons were resected with the object of diminishing their length. In the former cases for talipes calcaneus, in the latter for talipes valgus.

In four cases tendons which had been previously divided were resected and sutured.

URINARY ORGANS. (See also "Lithotomy and Lithotrity," page 79.)

In two cases the bladder was explored for tumours. In each case a sarcomatous growth was found.

Nephrotomy.—In a girl, aged 21, for suppurating kidney. It was doubtful whether the case was one of a renal calculus or of tubercular disease. After being in the Hospital many months the patient went out in a very emaciated condition.

Nephrectomy.—In a girl, aged 23, by median abdominal incision for a large kidney distended with thick inspissated pus of the consistence of mortar. The patient died the day following the operation. At the post-mortem examination the other kidney was found to be the seat of tubercular abscesses, and grey tubercles were scattered over the bladder.

SUPRA-PUBIC ASPIRATION OF BLADDER.

The operation was performed on a man, aged 33, for retention resulting from stricture of the urethra. Some urine was evacuated but the bladder was not emptied, and puncture per rectum was resorted to, with the result that 10 ozs. more were evacuated. Three days after operation there was pain and tenderness in hypogastric region, followed shortly by cedema and later on by suppuration. Soon after pus was discharged fecal matter made its escape. The patient died 1 month after admission, despite some relief afforded by

external urethrotomy. A post-mortem examination revealed a small ulcerated aperture in the cæcum, which had apparently been caused at the time of aspiration.

ABDOMINAL SECTION.

In one case, in a man, aged 23, for symptoms of abdominal obstruction due to enteritis. In one case for intussusception. (*See page 77.*) In one case for an abdominal tumour, which proved to be an irremovable uterine fibroid. In one case for an abdominal swelling, which proved to be a retroperitoneal abscess. In one for fœcal fistula due to the opening of a perimetric abscess into the intestines.

COLOTOMY.

In one case for intestinal obstruction of doubtful nature. In three cases for cancer of the rectum with obstruction.

EXCISION OF RECTUM. (*See page 79.*)

TRACHEOTOMY.

In 29 cases for croup and diphtheria. In one case for cancer of the larynx. In one case for syphilitic laryngitis. In two cases for scald of the pharynx and glottis. In a case of hydrophobia. In a case of lipoma of the neck in which dyspnœa followed upon suppuration produced by injection of Morton's fluid.

LIGATURE OF ARTERIES IN CONTINUITY. (*See also pages 75 and 76.*)

External Iliac.—For traumatic aneurysm.

Superficial Femoral.—In two cases for aneurysm. In one for a punctured wound. In one for secondary hæmorrhage.

Brachial.—For punctured wound in one case.

SUB-TABLE, SHOWING THE NUMBER OF CASES OF ERYSIPELAS, PYÆMIA, &c.

DISEASES.	Under 5.		5-10.		10-20.		20-30.		30-40.		40-50.		50-60.		Over 60.		Total.		Deaths.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
ERYSIPELAS AND CELLULITIS—																				
(1) Admissions	7	3	3	6	6	8	12	17	16	14	24	7	18	7	16	3	100	63	9	4
(2) Occurring in Hospital ... ..	...	1	...	...	...	1	1	2	3	1	1	...	...	1	1	...	7	6	2	...
(3) Occurring after operation	1	...	...	...	...	1	...	2	1	3	...	2	2	3	3	1	8	12	1	1
PYÆMIA AND SEPTICÆMIA—																				
(1) Admission ... ..	...	1	...	1	...	...	...	...	...	...	1	...	...	...	...	...	3	2	3	2
(2) Occurring in Hospital ... ..	...	1	...	...	...	...	...	...	1	1	...	1	...	...	...	...	2	3	2	3
(3) After operation ... ..	...	...	...	...	...	...	1	...	...	...	...	...	...	1	1	...	2	1	2	1
TETANUS—																				
Occurring in Hospital ... ..	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1	...
DELIRIUM TREMENS—																				
Occurring in Hospital ... ..	...	...	...	...	...	...	1	...	2	...	2	...	2	...	2	3	9	3	5	2

APPENDIX TO SUB-TABLE OF CASES OF ERYSIPELAS, &c.

ERYSIPELAS.

ALL CASES, BOTH MEDICAL AND SURGICAL, ARE INCLUDED IN THE TABLE.

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 some injury, and that such cases have been entered in the first Table under the heading of the primary disorder.

Occurring in Hospital.

Male.—In one case complicating advanced disease of knee joint with much exhaustion and suppuration; in one case of ischio-rectal abscess; both these patients died. In one case of carbuncle, one of wound of scalp, one epithelioma of cheek treated with caustics, two of simple abscesses.

Female.—In one case of scalp wound, three of simple abscesses, one diffuse inflammation of hand, and one of lupus of the face.

After Operations.

Male.—In two cases after sequestrotomy. In two after incision of an anal fistula. In one after removal of epitheliomatous glands. In one after removal of rodent ulcer. In one after removal of sebaceous cyst from the head.

Female.—In two cases after amputation of the thigh for ulcerated leg and diseased knee joint respectively. In three cases after amputation of the breast. In one after local removal of a mammary tumour. In two after removal of sebaceous cysts. In one after removal of strumous glands. In one after removal of enlarged bursa patellæ. In one after removal of a fatty tumour from the arm. In one after proctotomy.

PYÆMIA AND SEPTICÆMIA OCCURRING IN HOSPITAL.

Male.—In two cases of necrosis, one resulting from injury, one from periostitis and osteitis.

Female.—In two cases of fracture of portions of the pelvic bones, followed by necrosis. In one case of disease of the ankle joint.

PYÆMIA AND SEPTICÆMIA AFTER OPERATIONS.

Male.—In one case of amputation of the thigh for sarcoma. In one of amputation of the toe for perforating ulcer.

Female.—In one case of amputation of the thigh for diseased knee joint.

TETANUS OCCURRING IN HOSPITAL.

See Appendix to Table I., page 73.

TABLE OF AMPUTATIONS WITH THE PERCENTAGE OF DEATHS DURING THE TEN YEARS
from 1875 to 1884 inclusive.

OPERATIONS.	CASES UNDER TREATMENT.										PERCENTAGE OF DEATHS.										Total Number of		Average Per-centage of Deaths.	
																					Cases.	Deaths.		
	1875.	1876.	1877.	1878.	1879.	1880.	1881.	1882.	1883.	1884.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	1882.	1883.	1884.				
PRIMARY—																								
Thigh	1	1	2	4	1	3	1	3	1	2	100	50	100	66·66	100	100	50	...	19	12	63·15
Knee Joint	1	2	1	...	1	100	...	50	...	4	2	50	
Leg	3	2	2	1	...	3	4	4	2	...	100	...	50	33·33	...	50	50	...	21	10	47·62	
Ankle Joint	2	...	2	...	3	...	...	...	...	...	...	...	...	7	...	...
Shoulder Joint	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	100	2	1	50		
Arm	3	2	2	3	3	...	...	1	2	...	33·33	...	...	...	33·33	...	...	...	19	2	10·52	
Forearm	2	2	2	1	3	3	...	3	3	4	...	50	...	...	...	...	...	...	25	1	4	
SECONDARY—																								
Thigh	2	...	1	...	3	1	3	1	1	...	50	100	100	...	66·66	100	...	9	6	66·66		
Leg	2	...	1	2	2	1	3	1	3	1	...	100	50	100	15	3	20		
Arm	1	1	2	2	6		
Forearm	1	...	1	1	...	1	...	2		
Shoulder Joint	1	1	100	1	1	100		

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